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# ULTRASOUND

Guide To

# OBSTETRICS

And

# GYNAECOLOGY

In a Developing

# ECONOMY



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A Personal Experience in Private Practice

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**Dr. Kayode Obembe**



**ULTRASOUND**  
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**OBSTETRICS**  
**and**  
**GYNAECOLOGY**  
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**ECONOMY**

**A Personal Experience in Private Practice**

**Dr Kayode Obembe**

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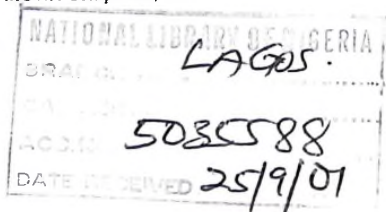
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## **DEDICATION**

This book is dedicated to my teachers:

W.T. Fullerton

and

V.E. Aimakhu



**Dr. W.T. Fullerton (left)**  
*Former Consultant Obstetrician and Gynaecologist,  
University College Hospital, Ibadan and Aberdeen  
Royal Infirmary, Scotland with Dr Kayode Obembe,  
the author*



**PROF. VINCENT E. AIMAKHU**

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  5. President, West African College of Surgeons (WACS).
  6. President, Society of Gynaecology & Obstetrics of Nigeria (SOGON).
- Now:* Chief Medical Director, St. Vincent Medical Centre, Ibadan, Nigeria.



## Foreword

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The author, Dr. Obembe, has produced a textbook in **Obstetrics and Gynaecology** that will be a very welcome addition to the library of any one interested in the study, teaching and practice of our specialty. Apart from a one-year overseas attachment in Aberdeen, Scotland, during his Residency Training Programme and a brief period in 1986 at the University of Maiduguri Teaching Hospital, Dr. Obembe has spent all his professional medical life at Ibadan. He therefore knows the local conditions very well, and this knowledge has turned out to be of tremendous advantage in the production of this book. He has commented on the practice of midwifery by faith healers, and also on how at first, medically trained midwives would have nothing to do with diagnostic ultrasonography but later came to accept it as essential to a successful practice.

The cost of imported medical textbooks has become astronomical, especially since the progressive devaluation of the Naira commenced in 1986; any devaluation of the currency is simultaneously accompanied by an inevitable escalation in the price of books. There is therefore a real need for medical texts to be written and published locally. A second reason for encouraging the local production of medical books is the fact that the conditions that prevail in our environment are not only peculiar, but in many respects are often quite different from those obtaining in the developed countries. Their documentation is therefore an obvious advantage to our students, medical and paramedical, as well as undergraduate and postgraduate.

Most of the locally produced medical texts currently available have been written by academic teachers in the University Medical School and Teaching Hospitals. Here, however, we have a textbook in Obstetrics and Gynaecology written by a specialist in private practice.

Dr. Obembe has here documented his wide and varied experience in general and specialist medical practice, especially in three areas, namely Ultrasonics, Laparoscopy and Ketamine Anaesthesia.

Dr. Obembe deserves high commendation for finding time in his very busy single handed practice to document his experience in our specialty, particularly in his three areas of interest. The textbook is therefore going to be a valuable addition to locally produced texts in Medicine, and is highly recommended not only to private medical practitioners who invariably practise some Obstetrics and Gynaecology but also to medical students, resident doctors in Obstetrics and Gynaecology as well as specialist Obstetricians and Gynaecologists. I am sure it will also be a good export from this country to both developing and developed countries.

Professor Oladele Akinla, FRCS, FICS, FWACS, FMCOG, FRCOG.  
Lagos, Nigeria.  
9th June, 2000

## Preface

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The last two decades of the last century were marked by impressive technological advancements in the field of diagnostic ultrasonography and its application to almost all specialities of medical discipline, especially Obstetrics and Gynaecology. During this period there has been an avalanche of literature on this topic which has consequently revolutionised the age-long art of Gynaecology and Midwifery.

In the heart of tropical Africa where the author established his practice, this same period witnessed a precipitous decline in the economy, thus making it more difficult to purchase even the simplest new gray-scale and real-time sonar equipment because of the dwindling nature of the purchasing value of local currency.

Another deterrent to the exploitation of this new technology is the pre-existing traditional/religious practices which militate against any innovation with cold rebuff and indignant conservatism. This book is set out systematically to illustrate how the utility value of ultrasound has been the foundation to the practice of Obstetrics and Gynaecology in a realm of unfavourable economy.

The first chapter attempts to explain how the minimal standards laid down by the American Institute of Ultrasound in Medicine (AIUM) are applied to the practice of ultrasound in this unit. This is followed by the review of the pattern of hospital admissions which illustrates the accessibility of the practice to the grassroot populace.

An in-depth description of the application of ultrasound to medical disorders and problems arising in the first trimester of pregnancy occupy the next two chapters. The art of differentiating threatened from inevitable abortion by putting finger into the cervix should be discontinued when the fetal well-being can be determined directly by observing the fetal pulsation on the video-screen.

The sonographic parameters for the determination of gestational age is presented in the very simplest forms. Emphasis has been placed more on biparietal diameter and femur length, these

two are very complimentary to one another. These parameters can be determined with reasonable degree of accuracy by the uninitiated, rather than measuring the transverse cerebellar diameter or binocular distance.

The value of ultrasound equipment as an indispensable tool of a practising physician cannot be over emphasised. This is well demonstrated in chapters dealing with obstetric haemorrhage, intrapartum monitoring and their complications.

The clinical points of importance are not neglected even though the sonographic foundations of diagnosis are highlighted. The experiences of a practicing obstetrician in private practice in the management of malaria, anaemia, sickle cell disease, pre-eclampsia and eclampsia are documented. Some of the management regimes are to provoke intellectual enquiry to the inquisitive mind, and subject some of the assertions to statistical verification on a prospective design. For example, intravenous largactil as sole agent in the management of post-partum eclampsia, routine ante-natal care without routine iron supplements, and myomectomy without McBurney's clamp are contentious issues that need experimental verification and commentary.

One unique feature of the whole text is the application of ketamine anaesthesia in obstetric and gynaecological emergencies, and selected elective surgical operations. This is very adaptable to our environment, where there may be no telephone to call anaesthetist, water supply may be from well, energy supply by generator, and light source by kerosene lantern. Even the assisting nursing staff may be an auxiliary, and in the background of this scenario — life must be saved — and at a cost that patients can afford! The economic determinants of medical practice are well illustrated, and it can be saving costs considerably to realise that Caesarean Section is completed with two pints of dextrose saline, 10mg of intravenous diazepam, and 2cc of ketamine hydrochloride! Case presentations abound to highlight these, and I believe in the economic circumstances of our community, these cheaper methods should not be discarded with derision.

The incidental encounter with HIV positive patient is reported. This is an area where practising obstetricians need special precaution. The concluding chapters address the issue of infertility as a societal problem. The complimentary roles of ultrasonography and laparoscopy are illustrated with case reports. How these seemingly sophisticated techniques are adaptable to a specialist

practice at the primary health care level constituted a stimulating discussion.

Throughout the text, no effort has been made to hide pitfalls in clinical management, for example the diagnosis of the quadruplets was missed, they were thought to be triplets. Pitfalls are expected to sharpen our sensitivities and make us more humble in our quest for and parade of knowledge.

The question could be asked — who are the target people in the population? The book is meant for any physician who intends to apply his/her knowledge in medical school to practice at any level of medicare including primary health care level in African setting. The book is therefore recommended for Medical Students, House Officers, Resident Doctors, Consultants, General Practitioners, Radiologists, Obstetricians and Sonographers in daily practice. Obstetric emergencies in the third world must be handled with ingenuity. The incidence of multiple births are more, but there is no national blood transfusion service to cope with attendant post partum haemorrhage. Destructive operation would have to be performed without Simpson's perforator or cleidotomy scissors, diagnostic laparoscopy will have to be done to confirm the diagnosis of ectopic gestation without Lloyd-Davies Stirrup.

The concluding chapter attempts to relate the economic potential or capacity of patients to the quality of health care received. This brings to focus the prospect of the National Health Insurance Scheme, and strategies required to ensure its success. Health is a common community effort to which everybody should contribute, it is only when the citizens attain a healthy status that they can work not only to alleviate poverty but eradicate it.

Dr Kayode Obembe

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7th June, 2000

## Acknowledgements

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First and foremost, I wish to acknowledge the outstanding contributions of my consultant supervisors in Aberdeen Royal Infirmary Scotland, Dr. W.T. Fullerton and Professor Arnold Klopper. They both arranged my clinical attachment abroad which brought me into contact with the practical aspects of ultrasonography, laparoscopy and management of infertility as carried out in the Grampian Region, Scotland. I also thank them for giving me the initial stimulus to write this book when they asked me a question twelve years after leaving Aberdeen, "Kayode, what have you been doing with yourself in Africa?" During that holiday in Shanaburn Cottage, Aberdeen, the outline of this book was prepared and scrutinised by them.

I proceed to Professor Vincent E. Aimakhu. He admitted me into the residency programme, inducted me into the discipline of operative gynaecology and obstetrics. He was always my source of reference in private practice. He read the whole manuscript and gave very useful and invaluable suggestions. He is a teacher of no pedagogic parallel, an epitome of altruistic benevolence, an embodiment and personification of Obstetrics and Gynaecology par excellence. Whatever little benefit I can be to my generation, I owe it to him as my mentor.

I also thank my family friends, Mr. Simeon Taiwo and his family in New York City. It was in their apartment at FarRockaway that the manuscript was written during my holidays. I thank my friend and business associate — Mr. Peter Brunelli, of Universal Medical systems, from whom many of my machines were purchased. I have also benefitted tremendously from the seminars organised by his company.

I am very grateful to Prof. J.A. Adeleye for his useful hints and suggestions on intrapartum monitoring and complications. I thank Professor E.O. Otolorin for reading through the chapter on laparoscopy. His suggestions were taken into consideration in the final write-up. I sincerely appreciate the contributions by Professor O. Ogunbode particularly on the arrangement of the whole text, and specifically on anaemia and medical disorders of pregnancy.

I express my sincere thanks to Professor Dosu Ojengbede, his criticisms on ante-partum obstetric complications were well noted. Dr. (Mrs.) A.O. Ogunseyinde read through the chapter on ultrasound in private practice. I thank her for the useful suggestions she gave, particularly regarding the physics of ultrasound.

I have to acknowledge the tremendous benefits I have acquired by being a member of American Institute of Ultrasound in Medicine (AIUM). The seminars I have attended and their videotapes have helped in updating my knowledge in this ever-exciting field of ultrasound.

I am sincerely grateful to all members of staff of Christus Specialists' Hospital for their dedication to duty, unalloyed co-operation in patient care and management.

I thank my resident Doctors, Dr. Jide Agboola, Dr. Abiola Aduroja, and Dr. Folorunsho Ibitoye who at various times helped in compiling the pictures for illustration. I thank my indefatigable secretary, Mrs. Iyabo Ladoja for her thoroughness and devotion in typing the manuscript. I also thank my constant and bossom friend, Mr. S.A. Adekunle for his moral support and encouragement at all times.

I am very grateful to Professor J. Bayo Adekanye of the Department of Political Science, University of Ibadan for putting at the disposal of the planning committee his wealth of experience in publishing. I am particularly indebted to Professor Abiodun Ilesanmi for his meticulous and painstaking correction of the typographical errors in the original manuscript, and the final proof-reading of the text before going to the print.

Finally, my darling wife, and matron in charge of Christus Specialists' Hospital (Nig) Ltd. Mrs. Ibitola Olufunmike Obembe deserves special commendation. She has been very devoted, committed and dutiful in her professional assignments and at the same time very supportive of the family. She read the manuscript and assisted the secretary in 'interpreting my ugly writing'. I particularly respect her clinical acumen and on certain critical moments in the course of patient management, her suggestions have always been apt and useful. She left the luxury of a Charge-Nurse at Lenox-Hill Hospital in New York City to join me at Olode Village in Egbeda Local Government of Oyo State. She is a wife in a million.

L.K.O.



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## Indications and Guidelines for the Performance of Obstetrical Sonography

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The appropriate clinical management of obstetrical problems depends wholly on accurate and prompt diagnosis by ultrasonography. There has been a lot of controversy in recent times as regards whether every pregnant woman should be scanned routinely, i.e. 'screening obstetric sonograph' or that sonograms should be done only for 'specific clinical indications'.

In North America, the conference of the National Institute of Health (1984) advocated sonography for 'specific clinical indications'. These are listed as follows:

- "Estimation of gestational age for patients with uncertain dates, or verification of dates for patients who are to undergo scheduled elective repeated Caesarean delivery, indicated induction of labour, or other elective termination of pregnancy.
- Evaluation of fetal growth (e.g. when the patient has an identified cause for uteroplacental insufficiency, such as severe preeclampsia, chronic hypertension, chronic renal disease, severe diabetes mellitus, or for other medical complications of pregnancy where fetal malnutrition, i.e. intrauterine growth retardation (IUGR) or macrosomia, is suspected).
- Vaginal bleeding of undetermined etiology during pregnancy.
- Determination of fetal presentation when the presenting part cannot be adequately determined in labour or the fetal presentation is variable in late pregnancy.

- Suspected multiple gestations based on detection of more than one fetal heartbeat patterns, or fundal height larger than expected for date, and/or prior use of fertility drugs.
- Adjunct to amniocentesis.
- Significant discrepancy of uterine size compared with clinical dates.
- Pelvic mass detected clinically.
- Suspected hydatidiform mole.
- Adjunct to cervical cerclage placement.
- Suspected ectopic pregnancy.
- Follow-up evaluation of placenta locations for identified placenta previa.
- Adjunct to special procedures, such as fetoscopy, intrauterine transfusion, shunt placement, in vitro fertilization, embryo transfer, or chorionic villi sampling.
- Suspected fetal death.
- Suspected uterine abnormality.
- Intrauterine (contraceptive) device (IUD) localization.
- Ovarian follicle development surveillance.
- Biophysical evaluation for fetal well-being after 28 weeks of gestation.
- Observation of intrapartum events (e.g. version or extraction of second twin, manual removal of placenta).
- Suspected polyhydramnios or oligohydramnios.
- Suspected abruptio placentae.
- Adjunct to external version from breech to vertex presentation.
- Estimation of fetal weight and/or presentation in premature rupture of membranes and/or premature labour.
- Abnormal serum  $\alpha$ -fetoprotein value for clinical gestational age.
- Follow-up observation of identified fetal anomaly.
- History of previous congenital anomaly.
- Serial evaluation of fetal growth in multiple gestation.
- Evaluation of fetal condition in late registrants for prenatal care."

Some physicians in the United States of America recommended routine scan. In the United Kingdom, one stage screen is advocated, a two stage screen is recommended in Germany and three stage approach in France.

*Published data on this issue rest mainly on the rate of detection*

of fetal abnormalities before 24 weeks gestation. Compared with the number detected at birth of 1000 patients screened, in the series reported by Anderson *et al* (1995) 11.8 anomalies were detected per 1000 screened. The perinatal mortality was 4.6 per 1000 in screened group compared with 9.0 per 1000 in unscreened group. This result is in favour of routine screening obstetric sonography.

Although the Routine Antenatal Diagnostic Imaging Ultrasound Study (RADIUS) concluded that the adoption of Routine Ultrasound in United States would increase the cost of health care considerably without significant improvement in perinatal outcome, this has been criticised by the bioeffects committee of the American Institute of Ultrasound in Medicine (AIUM).

The consensus conclusion from the discussions is that "there is good evidence to support the performance of routine screening obstetric sonography between 16 and 20 weeks gestation". Ultrasound screening results in improved dating of pregnancy, diagnosis of intrauterine growth retardations and early diagnosis of multifetal gestation.

In Ibadan community, where Christus Specialists' Hospital is situated and where the author practises, many of the maternities and faith homes had never had any contact with Ultrasound prior to 1986.

The few Ultrasound Centres were only dealing with patients referred for specific clinical indications. Since some of these Centres do not scan after 4.00 p.m., specific clinical problems like antepartum haemorrhage, premature rupture of membrane and pre-term labour cannot have any benefit of being scanned from 4.00 p.m. till the following day. These centres cannot be adequate for obstetrical emergencies.

Majority of the pregnant women have their antenatal care at the faith homes. There was no way pregnant women could have the benefit of Ultrasound service unless it is accepted by the 'traditional/religious' midwives. At first, some of them repelled the idea of Ultrasound as being obnoxious and degrading — one of the midwives in the faith home told me one day "I have been taking deliveries for the past twenty five years, I do not need your machine to tell me whether the baby is breech or cephalic."

There are many reasons why many pregnant women prefer to register at faith homes:

1. The faith homes are annexes of churches particularly the pentecostal churches. They believe that many of these obstetric problems are caused by demons and it is only by prayer and 'holy water' that the problems can be solved. The rationale for this belief cannot be subjected to scientific experimentation or verification.
2. The 'midwives' live in the church premises and 'attend' to parturient women 24 hours/day. They keep the women company throughout, they shower affection and prayer on the labouring women, and the women are psychologically strengthened to brave through the rigours of labour.
3. The charges in these faith homes are very minimal. In effect, there should have been no charges at all, but these homes cannot survive on charity donations. There are some minimum standards of hygiene that must be maintained and recently, the government has insisted that 'midwives' trained in schools of Nursing and Midwifery should be employed. This category must be paid their salaries.

However, after gentle persuasion and elementary education, these 'midwives' are now fully aware of the advantages and benefits of Ultrasound in their ante-natal clinics.

In all other government hospitals, there was usually no controversy in the value or benefits that can be derived from screening obstetric sonography. Occasionally however, there are problems in the interpretation of results. As a result of these, diagrammatic sketches are designed on rubber stamps and used to illustrate some common clinical entities like placenta praevia, transverse lie or multiple gestation. More about this pattern of reporting are discussed later in this chapter.

## **GUIDELINES**

Screening obstetric sonography is carried out in this unit according to the minimum requirements of the American Institute of Ultrasound in Medicine (AIUM) for the performance and documentation of obstetrical and gynaecological sonograms.

This is captioned 'Level 1 Obstetrical Sonogram' and it is made up of three parts:

- Part I: Equipments and Documentation Guidelines;
- Part II: Guidelines for first trimester Sonography.

Part III: Guidelines for second and third trimester Sonography.

## **PART I**

All studies are conducted with real — time equipment using abdominal approach. The probes used are usually of 3.5 MHz linear or sector. Vaginal probes are not used in this unit because of the difficulty that will be encountered in ensuring patient's acceptance and compliance. Even to expose the abdomen at times for routine scan could be a tug of war, particularly since the waist-line is the 'bank' of many market women, where they keep money for safety and easy access.

The real time machines are required to confirm cardiac activity, respiratory excursions and fetal movements.

## **DOCUMENTATION**

All obstetric and Fetal abnormalities that are detected are documented with "Hard copies", properly labelled and handed to the patient. However when there are no gross abnormalities, a form of obstetric format is used for documentation. This form includes the following parameters:

1. Gestational sac diameter;
2. Crown rump length;
3. Biparietal diameter;
4. Head circumference;
5. Abdominal circumference;
6. Femur length;
7. Gestational age;
8. Expected date of delivery;
9. Estimated fetal weight;
10. Number of gestations;
11. Quantity of amniotic fluid;
12. Maximum liquor depth;
13. Placenta — Localization/maturity;
14. Miscellaneous/sex;

A schematic diagram is supplied to illustrate the findings. Where necessary, advice is given at the end of the report pertaining to the follow up of obstetric management of the patient.

Ideally, it is recommended that every pregnant woman should have an ultrasound scan done at the time of booking. This will satisfy the requirements of AIUM part II: Guidelines for first trimester sonography. The second Routine scan should be done at the later part of 3rd trimester i.e. 34–36 weeks. This will satisfy the requirements of AIUM part III Guidelines for second and third trimester sonography.

If the fetal head is dolichocephalic or brachycephalic, the biparietal diameter measurement may be misleading. In such situation it may be required to compute the cephalic index i.e. a ratio of the biparietal diameter to frontooccipital diameter.

## **LEVEL II OBSTETRIC SONOGRAMS**

Level II or 'targeted' sonograms are performed when certain abnormalities referable to particular organs are suspected. The family history of some patients may also necessitate evaluation under 'targeted high risk pregnancies'. At the level of practice here, organs are more specifically examined by Sector probes 3.5 MHz. This gives a more precise detail of a small area in the targeted organ.

In conclusion, at least a two stage screening obstetric sonography is recommended during pregnancy. The first stage at booking, or between 16 to 20 weeks gestation. This will ensure accurate dating, diagnosis of multiple pregnancy and any detection of fetal abnormalities. The second stage scanning is necessary to rule out intrauterine growth retardation and for determination of fetal sex. All maternities and hospitals seeking to benefit by screening obstetric sonography are adequately informed about these recommendations.

**CHRISTUS SPECIALISTS' HOSPITAL**

N6/53 FAJUJI ROAD  
ADAMASINGBA, IBADAN  
TELEPHONE: 02-2410052

**REPORT FORM**

---

NAME .....	LAST CONFINEMENT .....
HOSPITAL .....	LMP .....
AGE .....	EDD .....
PARITY .....	CLINICAL GA .....

---

CLINICAL INFORMATION .....

.....

.....

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SONOGRAPHIC RESULTS:

GESTATIONAL SAC DIAMETER — (GSD) .....

CROWN-RUMP LENGTH .....

BIPARIETAL DIAMETER — (BPD) .....

FEMUR LENGTH — (FL) .....

USS GESTATIONAL AGE — (GA) .....

EXPECTED DATE OF DELIVERY — (EDD) .....

FETAL PRESENTATION — (FP) .....

EXPECTED FETAL WEIGHT — (EFW-GA) .....

NO. OF GESTATIONS — (NG) .....

FETAL HEART BEAT — (FHB) .....

AMNIOTIC FLUID — (AF) .....

MAXIMUM LIQUOR DEPTH — (MLD) .....

PLACENTA — LOCATION .....

— MATURITY .....

MISCELLANEOUS/SEX .....

---



Fig. 1 1: Prophet Akande was called 'Baba Abiye' which means a man whose deliveries result in live mother and baby. He was a pioneer of conception and midwifery by faith. He was physically blind, but spiritually alert and divinely gifted. Many midwives in faith homes trained under him. He was established in Ede, Osun State.

## DIAGRAMATIC REPRESENTATION OF ULTRASOUND FINDINGS



Right occipito transverse (ROT)



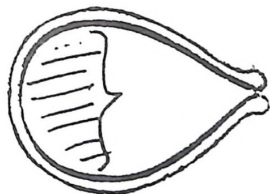
Left occipito transverse (LOT)



Right sacro anterior (breech) (RSA)



Left sacro anterior (LSA)



Fundal placenta



Placenta praevia



Fig. 1.2: Christus Hospital, in the 'heart' of Olode Village — at the outskirts of Ibadan metropolis. Operations are carried out with electricity generator, and lighting with kerosene lanterns.



Fig. 1.3: 'Baba Abiye' Olode, the author, taking a photograph with the mothers during the babies' anniversary.

## Pattern of Hospital Attendance and Prenatal Care

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Although Christus Specialists' Hospital (CSH) endeavours to make necessary obstetrical and gynaecological equipments available all the time, the Ultrasound service provided is the most useful and relevant to patients' need.

The advantages of sonography are quite obvious. i.e. it is non-invasive, it is nonteratogenic, and relatively affordable in terms of price. However, the fact has to be emphasized to patients on many occasions that Ultrasound is only diagnostic, not therapeutic. This is particularly so in patients who request for scan themselves, and when the report did not delineate any abnormality, the conclusion is automatically drawn that there is no problem to account for infertility! What of the endocrine profile? What of dynamic tubal function tests? The limitations of this diagnostic service should be highlighted and honestly communicated to the patient.

The following analysis attempts to show the pattern of patient attendance during a ten-year period and relate this to their economic potential, which is what determined their ability to pay for medical services. This period is from 1st January, 1987 to 31st December, 1997.

During the ten-year period under review, the total number of registered patients who were admitted for treatment was eleven thousand seven hundred and twenty-nine.

Patients attending the hospital are divided into three categories:

- (a) Referred patients
- (b) Consultations
- (c) Admissions

### **A. Referred Patients**

These exclude booked Ante-natal patients. Patients in this category are those who have been sent by another doctor, midwife, or health care provider to go and carry out a diagnostic investigation. The commonest and most popular of these investigations is ultrasound scan. The other major investigation is diagnostic Laparoscopy for infertility and to rule out ectopic gestation. Occasionally patients are referred due to indistinct fetal heart rate (?FH) and this is detectable by sonicaid.

This category is in large majority. Once the request of the referring health worker has been carried out, a comprehensive report is written, and occasionally, method of follow-up management is suggested. The report is sealed in an envelope and sent through the patient to the referral source.

For the avoidance of doubt, this group is *not* included in this analytical review.

### **B. Consultations**

These are patients who come on their own volition to seek medical advice. They were not referred by any health care provider. These patients, after consultations may have their medical problems solved by counselling alone, or referred elsewhere. Those that need further investigation or continued treatment are directed to go and register fully.

### **C. Admissions**

All patients under these category have case files and are admitted at a particular point in time during their treatment. This is the group that is subjected to analysis. The objective of this analysis is to:

1. analyse their economic potentials roughly by studying revenue from their occupational activities.
2. define the target population that have patronised this health institution.
3. describe the various attempts and genuine resourceful mechanisms to ensure that health demands are met within the limit of patients' financial resources and capabilities.
4. define the areas where specialised private practice that is community based and accessible to grassroot population

can positively compliment government health institutions, a symbiotic cordiality that is required for an integrated health care system in a basically capitalist economy.

5. determine the relevance and applicability of various laboratory investigations in patient care and at the same time keeping in forward perspective the trend in major scientific developments and breakthrough for example, while a community based practice may not be able to support Nuclear Magnetic Resonance (NMR) or computerised axial tomography (CAT), a simple linear sector ultrasound machine may prove a more reliable advantage compared to other diagnostic procedures.

TABLE 1  
PATTERN OF PATIENTS ATTENDING  
CHRISTUS SPECIALISTS' HOSPITAL 1987-97

	No	%
A. Referred Patients	401500	91.8%
B. Consultations	24090	5.5%
C. Admissions	11729	2.7%
Total	437319	100.0%

In this ten year period, patients in category A. i.e., those referred for diagnostic investigations constituted 91.8% of all patients attended to. These patients took their report back to their health provider i.e., doctor or nurse/midwife or to women in faith homes. These records were not kept in this hospital, and no attempt was made to register them for continued treatment.

However, some doctors having got the report, may decide to refer the patient back for follow up treatment.

All patients who were referred for treatment primarily, and who ultimately had to open a case file and get admitted are classified under category C.

Patients under category B are those who came only for consultations. They did not require opening case file and their treatment ended with temporary sheets of progress notes. 5.5% of patients attending the clinic belong to this category.

The above classification does not include ante-natal patients. All pregnant women booked, had different ante-natal cards (refer to pages 33-40).

TABLE 2  
OCCUPATION OF PATIENTS WHO ATTENDED  
CHRISTUS SPECIALISTS' HOSPITAL  
1987-1997

Occupation	No	Percentage
Farm Trading	4115	35.0
Evangelism	617	5.3
Teaching	514	4.4
Welding	102	0.9
Student	1646	14.0
Factory Worker	102	0.9
Banking	110	0.9
Business	330	2.8
Civil Servant	970	8.3
Photographer	130	1.2
Shoemaker	90	0.8
Vulcanizer	110	0.9
Legal Practice	60	0.5
Mechanic	110	0.9
Carpentry	126	1.2
Driving	155	1.3
Lecturer	89	0.6
Apprentice	142	1.2
Nursing	351	3.0
Tailoring	80	0.7
Typist	249	2.2
Printer	79	0.7
Salesman	50	0.4
Housewife	69	0.6
Electrician	74	0.6
Plumber	69	0.6
Medical Practice	112	0.9
Farmer	320	2.7
Others: Unspecified	758	6.5
Total	11,729	100.0

Analysis of the occupation of patients attending this hospital shows that the hospital is open to all categories of patients from all economic and social walks of life. An overwhelming percentage of the patients (35%) are petty traders. Petty trading in this community ranges from market women selling tomatoes to those who roast corn/maize at the road side, or fry plantain.

It is the objective of the hospital as much as possible to make the services accessible to the grassroot without compromising standard. These two conditions are not always easy to reconcile, a poor patient cannot buy expensive drugs.

Patients that need surgical operations are critically assessed and where possible, costs are reduced by avoiding general anaesthesia, blood transfusion, and superfluous laboratory investigations. The goal is geared towards the survival of the patients within the confines of his/her financial capacity. Some of these patients' income can be roughly estimated as thirty (30) dollars a month.

Where the condition permits and the patients' condition is physically healthy to cope, ketamine anaesthesia in repeated bolus infusions have been found tremendously efficacious. When it is inevitably indicated, general anaesthesia is the alternative.

TABLE 3  
RELIGION OF PATIENTS ATTENDING CHRISTUS SPECIALISTS'  
HOSPITAL FROM 1987-1997

Religion	No	Percentage
Christians	7,856	67.0
Muslims	3,404	29.0
Unspecified	469	4.0
Total	11,729	100.0

TABLE 4  
DENOMINATION OF CHRISTIANS ADMITTED TO  
CHRISTUS SPECIALISTS' HOSPITAL FROM 1987-1997

Denomination	No	Percentage
Christ Apostolic Church	4,800	61.08
Anglican	420	5.34
Methodist	371	4.72
Jehovah's Witness	115	1.45
Catholic	179	2.26
Cherubim & Seraphim	582	7.40
African Church	320	4.15
Other Pentecostals	1,069	13.60
Total	7,856	100.0

Table 3 illustrates that the health care services that are based on scientific principles are embraced by all religious groups; while Table 4 shows that almost all major denominations have members that avail themselves of the services provided at Christus. The preponderance of 61% of the patients coming from the Christ Apostolic Church can be traceable to (1) the mass followership that this denomination enjoys from the populace (2) the fact that almost each of these churches has a faith home attached where prayers are rendered for the safe delivery of pregnant women. This is a specialised organ of worship. The women managing these faith homes have gone for government sponsored orientation courses so that any complicated cases can be recognised and quickly referred to an obstetric centre for proper management. This also applies to other pentecostals, constituting 13.6% of attending patients.

The religious sensibilities of every patient is recognised and protected, for example, no effort is made to transfuse patients who belong to Jehovah Witness, and to allay their fears when patients are taken to theatre, relations are allowed to wear theatre gowns and watch the operations and certify that no blood is transfused.

TABLE 5  
 PATTERN OF ADMISSIONS IN CHRISTUS SPECIALISTS'  
 HOSPITAL OVER A TEN YEAR PERIOD

	No	Percentage
Emergency	7,428	63.3
Elective	4,301	36.7
Total	11,729	100.0

With the overwhelming proportion of admissions coming as emergency, it becomes a compelling necessity for a private community based hospital service to be prepared and equipped for emergency service at all times. The reason for this is basically economic. Many of the patients would first go to native healers, alternative medical practitioners, patent medicine dealers, faith homes, all with the intention that remedy from these sources are going to be cheaper, efficacious, and curative.

Meanwhile, this delay in seeking orthodox specialist care leads to deterioration, and it is as a last resort that such patients are brought in for admission as emergency. For example, Salmonella enterocolitis may have perforated, pre-eclamptic toxæmia (PET) may have progressed to full-blown eclampsia, prolonged labour may have resulted in maternal and foetal distress, chronic duodenal ulcer may have perforated. Illustrated examples and case reports abound in subsequent texts.

At this juncture, the fastest and shortest method to save life will be expedient while superfluous bureaucratic obstacles are avoided. In the circumstances of our environment delayed presentation is going to be with us for a while, so a community based private practitioner must be fully fortified to tackle life-threatening emergencies without further delay.

Another problem that one has to contend with, is the fact that during the trial and error excursions from one "health provider to another, some money would definitely have been spent, to the extent that by the time patient reports in emergency, he/she may be in a state of financial penury. How the life of patient is saved and appropriate fees collected, constitutes another herculean task

in itself demanding highly intricate economic and intellectual strategy coupled with artful diplomacy.

Almost all these dire emergency cases are routinely scanned before proceeding to any interventionist procedures. The ultrasound scan provides knowledge of immediate condition of the fetus in case of pregnant women, and treatment is instituted based on ultrasound findings.

The Ultrasound scan has to be made available on 24-hour basis and on the gateway to the labour room.

## **PRE-NATAL CARE**

### **Determination of Gestational age**

It is always a necessity to be able to determine accurately the following parameters in a pregnant woman:

- a. Diagnosis of pregnancy and fetal well being (FWB).
- b. Estimation of gestational age (EGA).
- c. Determination of expected date of Delivery (EDD).

A knowledge of the above parameters is vital in order to be able to counsel the pregnant woman about pregnancy changes and childbirth. It helps in taking decision if any intervention is required during the pregnancy i. e, avoiding iatrogenic premature delivery and predicting neonatal survival.

## **Methods**

### **1. *Last Menstrual Period (LMP)***

The last menstrual period is one of the most accurate methods of determining gestational age if it is known with certainty. This accuracy is not possible if the patient has amenorrhoea and she got pregnant without menstruation, if there has been irregular vaginal bleeding as a result of contraceptive pills or inability to keep proper records due to illiteracy.

A doctor working in this community must know the date of religious, social, and traditional festivals — because many patients are bound to relate their last period to these dates. It is common knowledge in our ante-natal clinic for a patient to describe her Last Menstrual Period as being “just before the Ramadan Fast.” “before Alhaji went to Mecca,” “before the Christmas” or “before the commencement of Egungun Festival”.

Another source of confusion for patients is that our people have their own way of estimating gestational age traditionally. In some localities, it is related to market days which may be in units of every nine days; some reckon with the number of appearances of the moon. For the local community, these pregnancy dating techniques are accurate for them, their EDD may be after ten lunar months. So if the gestational age given by a patient does not agree with your estimated date as a doctor, do not condemn the patient, go and check your reading again — the patient may be right!

## 2. **Estimation of Human Chorionic Gonadotropin (HCG)**

There are many different types of hormones that have been identified with either the cytotrophoblasts or syncytiotrophoblasts in early pregnancy. These include PAPP — A (Pregnancy Associated Pregnancy Protein — A), SP<sub>1</sub> Swangersharft protein, (etc.) but the one that has been most widely commercialised is the human chorionic gonadotrophin.

Various laboratory techniques have been developed but their principles are based on either of these immunological techniques:

- (a) Haemagglutination inhibition
- (b) Enzyme-Linked immunosorbent assay (ELISA)
- (c) Radio-immuno assay (RIA)

Depending on the sensitivity of the method, these tests become positive within two to three weeks of conception, or to be precise, five weeks after the last menstrual period.

In order to ensure a high concentration of hCG, early morning urine is tested.

In interpreting the results of the pregnancy tests, experience in private practice has shown that a doctor must guard against the following pitfalls:

- a. The pregnancy test may be *positive* in a non-pregnant patient. This may be due to faulty technique. This is called false positive. This is why other methods of diagnosis should be done as a confirmatory alternative.
- b. The pregnancy test may be *negative* if the test is done too early or later in pregnancy, i.e. after five months, after a prolonged missed abortion, or intrauterine fetal death. A negative pregnancy test does not invariably signify non-viability.

These results are more meaningfully interpreted based on the fact that the hCG level in a pregnant woman rises to a peak at around 70th day of conception and falls down to very low levels by the 5th to 6th months of pregnancy.

The conclusion from this discussion is that to avoid wastage and inconclusive results a direct confirmation with ultrasound scan is advisable.

### **3. Initial Fetal Heart Auscultation**

The fetal heart sounds can be heard by 12 weeks with the use of amplified Doppler auscultation. The fetal heart beats may be heard by 18–20 weeks of pregnancy, using the conventional fetal stethoscope.

### **4. Perception of Fetal Movement**

A multigravid patient may feel the first fetal movements by 17–18 weeks, while a primigravida may not feel it until about 20 weeks.

This method is inaccurate and unreliable because patients with intrauterine fetal death feel fetal movements; even non-pregnant women complain of troublesome fetal kicks; in fact, not all labour pains are due to pregnancy!

### **5. Fundal Height Examination**

There is good correlation between the gestational age and the symphysio-fundal height between 18–30 weeks. This is why a measuring tape is an essential apparatus in ante-natal care. However, the readings are influenced by:

1. lie of the baby, multiple pregnancy, unusually big baby,
2. fullness of the bladder,
3. patient's obesity, and
4. coexisting abdominal mass, for example uterine fibroids and ovarian masses.
5. differences between examiners.

### **6. Ultrasonography**

By 5 weeks menstrual dating, the gestational sac can be identified with ultrasound. At 6 weeks, fetal echo can be identified; at 7 weeks, fetal heart pulsations can be visualised. Between 7 and 12 weeks, the crown-rump length in centimeters plus 6.5 approxi-

mates the gestational age, in weeks.

After 12 weeks, various parts of the fetus can be measured to determine gestational age — these include biparietal diameter, head circumference, abdominal circumference, femur length. The accuracy of gestational dating is improved if at least two of the above measurement have good correlation.

Less frequently used parameters include outer orbital diameters, transcerebellar diameter, length of humerus, foot length etc. The transcerebellar diameter in millimeters corresponds to the gestational age in weeks between 14 and 24 menstrual weeks.

There is wide variation of normal values (3 weeks) as the pregnancy approaches term; serial measurements can allow assessment of fetal growth.

## **SYMPTOMS OF PREGNANCY**

### **1. Hyper-Emesis Gravidarum**

Simple nausea could accompany any pregnancy, and few patients tolerate it without medication.

A more severe type may result in vomiting, and the vomiting may progress to dehydration, fluid and electrolyte imbalance and hypoglycaemia.

In managing a patient with hyperemesis, it is important to note that there could be underlying pathological conditions that aggravate nausea i.e. malaria, urinary tract infections, anaemia, helminthiasis (etc).

Appropriate Laboratory investigations must be carried out to rule out these, and for the hyperemesis to respond to antiemetic, the aggravating conditions must be treated. A usual prescription is as follows:

RX

Chloroquine inj.	300mg im stat
tablets	300mg dly 2/7
Phenergan inj.	25mg im stat
tablets	25mg 8 hrly 3/7
	depending on the severity

Some patients may still fail to respond to the above regime, in which case, one may have to resort to stronger anti-emetics agents:

RX

Ancoloxine	25mg 12 hrly x 3/7
Largactil	50mg 12 hrly orally x 3/7

If conservative therapy is inadequate to control the vomiting, parenteral fluid and nutrient therapy may be necessary and patient must be admitted in hospital.

### **Breast enlargement**

Breast tenderness and fullness are some common symptoms that patients complain of early in pregnancy. In later pregnancy, the breast may become really big, and some have been known to result in benign breast hypertrophy.

The patient is expected to wear supporting brassier which is well-fitting.

Later on in pregnancy, there may be fluid discharge. This is physiological preparation for lactation.

### **Profound Fatigue**

Some patients complain of profound fatigue, general feeling of being unwell, or "tiredness from within". This may be compounded by transient dizziness and blurring of vision. The treatment is just medical counselling, and prevention of common accidents.

Proper nutrition and adequate rest should be ensured. This should not normally prevent the patient from carrying out her normal daily activities like walking, going to market and normal household chores.

Transient visual blurring or syncopal attacks are as a result of labile cardiovascular system. In pregnancy, the hormones cause the blood pressure to change rapidly and for transient periods. A patient having this symptom is advised to stop driving during pregnancy, and to sit down or lie flat while recovering from these transient attacks.

Blood pressure recorded during this period may show a low blood pressure with diastolic in the range of 60mm to 70mm of Hg.

Other associated discomfort include low backache, and low abdominal pain. These should not be handled with levity because the former may be due to herniated vertebral disc, and the latter due to urinary tract infection. Both can predispose to premature

labour. Analgesics and antibiotics will have to be prescribed to treat the condition after appropriate investigations.

### **Oedema and Varicose Veins**

Oedema of the legs is a common complaint during pregnancy. In community practice, many patients believe that it indicates multiple pregnancy. It is significant to note whether rings worn on the fingers before pregnancy become tight. Oedema without hypertension, and without proteinuria should not cause any alarm in pregnancy. Infact diuretics are generally contraindicated because it decreases the blood volume and blood flow to the placenta and fetus, and may ultimately result in intrauterine death. Varicose veins could become troublesome. The patient could wear supportive stockings while walking or standing erect, or could raise the legs by putting them on a pillow when lying down.

### **Urinary Symptoms**

Urinary frequency, urgency and stress incontinence are all more frequent in pregnancy than in normal population. These symptoms should be patiently and meticulously analysed so that appropriate treatment is given.

Urinary frequency may be due to increased glomerular filtration rate in the kidneys during the night because of patients supine posture. If there is no associated glycosuria, no drug therapy is indicated.

Stress incontinence may occur due to temporary disturbance of the urethro-vesical angle, a situation that may occur while the uterus is growing out of the pelvis relative to the bladder. This also does not require drug therapy or surgical intervention.

However, if any of the above symptoms is associated with urgency and dysuria, mid-stream urine should be sent to laboratory for microscopy, culture and sensitivity to rule out urinary tract infection. Treatment should be according to the sensitivity pattern of isolated organisms.

Currently, if symptoms are distressing, initial drug therapy can be instituted.

RX

Ampiclox 500mg qds x 5/7

OR

Amoxyl 500 mg qds x 4/7

This can be changed as soon as laboratory results are available.

### **Bleeding Tendency**

During pregnancy, the blood volume is increased, and may lead to rupture and bleeding in the superficial and fragile vessels in the nasal mucosa.

Ascorbic acid has been found to be effective (although the pharmacological basis is still within the realm of conjecture). Decongestants and anti-histamines are also effective. If nasal bleeding becomes very troublesome, adrenaline pack may be applied.

Bleeding of this nature can also occur around the gum of the teeth and around the anus thus resulting in haemorrhoids. The latter does not require surgery because it is likely going to subside after delivery.

### **Symptoms Related to Smooth Muscle Laxity**

One of the effects of hormones of pregnancy is the relative laxity of smooth muscles. This is physiologically advantageous as regards uterine muscles since it enables the fetus to grow without being expelled by contracting muscles.

The clinical sequelae of this on intestinal muscle are:

- a. *Heartburn* — as a result of the laxity of oesophageal sphincter, acid contents of the stomach can reflux upwards and irritate the oesophagus. The acid secretion of the stomach is inherently increased during pregnancy and the emptying time of the stomach is inherently prolonged. The treatment of choice is mainly antacids.
- b. *Constipation* — Laxity of smooth muscles is one of the contributing factors to constipation in pregnancy. Other causes of constipation include indiscriminate ingestion of tablets, and compression of the bowel by the enlarging uterus.

Many patients believe in purgatives, and that magnesium hydroxide (Epsom salts) is the treatment of this condition. This habit should be discouraged. What we do at Christus is just to encourage the patients to eat the pulp of grapes, oranges, and

take vegetable soup. They should also watch their diet and avoid the food items that result in constipation. In most cases no drug therapy is required. For troublesome cases, edible liquid paraffin may be prescribed.

Rx

Liq paraffin 10-20mls tds x 2/7

### **Vaginal Discharge**

Increased vaginal discharge is a common symptom in pregnancy. Usually, drug therapy may not be required. If this is associated with vaginal itching, a change in its colour, or becomes malodorous, with staining or crusting of undergarments, then proper speculum examination should be carried out, and specimen sent to the laboratory to identify the offending organisms.

Moniliasis and trichomoniasis are common in this condition. In private practice, many of these patients actually cause their moniliasis to grow luxuriantly by taking antibiotics without doctor's prescription. Many would have taken Ampiclox capsules for about a week and it is when the symptoms get worse that they seek doctors' attention. This habit should be discouraged. Occasionally when there is associated premature rupture of membranes, doctors may decide to prescribe antibiotics.

### **Medical Counselling**

#### ***Nutrition in Pregnancy***

In private practice many pregnant women have been wrongly advised to minimise their food intake during pregnancy so that their baby would be small, and so they would not have difficult labour. There is no scientific basis for this assertion. In fact patients should be advised to have balanced diet during pregnancy. Some patients have also been dissuaded from taking milk, 'Bournvita' (a chocolate drink) and tea during pregnancy for the same reason. Nothing could be more fallacious.

Even if a patient is advised to take balanced diet certain food items are repugnant to the pregnant woman during pregnancy. Such food items must be avoided and replaced with substitutes which the patient can tolerate. It is not advisable for a pregnant

woman to starve herself in order to lose weight or reduce the birth weight of her baby.

If a patient is on balanced diet, and has no malaria attacks nutritional supplements are reduced to the barest minimum.

Iron supplements are needed in proven anaemia due to iron deficiency. In practice, one actually encounters situations that could result in excessive iron loading. Most pregnant women believe that they must take "blood tonic" i.e. iron condiments like orheptal, obron 6, sanatogen with iron. There are myriads of them in the market. It is difficult to discourage them from taking these 'tonics'. If you cannot relieve the pregnant woman from overloading herself with iron, it may be better not to add more to the load. At Christus, for the past ten years, iron tablets are not served routinely in ante-natal clinic unless there is proven evidence of iron-deficiency anaemia.

Folic acid is not stored in the body and can be destroyed by cooking. Our women cook intensely and so folic acid is served routinely in pregnancy.

Other vitamins of the B Group are also denatured by cooking, and the nutritional content may be low inherently. Vitamin supplement is given routinely to all ante-natal patients. Prophylactic anti-malaria therapy is compulsory, i.e. pyrimethamine 25mg weekly.

### **Sex in Pregnancy**

Many pregnant women have been biased about sex during pregnancy. Apart from the general fear that sexual intercourse can result in abortion or premature labour, many believe that sexual activity would result in baby being born with a lot of dirty materials on the body. This, according to them, would result in body odour later in life for the child.

The true position is that if there are no complicating factors, sex should not be discontinued during pregnancy. The love bond can even be strengthened as a result of sexual intimacy, and even though there could be changes in the patient's silhouette and morphology, the woman does not feel unwanted after all, and the morale to cope with the attendant inconveniences of pregnancy is boosted.

The cervix is normally blocked by the mucus plug during pregnancy, so the concept of sperm ascending to smear the baby's body is a product of abysmal ignorance.

However, as pregnancy progresses, sexual activity becomes more technically difficult, tiring and uncomfortable. The husband is advised to show some restraint and understanding in these circumstances.

There is no evidence that sexual activity can initiate premature labour per se, although mild uterine contraction can occur with orgasm but this is transient and harmless. Braxton-Hicks contraction does occur without sex anyway.

There are some conditions when sexual abstinence could be encouraged:

1. if patient complains of abnormal vaginal discharge — in which case the patient and husband should be investigated individually and treated.
2. if there is any episode of recent vaginal bleeding.
3. history of "incompetent cervix" resulting in habitual abortion.
4. premature or preterm labour.
5. premature rupture of membranes.
6. repeated pregnancy wastage.

## **Physical Activity During Pregnancy**

### ***Mother***

Strenuous physical activity must be discouraged during pregnancy. What to advise a patient would depend on her occupation and daily routine. A petty trader who walks six kilometers to buy food items in the farm, and carries it to town may be advised to 'slow down' a bit during pregnancy. On the other hand, a secretary, typist or telephone operator may be able to cope conveniently.

Often, patient would want to know whether or not she could travel during pregnancy. As a general principle, long distance travels should be discouraged during the last trimester of pregnancy. If the travelling becomes inevitable, it is necessary to examine the cervix and make sure it is not dilated. During the journey, if it is by automobile, patient is advised to stop the vehicle from time to time and empty her bladder.

At Christus, one of the situations that make it compulsory for women to travel during the last trimester is the belief by some tribes that the baby, particularly the first child, must be delivered in their hometown in the presence of and supervised by the

husband's mother. This practice has resulted in untold hardship and disasters, when these women come back to narrate their experiences. Some women were stripped naked and asked to be jumping up for about three days while in labour or to lie down on their back, and a hefty man would climb up and sit on the protuberant abdomen in an attempt to force the baby out. Since usually these occur in primigravid women, they manage to escape from ruptured uterus, but intrauterine fetal death and vesicovaginal fistula are the pathetic outcome of such harrowing experiences.

All efforts are made to discourage the husbands from transporting their wives to the "village" for delivery, and when they refuse, experience is the best teacher.

Another class of patients are those who want to have their antenatal care with Christus, but intend to deliver overseas, usually in Britain or in the United States of America. They are advised to set off for their journey at 34 weeks. It is safe to fly during pregnancy, and there has been no reported risk of abortion or fetal abnormality associated with flying.

### ***Foetus***

During pregnancy, the fetus is carrying out some fetal activities. Some of these movements can be documented on fetal movement charts.

The mother is inherently conscious and monitoring the activity of the baby inside her. If a pregnant woman complains of reduced fetal activity, the symptom should not be dismissed with a wave of hand. Dynamic test of fetal activity should be carried out and all pathological conditions that could result in foetal compromise should be ruled out.

### ***Ante-natal Classes***

Ante-natal classes are supposed to prepare the pregnant woman for child-birth and infant care.

The list of materials to purchase before delivery is handed over to the patient. Many of the patients are usually very keen on determining the sex of their baby. This is usually determined by ultrasound at patients request.

Most of the problems that are encountered during pregnancy are available in video-tapes. These video-tapes are shown at every

ante-natal clinic so that a patient has many opportunities to watch the procedure of labour during her pregnancy.

In this practice, our experience has shown that if a patient is counselled to have elective Caesarean section, she will disappear from the clinic. Patient in this category include those with two previous Caesarean sections or more. Many of them go to traditional or faith healers who promise them safe vaginal delivery. They do not come back to give account of their experience!

With gentle persuasion, counselling and diplomacy, efforts should still be made to prepare the minds of a patient for elective Caesarian section if indicated on clinical grounds.

Patients should be told the symptoms and signs of labour onset, so as to come into the hospital in time.

It is also observed that many patients would remain at home until labour is well advanced, so that they may not stay for a long time in hospital. This practice should be discouraged because in the event of labouring at home, they may rapidly progress into second stage and deliver at home. Also placenta may be retained and primary post partum haemorrhage ensues. The patient is now rushed into hospital, almost exsanguinated. This practice is commonest among overconfident grand multiparous patients who incidentally have the greatest risk of post-partum haemorrhage. Patients are taught the signs of labour and advised to report in hospital early.

### **Routine Antenatal Laboratory tests**

All patients at booking are expected to do some blood tests i.e. PCV, genotype, and Rhesus factors. The urine is checked at every ante-natal clinic for glucose and protein, scan is done routinely at booking and at 34-36 weeks to rule out intrauterine growth retardation.

Other laboratory tests like VDRL test, are requested for if history of the patient points to that pathology. The significance of adequate prenatal care is to ensure that pregnancy results in healthy mother and baby. All the attention given during Antenatal care are expected to prevent complication i.e. prophylactic obstetrics.

To calculate the EDD, Naegele's rule is followed: seven (7) is added to the first day of the last normal menstrual period, and counting backward 3 months. This implies that gestational age or

menstrual age is two weeks longer than the fertilization age. This is compared with scan results.

All ante-natal patients are not as a routine referred for HIV tests. This is definitely going to be extra financial burden, but if history or physical examination is suggestive, patient is referred for confirmatory test. It is safer and more rational for clinicians to regard all patients as a possible AIDS carrier and so take all precautionary measures anytime one is in direct contact with patients.

During follow-up visits, it is usually necessary to have an idea of fetal growth. The height of uterine fundus above the symphysis provide useful information. Between 18th and 30th weeks of gestation, the fundal height in centimeters equals the gestational age in weeks. The woman is usually asked to void urine from the bladder before this measurement.

## CHRISTUS MATERNITY

SURNAME:  
 UNIT NUMBER:  
 FIRST NAME:  
 ADDRESS:  
 OCCUPATION:  
 RELIGION:

HUSBAND  
 NAME:  
 OCCUPATION:

DATE:  
 DATE OF BIRTH:  
 DATE OF MARRIAGE:  
 MENARCHE:  
 MENSTRUAL CYCLE:  
 PARITY:  
 LAST CONFINEMENT:  
 CONTRACEPTIVES:  
 LMP:

GESTATIONAL AGE:  
 EDD:

### PAST OBSTETRIC HISTORY

Date	Pregnancy	Labour	Puerperium	Weight	Sex	A/D

### PREVIOUS MEDICAL HISTORY

SCARLET FEVER  
 RUBELLA  
 DIABETES  
 TUBERCULOSIS  
 RENAL DISEASE  
 BLOOD TRANSFUSION  
 ALLERGY

### HISTORY OF PRESENT PREGNANCY

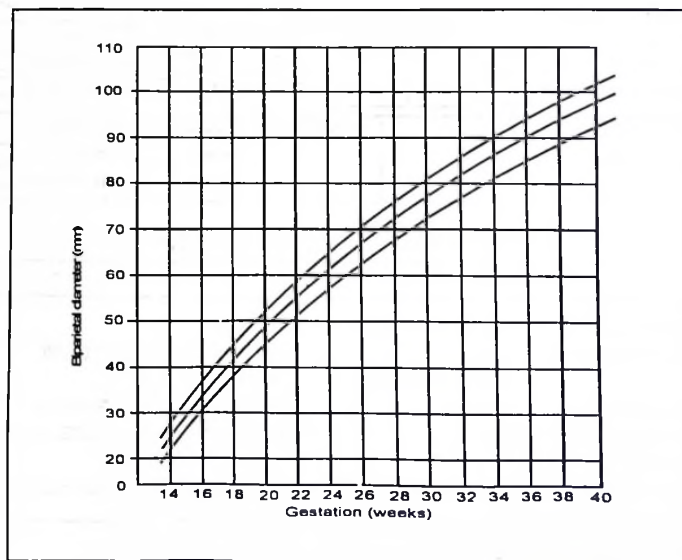
MORNING SICKNESS  
 HYPEREMESIS  
 DYSURIA  
 FREQUENCY OF MICTURITION  
 BREAST DISCOMFORT  
 PTYALISM



ULTRASOUND

BIPARIETAL DIAMETER (BPD)							
HEAD CIRCUMFERENCE (HC)							
ABDOMINAL CIRCUMFERENCE (AC)							
FEMUR LENGTH (FL)							
USS GESTATIONAL AGE (GA)							
FETAL PRESENTATION (FP)							
ESTIMATED FETAL WEIGHT (EFW)							
NO. OF GESTATIONS							
FETAL HEART BEAT							
AMNIOTIC FLUID							
PLACENTA LOCATION							
MISCELLANEOUS/SEX							

ULTRASOUND AND PREGNANCY



(from Campbell S and Newsman GB (1971))

LABOUR WARD ADMISSION RECORD

PLANNED ADMISSION/IN LABOUR

	Date	Time	Urine	MSSU	CSU	Plain	Abdominal Examination
Admitted			Prot				
			Sugar				
Contractions began			Acet.				
Membranes	spont.		Temp.	Pulse	B.P.		Oedema
Ruptured	artif.						

ASSESSMENT AT A.R.M. OR FIRST V.E.		Date	Time	Gest		
Presenting.....	Pelvis.....	Cervical Score				
Position in pelvis.....	Brim.....		0	1	2	3
Station in pelvis.....	Cavity.....	Dilatation (cm)		1-2	2-4	4+
Other Observation.....	Outlet.....	Length (cm)		2-4	1-2	1
		Consistency	Film	Average	Soft	
		Position	Post	Mid	Anterior	
		Level	0-3	0-2	0-1.0	0+

TOTAL

INDUCTION OF LABOUR — DATE	Time	Gest
----------------------------	------	------

Operator: \_\_\_\_\_ Ordered by: \_\_\_\_\_

Indications:

PROCEDURE	Fetal Heart Rate		LIQUOR AMOUNT	<input type="text"/> mls.
Forewater Rupture <input type="checkbox"/>	Before	After	Clear	<input type="checkbox"/> Meconium Fresh <input type="checkbox"/>
Hindwater Rupture <input type="checkbox"/>			Bloodstained <input type="checkbox"/>	Meconium Old <input type="checkbox"/>

OXYTOCIC DRUGS	MONITORING	Contractions	Fetal Heart
Route of Admin.....		External <input type="checkbox"/>	External <input type="checkbox"/>
Time commenced.....		Internal <input type="checkbox"/>	Scalp Electrode <input type="checkbox"/>

**ANTENATAL CARDIOTOCOGRAPH**

	0	1	2
BASELINE FHR (BEATS/MINUTE)	LESS THAN 100 OR MORE THAN 180	100-120 OR 160-180	120-160
MOVEMENTS	NONE	PRESENT	PRESENT
FHR CHANGE		NO CHANGE	ACCELERATION
CONTRACTIONS			
FHR CHANGE	DECELERATION	NO CHANGE	ACCELERATION

## CHRISTUS PARTOGRAM

	DATE	ZERO HOUR	CONSULTANT																		
FOETAL HEART RATE	240																				
	230																				
	220																				
	210																				
	200																				
	190																				
	180																				
	170																				
	160																				
	150																				
	140																				
	130																				
	120																				
	110																				
	100																				
	90																				
	80																				
	LIQUOR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	CERVICAL DILATATION IN CMS RESENTING PART DESCENT	10																			
9																					
8																					
7																					
6																					
5																					
4																					
3																					
2																					
10		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
POSITION																					
CAPUT																					
MOULDING																					
UTERINE CONTRAC- TIONS		EVERY / MIN																			
		LASTING / SEC																			
		WMS																			
OXYTO- CIN		UNITS																			
		DROPS / MIN																			
FLUIDS & DRUGS																					
URINE	ACCET																				
	PROT																				
	VOL																				
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
MATERNAL B P MATERNAL PULSE	240																				
	230																				
	220																				
	210																				
	200																				
	190																				
	180																				
	170																				
	160																				
	150																				
	140																				
	130																				
	120																				
	110																				
	100																				
	90																				
	80																				
	70																				
	60																				
50																					
40																					
30																					

**SUMMARY OF LABOUR  
INDUCTION OF LABOUR**

Delivery Date—

- Surgical  
 Oxytocin

Indication:

I.D.I. —

**METHOD OF DELIVERY****Fetus/Fetuses****Perineum**

- Spontaneous Vaginal Delivery

- Breech : Assisted  
Extraction

- Forceps

- Vacuum

- Embryotomy

- Caesarean Section

- Other Abdominal Delivery

Repaired by

Intact

1st degree laceration

2nd degree laceration

3rd degree laceration

No. of skin sutures

Episiotomy

**Placenta and Membrane**

Spontaneous

Fundal  
pressure

Controlled

Cord Traction

Manual Removal

of Placenta

Laparotomy

**CORD AND PLACENTA**Complete/Incomplete  
Abnormalities**MEMBRANES**

Complete/Incomplete

**Post-partum Blood loss (ml):****Treatment:****INFANT(S)**

Alive

Fresh SB

Macerated SB

Immediate N.N.D.

BL —

**Sex**

Wt(s)

Malformations

HC—

Asphyxia Neonatorum

Apgar Score

Treatment

**CONDITION OF MOTHER**

1 hour postpartum

Uterus

Bladder

B.P.

Temp.

Pulse

Resp.

**DELIVERED BY:**Pupil Midwife  
Student  
OtherSupervised by  
(Where relevant)

### INFANT SUMMARY

SEX	APGAR	1	5	10
WEIGHT (g)	Heart Rate			
	Respiration			
	Muscle Tone			
	Reflexes			
Time 1st resp.	Colour			
Time sust. resp.	Total			

RESUSCITATION	Remarks
---------------	---------

Nil (inc. clearing airway, Mask, O <sub>2</sub> )	<input type="checkbox"/>	.....
Mask and IPPV	<input type="checkbox"/>	.....
Intub & IPPV (no drugs)	<input type="checkbox"/>	.....
Intub & IPPV (with drugs)	<input type="checkbox"/>	.....
Drugs only (Specify)	<input type="checkbox"/>	.....
Other	<input type="checkbox"/>	.....
Transfer to Ward	<input type="checkbox"/>	.....
Transfer to Special Nursery	<input type="checkbox"/>	.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

O.F.C.

C.R.L.

Cord blood taken

HVS

### POST NATAL RECORD

**HISTORY**

- Discharge
- Dyspareunia
- Bachache

**EXAMINATION**

- Weight—
- BP
- Urinalysis—
- Hb—

**CONTRACEPTION**

- Pills—
- Condom—
- Diaphragm—
- Lap, Ster—
- Vasectomy—



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## Medical Disorders in Pregnancy

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### Chronic Hypertension

Chronic hypertension is defined as any interval of sustained elevation of the blood pressure of 140/90mmHg or greater before conception or before the 20th week of the present pregnancy. Such patients are usually, but not invariably, elderly, obese and multiparous. They may be relatively symptom free, but all the same, a diligent search for end organ damage such as renal or cardiac disease should be undertaken because of its prognostic significance on the mother and fetus (Fig. 3.1).

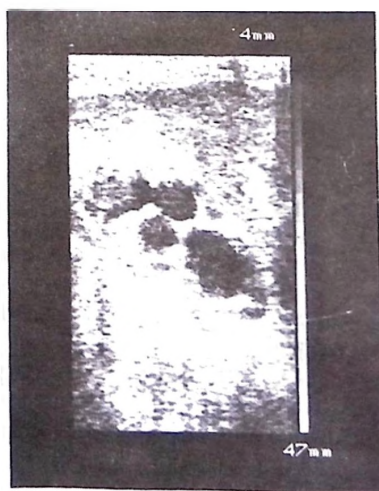


Fig. 3.1: Hydronephrosis in a pregnant woman with chronic hypertension

## Antepartum Management

In an ideal situation, consultant physician should be invited to see patients with medical disorders of pregnancy. A joint clinic whereby a consultant physician and obstetrician see and review the patients together is most preferable. This has not been the usual practice in this centre, but consultant physicians are invited to review such cases.

The following laboratory investigations are necessary:

- (a) 24 hour protein and creatinine.
- (b) Serum Electrolyte and urea.
- (c) Urinalysis and urine culture.
- (d) Abdominal ultrasound — with special emphasis on target scan of the kidneys.
- (e) Electro cardiogram.

With this ante-natal surveillance, the patient is put on trial medication with antihypertensive drugs. The patients are required to come to clinic every 2 weeks until 32 weeks, after which they are given weekly appointments.

The usual first line drug of choice is methyldopa (aldomet). This has been used for a long time and in our experience, there has been no adverse effect on the mother or fetus. If the hypertension is uncontrolled by aldomet, the second line drugs can be either B<sub>1</sub> adrenergic blockers (i.e. propranolol) or the calcium channel antagonists (e.g. nifedipine). These second line drugs are usually prescribed exclusively by the consultant physician.

Serial ultrasound is done and the result of the biparietal diameter plotted in the graph. Fetal growth and placental morphology are critically monitored.

Patient is admitted into the hospital if:

1. there is persistent elevation of systolic/diastolic 30/15 mm Hg above previous levels
2. there are signs of super imposed pre-eclampsia
3. there is any evidence of acute fetal compromise like oligohydramnios or fetal heart rate abnormalities.

If fetal growth rate is normal, and maternal blood pressure is well controlled, pregnancy is allowed to progress to term and spontaneous labour/vaginal delivery is encouraged. If it becomes necessary to deliver the baby before 34 weeks, fetal lung maturity

is enhanced by the use of glucocorticoids. This is done provided the blood pressure values are not more than 160/105 mm Hg.

### **Intrapartum Management**

If pre-eclampsia is super imposed on the hypertension, particularly if there is massive proteinuria, immediate delivery is effected.

The mode of delivery will be determined by the Bishop's Score of the cervix and the biophysical profile of the fetus. Bearing down efforts by the mother should be avoided, so vacuum delivery is performed to shorten the second stage. The use of epidural anaesthesia for such patient has not been established in our practice.

### **Pregnancy-Induced Hypertension (PIH)**

Hypertension during pregnancy is defined as any elevated blood pressure of 140/90 mm Hg or greater, or any elevation of the systolic/diastolic values of more than 30/15 mm Hg on two occasions 6 hours apart.

The cardinal distinguishing feature that differentiates PIH from chronic hypertension in pregnancy is that in PIH, there is no hypertension when there is no pregnancy, or if the pregnancy is less than 20 weeks.

The distinction between PIH and Pre-eclamptic toxæmia (PET) lies in the fact that the latter has oedema and proteinuria.

### **Maternal Surveillance**

In the ante-natal clinic, the mother is interrogated, as to whether she feels any headaches, blurring of vision, abdominal or chest pain or cough.

The weight is checked, usually the weight gain should not be more than 2 pounds per week unless there is super-imposed PET. Urine is checked for proteinuria, and patient is advised to be on low salt diet. Diuretic therapy is contraindicated. Other test that may be helpful include the liver function tests (SGOT), renal clearance for protein, urea, and creatinine; the specific liver and renal tests are usually at the instance of the consultant physician.

### **Fetal Surveillance**

The fetal heart rate auscultation is done. Ultrasound scan is done for fetal growth assessment every 2 weeks.

**Treatment**

Most cases of pregnancy induced hypertension without complications will respond to aldomet, diazepam.

RX

Methyldopa	500mg qds x 1/52
Diazepam	5mg tds x 1/52

Pregnancy intervention is indicated if the blood pressure is uncontrollable and there is persistent deterioration of fetal condition as shown by diminishing biophysical profile, fetal heart irregularities, and slow growth curve as recorded by ultrasonic cephalometry

**Severe Pre-Eclampsia or Eclampsia**

Severe pre-eclampsia and eclampsia are the terminal ends of the spectrum of various forms of hypertension in pregnancy. Action should be taken urgently because they can lead to various maternal complications such as liver failure, renal failure, heart failure, cerebro-vascular accident and consumptive coagulopathy. In the gravid uterus, there is greater likelihood of placental abruption, fetal distress and intrauterine fetal death.

The three principles of management are:

1. Control of blood pressure.
2. Prevention or control of fits.
3. Delivery of live baby as soon as possible.

**Recommendations**

1. Urgent admission into labour ward.
2. Strict bed rest in a quiet environment, and left lateral position.
3. Precautions should be taken against damage from seizures i.e. side rails should be raised, tongue blade should be put, and ensure that airway is not obstructed.
4. Emergency abdominal ultrasound.
5. Foley's catheter is passed to ensure continuous bladder drainage for urinary output measurement.
6. External monitoring of fetal heart rate.

**Recommended Investigations**

1. Blood — pcv, wbc, group and if necessary cross matching.

2. Urinalysis.
3. Serum electrolyte and urea, creatinine and uric acid.
4. Platelets and fibrinogen.
5. SGOT/SGPT.

### Christus Management Regime

In view of the delay that could occur before laboratory results are obtained, the hallmark of management is to effect delivery of the baby at the soonest time possible, if pregnancy is 37 weeks and above.

If cervix is favourable, ripe, or dilating well, and pelvis is adequate, induction of labour is commenced with intensive fetal and maternal observation, otherwise Caesarean section is the inevitable option.

The regime that has been used have been able to control the blood pressure and fits within 24 hours:

1. Emergency Caesarean section using ketamine anaesthesia
2. Hydrallazine titration — 20mg of hydrallazine is drawn into a 5 ml syringe mixed with water for injection to the 5ml — mark (4mg/ml)
3. Chlorpromazine (Largactil) 50mg is also drawn into another 5ml syringe and diluted to 5mls — (10mg/ml)
4. Lasix 20mg iv stat  
Immediately the baby is delivered  
Lasix 20mg iv 12 hrly x (2)  
1 ml of hydrallazine (4mg) is given —  $\frac{1}{4}$  hrly till BP <100 diastolic  
1 ml of largactil 10mg 4 hrly if diastolic rises to 110mm Hg  
Fortwin 30 mg im 8 hrly x 24 hrly  
Aldomet 500mg iv 12 hrly x 24 hrs

The blood pressure is recorded every five minutes. After 15 minutes another shot of 4 mg hydrallazine is given — the blood pressure is not allowed to go below 90mm Hg diastolic, so that patient is not allowed to go down to dangerous hypotensive levels.

The usual rebound of blood pressure is prevented by the intravenous largactil, and within the 24 hour period the blood pressure is usually stabilised.

### **Largactil Stabilisation**

In post partum eclampsia and pre-eclampsia, control of hypertension and fit can be achieved with largactil alone viz — an intravenous drip is set up using 5% dextrose. The blood pressure is measured every 10 minutes. Anytime the diastolic pressure reaches 110mm Hg, or patient is agitated 10mg largactil is administered intravenously, usually the interval between one injection and the next will continue to increase until the patient recovers fully and regains consciousness with blood pressure diastolic still less than 110mmHg.

### **Diabetes in Pregnancy**

Glucose intolerance is more during pregnancy because the pregnancy hormones have anti-insulin properties. The following conditions have been associated with glucose or carbohydrate intolerance:

1. fetal macrosomia.
2. deterioration of glucose metabolism, resulting in the need for insulin.
3. increased risk of operative deliveries.
4. increased risk of development of full blown diabetes in later years.

### **Management of Gestational Diabetes**

At every ante-natal clinic, urinalysis is done and if glucosuria is detected, patient is recommended to do fasting and 2 hour post prandial glucose determination. A fasting serum glucose level should normally be less than 100 mg/dl.

If glucose values exceed recommended levels, insulin therapy should be instituted as soon as possible. The initial daily dose of Human insulin is 0.5 i.u./kg/day in first trimester, or 0.6 i.u./kg/day in second trimester, and 0.7 i.u./kg/day in the third trimester is commenced as soon as possible to avoid fetal macrosomia. The consultant physician's opinion is always sought in these management regimes.

In summary, medical disorders of pregnancy are better managed jointly with physicians. Even with that, other conditions like cardiac disease in pregnancy, thrombo-embolism, seizure disorder and thyroid disease are not common in this unit.

## Malaria in Pregnancy

A common problem that is frequently encountered in pregnancy is reaction to chloroquine injection. Many patients are so afraid of taking chloroquine injection that they even believe that it causes abortion or intrauterine death.

Chloroquine is still the drug of choice in this hospital for treating malaria. However, in patients who know that they are allergic to it, I have discovered that these reactions are suppressed when the chloroquine is mixed with vitamin B<sub>12</sub> injection, i.e.

Rx

Phenergan i.m.	25 mg stat, 30 minutes later	
Chloroquine	4cc	} mix — im
Vitamin B <sub>12</sub>	2cc	
Phenergan tab	25mg b.d. x 3/7	

I have no scientific papers to support this concoction, but my little experience here justifies its trial on a wider scope.

This environment is an endemic zone for malaria. It is cheaper and more effective to offer chloroquine therapy than waiting until *P. falciparum* can be identified under the microscope. It will be an inexcusable omission to refuse to treat malaria when all the symptoms are suggestive, the only reason being the failure to identify *P. falciparum* under the microscope.

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## Haemoglobinopathy in Obstetrics

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Sickle cell disease in pregnancy is a condition that is frequently encountered in private obstetric practice. The major complications of sickle cell disease are anaemia and thrombo-embolism.

The clinical manifestations of sickle cell depend on which particular organ has been affected. The spleen is particularly liable to painful infarction, and so many of them present with splenomegaly. If the kidney is affected, the patients are more susceptible to pyelonephritis. They are also more prone to infection — particularly pneumococcus. Skeletal deformities especially of the bony pelvis. There could also be aseptic necrosis of the femoral head, and osteomyelitis due to salmonella organisms.

In non-pregnant patient, infarctive vaso-occlusive crisis occurs as frequently as four to eight times in a year. A personal experience in few of our patients is that the frequency of vaso-occlusive bone pain crisis appear to be less during pregnancy. This observation is yet to be subjected to statistical verification. However, it is a known fact that during pregnancy, there is increase in fluid retention due to the effect of circulating pregnancy hormones, i.e. human chorionic gonadotrophin, oestrogens and progestogens. This may reduce the incidence of sickling and hypoxia and lower the frequency of sickling crisis in these patients.

Chronic haemolytic anaemia is invariably part of the clinical picture of sickle cell.

Fetal wastage is an established common feature of sickle cell disease. There is increased risk of spontaneous abortion, stillbirth, pre-term delivery, and neonatal deaths.

## Basic Concepts of Sickle Cell Disease

*(Extracts from the lecture delivered by Dr. Kayode Obembe, Vice-President, Sickle Cell Association of Nigeria, Ibadan Chapter, at the seminar organised by the Public Health Nursing Division, University College Hospital, Ibadan on 4th April, 2000.)*

The basic abnormality in sickle cell disease is caused by the abnormality in the haemoglobin molecule. This molecule is made up of 2 pairs of polypeptide chains designated by the Greek letters alpha ( $\alpha$ ) and beta ( $\beta$ ) chains ( $\alpha_2 \beta_2$ ). In fetal life, the predominant chain is called gamma ( $\gamma$ ), thus there are two types of haemoglobin based on the above pattern of synthesis, i.e. HbA (adult and HbF ( $\alpha_2 \gamma_2$ ). This  $\alpha$  chain has 141 amino acids, while the  $\beta$  and  $\gamma$  chains have 146 amino acids.

The genetic information on protein structure is stored in the cell nucleus in molecules of deoxyribo-nucleic acid (DNA). The DNA is a double stranded helical molecule, each strand being composed of alternating phosphate and deoxyribose molecules to which are attached four major mononucleotide bases, the purines (adenine and guanine) and the pyrimidines (cytosine and thiamine). The genetic information is coded by the sequence of nucleotides, three bases representing a basic unit of information and determining a single amino acid (a codon).

The major abnormalities are caused by single base substitutions, in which only one nucleotide (purine or pyrimidine) is changed, i.e. CUU (Cytosine-Uracil-Uracil) may be changed to CUA or CUG. When an amino acid substitution results in electrophoretic change, this affects molecular function, then abnormal haemoglobin results.

Sickle cell disease (HbS) is an example of a single point mutation. Nucleotide sequencing of Beta globin RNA from sickle beta globin genes has revealed that the codon GAG at position B6 has been replaced by GUG.

This change determines the insertion of valine at this position instead of the glutamic acid which occurs in HbA, and in some way causes the tendency of HbS molecules to form polymers.

## Concept of Balanced Polymorphism (Malaria and Sickle Cell Disease)

Persons who are heterozygous for the gene possess some

advantages in terms of survival or reproduction over those with normal haemoglobin. The concept of balanced polymorphism is the balance of deleterious and advantageous effects of a gene which allows it to remain at a relatively constant level in a population. Malaria is significantly less common in children with the sickle cell trait, those that develop malaria, blackwater fever are mainly "non sicklers". The parasitised red cells in the sickle cell trait bring about selective sickling of parasitised cells and hence they are more effectively removed. The parasite brings about its own destruction by identifying its host cell to the splenic reticulo-endothelial system.

### Genetics of Sickle Cell Disease

The term sickle cell disease covers a group of conditions in which disease may be attributed to the presence of sickle haemoglobin. There are five principal genotypes but two are significant in our environment:

1. Haemoglobin sickle cell disease — SS
2. Sickle cell haemoglobin C disease — SC

Homozygous sickle cell disease results from the inheritance of the sickle cell gene from both parents. It may also be called sickle cell anaemia. The sickle cell haemoglobin C disease results from the inheritance of the HbS gene from one parent and the HSC gene from the other. The sickle cell trait in which the sickle cell gene is inherited from one parent and a normal  $\beta$ A chain gene from the other results in a benign condition which must be excluded from the definition of sickle cell disease.

The inheritance of sickle cell disease obeys the principle of Mendelian inheritance. When one parent is heterozygous for the sickle cell gene and the other parent is normal, the offspring would have an equal chance of having either the sickle cell trait or a normal AA genotype. If both parents have the sickle cell trait, there is a one in two chance of the offspring having the sickle cell trait, and a one in four chance of the offspring being normal (AA) or having SS disease. This chance of one in four of an offspring with SS disease remains for each pregnancy regardless of the result of previous pregnancies. In applying the Mendelian terminology to the sickle haemoglobin genotype, the disease is recessive in the sense that its characteristics are not manifest in heterozygotes, the sickle cell gene is dominant in the sense that its

presence is always expressed, and codominant in the sense that both normal and abnormal genes are expressed in the heterozygote.

### **Diagnosis of Sickle Cell**

The sickling test depends on the morphological change of the HbS containing red cell when deoxygenated. The method of Donald and Castle (1948) has become the standard technique for performing the sickle cell test. One drop of a 2% solution of sodium metabisulphite is mixed with one drop of blood on a microscope slide covered with a coverslip and sealed with molten paraffin wax to exclude air, and to prevent drying. Sickling of the cells, is usually apparent under the microscope within one hour.

In order to differentiate the major genotypes, haemoglobin electrophoresis is the major technique for diagnosis in neonatal and postnatal life, while restriction endonuclease analysis of DNA is most widely used for antenatal diagnosis.

Trophoblastic DNA sampling has been used for the detection of thalassaemia and of SS disease in pregnancies of 6-9 weeks gestation. Trophoblastic biopsy may be safely performed on out-patient without anaesthetic.

### **Pathophysiology of Sickle Cell Disease**

The pathophysiology of sickle cell disease was developed by Ham and Castle (1940) following observations that the viscosity of sickle cell blood rose when the oxygen tension fall below 40mm Hg and increased further with greater anoxia. It was proposed that the circulation in the capillary bed might enter a vicious circle in which an increase in viscosity compromised blood flow, leading to further deoxygenation and a further increase in viscosity. Lowering of pH would also occur in areas of capillary stasis.

### **Historical Aspects**

The disease had probably been recognised for generations in West Africa, where "cold season rheumatism" was given the repetitive chronic recurrent conditions. The Ga tribe call it *Chwechechwe*, the Fante as *Nwiiwii*, and the Yoruba as *aromolegun*. The first recorded description in Africa has been attributed to Africanus Horton (1874) who described the fever of crises, the shifting joint

pains, the exacerbation during the rainy season and the constant abnormality of the blood.

The first generally accepted report of the disease in North America appeared in November 1910 edition of the archives of Internal medicine when Dr. James Herrick of Chicago described a young negro student from Grenada in the West Indies in a paper entitled "Peculiar elongated and sickle shaped red blood corpuscles in a case of severe anaemia".

Within three months of the original report, a second case was described in a 25 year-old black woman from University of Virginia Hospital. By 1922, Mason compiled and summarised four case reports, and concluded that this was a new disease entity and was the first to use the term "sickle cell anaemia".

Various other forms of clinical manifestations include haemolysis, gall stone formation, bone changes with medullary expansion and cortical thinning, and other vaso occlusive disorders, i.e. wedge shaped pulmonary consolidation, kidney and splenic infarction. Bone infarction include dactylitis, and femoral head necrosis, priapism, degeneration of the central nervous system, with serious retinal complication were later recognised.

Other clinical manifestations include leg ulceration, retardation of both sexual and physical development and characteristic habitus in the adult.

Before rounding up this historical concepts, mention must be made of notable Nigerians who have worked in this field, i.e. Isaac Sodeye, Professor Esan, and Professor Akinkugbe to mention a few.

## **Clinical Manifestation**

### **Liver**

Hepatomegaly is noticed in 40-80% of patients in clinical reports. Typical autopsy findings include a large smooth liver and a small fibrotic spleen. Other hepatic manifestations include haemosiderosis, cirrhosis, cholelithiasis, gall bladder with salmonellosis.

### **Immune System**

There is greater incidence of salmonella bone infection and septicaemia with the pneumococcus and haemophilus influenzae B. This centres around defective splenic function, and abnormal-

lities of the complement system, immunoglobulins, leucocyte function, and cell mediated immunity.

Other clinical manifestations include abdominal painful crisis, cardiomegaly with left parasternal heave, chronic pulmonary thrombo-embolism and cor-pulmonale, and generalised painful crisis, and renal papillary necrosis.

Special mention should be made of the complications during pregnancy. This include anaemia, bone pains, acute chest syndrome, toxæmia, urinary tract infections and bone marrow embolism.

### **Therapeutic attempts to Inhibit Sickling**

Various agents have been tried in order to prevent sickling in vivo. This include ureas and alkylureas, aromatic amino acids and peptides, etc.

Special mention has to be made of fagara zanthoxyloides, widely used for cleaning teeth in West Africa. It has been claimed to have anti-sickling effects and was considered to have reduced frequency of painful crises in preliminary clinical trials.

### **Chorion Villus Biopsy**

Chorion-villus sampling is one of the methods of pre-natal diagnosis at a very early stages of pregnancy. By ultrasound guidance, a cannula is advanced to the chorionic frondosum and samples of placental tissue aspirated. This is subjected to DNA analysis and at 10 weeks cyesis, the genotype of the embryo can be determined.

Although this procedure can easily be performed in this unit, the constraint has been how to finance the cost of DNA analysis.

There are also controversial issues regarding this procedure, since some religious sects do not believe in elective termination of pregnancy. Whatever the sentiments surrounding this process, a woman has the right to know the nature of the baby she is carrying.

*(I acknowledge with appreciation the support and encouragement received from Prof. (Mrs.) F.M. Akinkugbe and Dr. (Mrs.) Falusi, President and 2nd Vice-President respectively, of the Sickle Cell Association of Nigeria (SCAN), Ibadan Chapter, in the preparation of this lecture.)*

**CASE PRESENTATION**

DATE: 29-6-96 Hosp. No. Z-801  
 NAME: MRS. T.A.  
 PARA 0<sup>+0</sup>  
 L.M.P October 24, 1995

Mrs. T.A. presented in this hospital at 6.30 a.m. on 29-6-96 complaining of abdominal and back pains which started a few hours before.

Ultrasound scan report was as follows:

Biparietal Diameter	—	8.7 cm
Head circumference	—	32.0 cm
Abdominal circumference	—	31.8 cm
Femur length	—	7.0 cm
Gestational age	—	36 weeks
Placenta	—	Posterofundal
Number of gestations	—	One
Estimated fetal weight	—	2.6 kg
Amniotic fluid volume	—	Normal
Sex	—	XY
Expected date of Delivery	—	26-7-96

She had already done her genotype.

The result was HbSC. Her PCV was 23%. She was O' Rh positive.

She was given chloroquine injection 300mg base, buscopan 10mg 1m. and analgin 5cc stat. She was discharged home the second day.

She came back on the 7th of July, 1996, complaining of Joint pains, slight headache and poor sleep. B.P. was 200/140. She had pedal oedema and proteinuria.

7.45 a.m.

Rx. Hydrallazine 10mg iv stat  
 Analgin 5cc 1m stat

- 8.10 a.m. B.P. 180/110mm Hg  
Now having chills  
Rx Chloroquine 5cc im stat  
Phenergan 25mg 1m stat
- 8.25 a.m. B.P. 150/100mm Hg
- 8.45 a.m. B.P. 180/120mm Hg  
Rx Fortwin 30mg im stat
- 2.25 p.m. Patient complained of severe pain at the limbs.  
Fetal heart rate was 160/minute  
Cervix was just a tip of finger, not effaced and  
still posterior.  
B.P. 180/120

Decision was taken to have emergency Caesarean section.

Indication — Severe pseudo-toxaemia with unfavourable cervix.

- 4.55 p.m. Patient was taken to the theatre, shaved cleaned and draped.
- 1cc Ketamine was given, a live male infant baby was extracted. Apgar score 8 in 1 minute. 10 in 5 mins.
- iv largactil 25mg
- The abdomen was closed up as routine and patient transferred to the ward.
- Blood pressure was controlled and convulsion prevented as follows:
- Hydrallazine 4mg iv  $\frac{1}{4}$  hourly until diastolic was less than 90mm Hg.
- |                |                          |
|----------------|--------------------------|
| Largactil 20mg | } im 6 hourly x 24 hours |
| Fortwin 30mg   |                          |

Experience has shown that if the diastolic pressure is consistently less than 100 mmHg for 24 hours, it is not likely that the patient would convulse if sedation is reduced to twice daily for the following 24 hours.

*She was also prescribed parenteral antibiotics as prophylaxis.*

8-7-96 *Bowels sounds already present and by 6.00 p.m. that day blood pressure has dropped to 140/100 mmHg. She continued to complain of severe bone pains; fortwin 30mg im was prescribed.*

*Fluid input and output chart was kept within the first twenty-four hours, after operation she made 1,900mls of urine over 24 hours. The rest post-operative period was uneventful.*

### **Commentary**

Haemoglobinopathy per se is not an indication for Caesarean section in term pregnancy.

In fact the rule is to encourage sicklers to deliver vaginally. But in this patient there were super-added complications which made it necessary to perform immediate operative delivery.

The decision to go and operate was made confidently because the ultrasound dating was performed immediately and this resulted in the delivery of live mature baby.

Even if there is no ultrasound facility here, with the hypertension still uncontrollable, there would have been no other option than to go and save the life of the mother by operation.

## First Trimester Bleeding

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Vaginal bleeding anytime in pregnancy is a bad sign. During the first trimester, the commonest cause of vaginal bleeding is threatened abortion. Other causes include ectopic pregnancy, gestational trophoblastic disease. On rare occasions, lesions of the cervix have been incidental findings. With the combination and appropriate application of ultrasonography and laparoscopy, these conditions are diagnosed with high precision and accuracy.

### Obstetric Parameters

The length of average human pregnancy is 40 weeks beginning from the first day of the last menstrual period (LMP).

Ovulation age is 266 days (38 weeks) as ovulation generally occurs on the fourteenth day of the menstrual cycle. The expected date of delivery (EDD) can be determined by Naegel's rule by subtracting 3 months from the LMP and adding 7 days. This has been simplified by commercial dating wheels — gestational calculators.

### **Sonographic characteristics of first trimester bleeding:**

#### **A. Threatened Abortion**

1. Prolonged observation of diminished fetal movements;
2. Relatively small gestational sac.
3. Irregular or ill-defined borders of the gestational sac.
4. Slow cardiovascular pulsations. (Fig 5.1, 5.2)

#### **B. Inevitable Abortion**

May show any of the following features:

1. Intact gestational sac.
2. Echo free space representing blood between the sac and the myometrium.
3. Fluid/fluid sac on level may indicate haemorrhage within the sac.
4. Evidence of progressive cervical dilatation (Fig. 5.3).
5. Location of fetus at the cervix or in the vagina.

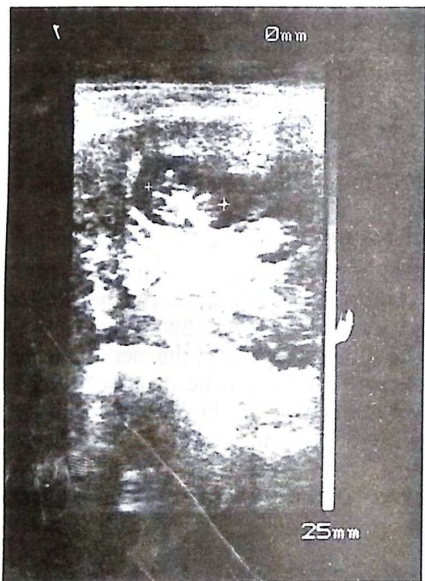


Fig 5.1: Amenorrhoea 10 wks. History of vaginal bleeding — ultrasound shows irregular thickening and ill-defined borders of the gestational sac — threatened abortion in twin pregnancy.



Fig 5.2: Amenorrhoea 9 weeks — cardiovascular pulsations were relatively slow, threatened abortion in 9 week-cyesis.

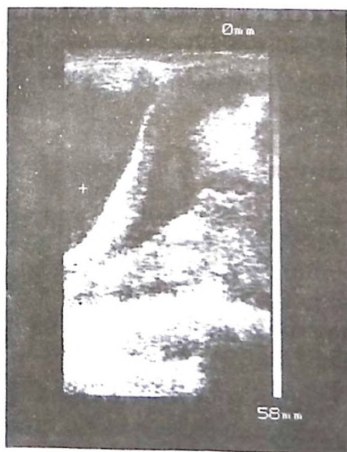


Fig 5.3: There is an echo free space representing blood between the sac and myometrium. The internal cervical os is already dilating — inevitable abortion.

### **C. Incomplete Abortion**

1. Enlargement of the uterus.
2. There may be a poorly circumscribed gestational sac in the side of the uterus.
3. Clusters of internal echoes representing fetal tissue may be evident.
4. If acoustic shadowing is present, gas-forming septic infection with remnants of fetal bone may have been retained.

### **D. Complete Abortion**

1. An enlarged uterus, with no evidence of intrauterine gestational sac, fetal tissue or placenta.

### **E. Blighted Ovum**

(anembryonic pregnancy)

1. Gestational sac appears disproportionately large or small compared to the uterus.
2. The blighted sac will have no fetal echo.
3. The blighted sac may have an ill-defined or irregular outline of typical chorionic frondosum.
4. There will be absence of typical chorionic frondosum.
5. The "yolk sac sign" may be present (see Fig 5.4).

This is a condition whereby the yolk sac is identified without any evidence of a fetus.

### **F. Missed Abortion**

1. Uterus clinically small for date.
2. Fetal pole is identified but no cardiac pulsations.
3. The fetal cranium may be collapsed and there may be fluid accumulation in the fetal abdomen.
4. Placenta may become hydropic, with swelling of the chorionic villi.

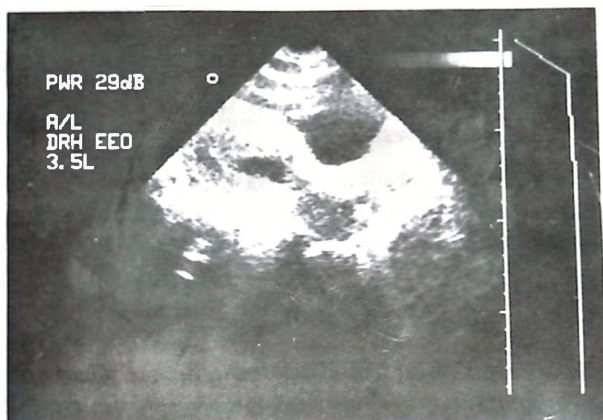


Fig 5.4: 10 weeks amenorrhoea, gestational sac has no fetal echo. Absent typical chorionic frondosum (blighted ovum).

### CASE PRESENTATION

#### Post Abortal Sepsis

Name: Miss. K.F

1/7

Hosp. No: Z-086.

Date: 27-03-93

Age: 25 years

LMP: 18-03-93

Para: 0<sup>+6</sup> all induced

Contraceptive: Nil

Miss K.F. is a 25 year-old lady who presented with abdominal pain and swelling both about a week duration.

The pain was associated with fever. She had a Dilatation and Curettage in a private clinic a week before. She had been having irregular vaginal bleeding with occasional non-projectile vomiting, diarrhoea of watery black stool.

On examination, there was no jaundice. She was febrile, T. 38.3°C.

CVS — Pulse rate was 104/minute BP 110/60

Chest — Clear; Respiratory rate 30/min.

Abdomen: was distended, moves with respiration and with generalised tenderness. Uterus was the size of 20 weeks cyesis.

**Vaginal Examination:**

The perineum was wet, with foul-smelling discharge. The vagina was warm. Cervix was visualized — traumatised.

**Ultrasound report:**

Uterus is bulky, A P 9.4cm.

There is an area of increased echogenecity at the cornual region in the myometrium. There is copious fluid in the Pouch of Douglas and the abdominal cavity generally. Ovaries, fallopian tubes and other adnexial structures were matted together and difficult to delineate individually.

Impression: was that of uterine perforation with peritonitis and septicaemia.

Plan: Exploratory laparotomy — above findings were reconfirmed.

- 9.35 p.m. Nurses Record: Patient was taken to the theatre for operation.  
iv Dextrose/Saline 500mls was set up, urethral catheter was passed.  
BP 110/60 p 104/min R 26/min.
- 9.45 p.m. iv 1cc ketamine given.  
Incision was made on the lower abdominal region vertically and on the midline.
- 9.50 p.m. Pulse 110 RR 30/min.
- 9.58 p.m. iv 1cc Ketamine given  
Pulse 118 RR 32/min.
- 9.58 p.m. Rate of fluid was increased.

- 10.15 p.m. *iv fluid finished and replaced by another Dextrose/saline 500mls running slowly.*
- 10.16 p.m. *iv Ketamine 1cc given.  
Pulse 120/min RR 38*
- 10.40 p.m. *Drainage sites were made and tubes were inserted.*
- 10.50 p.m. *External suturing begins with plain silk.*
- 11.02 p.m. *iv 10mg Valium            )  
im Fortwin 1cc                )  
iv Ampiclox 500mg        ) given  
iv Flagyl 500mg.            )*
- 11.20 p.m. *Wound was dressed and patient was transferred to the ward.*

### **Resident Doctor's Note**

27-03-93 Operation:

*Emergency Exploratory Laparotomy and repair of uterine perforations. Drainage of pelvic abscess and partial omentectomy.*

### **Indication**

1. *Septic incomplete abortion with uterine perforation;*
2. *Peritonitis.*

*Anesthesia: 1v Ketamine.*

*Findings:*

1. *Abdomino — pelvic abscess approximately 250mls.*
2. *Left cornual uterine perforation approximately 6cm in length in diameter.*
3. *Ischaemic muscular wall of sigmoid colon approximately 6–8cm in diameter.*

### **Procedure**

*Patient in supine position, routine cleaning and draping. Midline subumbilical incision was made through the linear alba, anterior abdominal wall was dissected in layers to enter the peritoneal cavity.*

*Excision of the omentum walling off the uterine perforation was made. The uterine perforation was repaired with figure of eight interrupted suturing with no 2 chromic catgut.*

*Fenestrated drain was instituted into the pelvis. Abdomen was closed in layers.*

*Estimated blood loss 400mls; duration of procedure 70 minutes.*

*Suture materials 2/0 Chromic catgut.*

*2 Chromic catgut.*

### **Post Operative Order**

- 1. Nil per oral until reviewed otherwise;*
- 2. iv ampiclox 500mg 6 hourly x 48 hours.*
- 3. iv flagyl 500mg 12 hourly x 48 hours.*
- 4. im analgin 5cc prn.*
- 5. iv D/saline 0.5L 6 hourly*
- 6. Monitor vital signs regularly.*
- 7. Monitor intake and output of fluid.*

*The rest of the post operative period was uneventful, patient recuperated satisfactorily and was discharged home on 14-4-93.*

*Her original bill was Eight thousand and fifty naira (₦8,050, roughly one hundred and sixty one U.S. dollars \$161). She could not complete her payments, she left a debt of ₦1,800 about \$36 (thirty six U.S. dollars) in unpaid bill. She signed an agreement that she was coming to pay up by 31 May 1993, but she was never seen again.*

### **Commentary**

The private clinic where this patient had a dilatation and curettage done was not owned by a doctor. It was actually a maternity home. This is the usual pattern of abortion being procured by non-specialists. Abortion has been the stock-in trade of this patient because she had done it six times apparently without roaring complications like this instance. Pelvic inflammatory disease with peritonitis is the usual progression of the complications. This is the type of patient who presents in future

with infertility. The nurses record was reproduced verbatim to illustrate how easily the repeated bolus ketamine can be administered without any complication when properly supervised by the operating surgeon.

This patient most likely would present later with infertility and chronic pelvic inflammatory disease.

### CASE PRESENTATION

#### Hydatidiform Mole

Date: 17-5-95  
 Name: Mrs. B.A.  
 Hosp. No: 10149  
 Para: 2<sup>+0</sup>  
 K 5/30

Mrs. B.A. presented with history of bleeding per vagina. She was para 2<sup>+0</sup>. Last confinement was October 1993.

Ultrasound scan done showed hydatidiform mole—

- Pitocin drip was set up.
- 40 units/500mls and the grape-like vesicular products were expelled.
- Evacuation of the uterus was performed.



Fig. 5.5: Hydatidiform mole



Fig. 5.6: Hydatidiform mole



Fig. 5.7: Hydatidiform mole with central degeneration

## ECTOPIC PREGNANCY

An ectopic pregnancy results when the blastocyst implants outside the uterus.

There has been an alarming increase in the incidence of ectopic pregnancy due to escalating incidence of pelvic inflammatory disease. This leads to scarring of the tube and the faulty transport of the conceptus to the uterus. There is also the related increase due to intra uterine contraceptive device (though controversial), abdominal and pelvic surgery for infertility, and previous tubal procedures.

### Sonographic Characteristics

1. Enlargement of the uterus.
2. Cystic spaces may be present in the endometrium — Pseudogestational sacs or decidual casts. The location of the gestational sac is also different. In intrauterine pregnancy normal intrauterine gestational sac is located asymmetrically in the fundal area of the uterus, whereas pseudosacs are placed symmetrically and centrally as echo free space inside the uterus.

When a pseudo gestational sac is observed and the hCG is high, ectopic pregnancy is likely. HCG estimation is not done here, since there is 24 hour access to laparoscopy service.

3. If an unequivocal extrauterine gestational sac is visualised, separate from the uterus, the diagnosis of ectopic pregnancy is definitive.
4. Complex masses with or without internal echoes may be present and irregular sonographic pattern may be seen if there is haemoperitoneum in advanced abdominal pregnancy, one would not be able to identify the myometrial wall surrounding the conceptus, the fetus and the placenta are frequently malpositioned.

A corpus luteum cyst of normal pregnancy may mimic an ectopic sac, especially when bleeding occurs inside the cyst. Other differentials that may mimic ectopic are hydrosalpinx, pyosalpinx, fluid-filled bowel loops and endometriomas.

The fertilised ovum may develop in the ampulla, isthmic or interstitial portions of the oviduct. Ruptured interstitial ectopic pregnancy is more rapidly fatal, followed by isthmic variety. The ampulla ectopic — pregnancies are relatively benign. In short, the

nearer the ectopic gestational sac is to the uterine cavity, the more severe the symptoms i.e. the greater the risk of rupture, haemorrhage, hypotension and shock.

The absence of sonographic evidence of intrauterine pregnancy but a positive urinary pregnancy test is almost always indicative of a hidden ectopic gestation.

### CASE PRESENTATION

Date:	10-8-95	Menarche:	12 years
Name:	Mrs. O.D.	Menstrual cycle:	5/30
Hosp. No:	10278	LMP:	about a week before, not definite
Age:	23 years		
Parity:	0 <sup>+1</sup>		

*Mrs. O.D. was brought to the clinic as an emergency with the complaint of irregular vaginal bleeding, and vague abdominal tenderness.*

*Abdomino-pelvic. Ultrasound was done — The result was very typical.*

*A transverse transvesical sonogram of the pelvis demonstrates an area of reduced echogenicity of the endometrial layer of the uterus. No evidence of intra uterine gestation (see Fig. 5.8). The uterus is slightly bulky AP diameter 56mm, there is a complex mass at the adnexium, which is strongly echogenic and separate from the uterus. This is suggestive of organised blood clot and product of conception. There is copious fluid in the pelvic cavity.*

*Impression is leaking ectopic pregnancy.*



Fig 5.8: The uterus is slightly bulky with central area of reduced echo, there is an adnexial mass, slowly leaking ectopic pregnancy.

*The patient was taken to theatre after signing the consent for operation and for payment. Laparotomy confirmed the above findings.*

1.10 p.m. *iv infusion was set up  
Foley's catheter was passed  
patient was shaved  
BP 100/60 mm Hg  
Pulse 100b/minute, Respiratory  
Rate 25 c/minute*

1.20 p.m. *iv ketamine 1cc was given  
Operation was started*

- 1.45 p.m. 1cc ketamine was given iv, internal suturing continued with no 2 chromic catgut
- 2.15 p.m. 1cc ketamine was given iv.
- 2.30 p.m. External suturing completed with silk
- 2.35 p.m. iv Analgin 5cc  
iv Ampiclox 500mg } given  
iv Flagyl 500mg }
- Diagnosis — confirmed to be Right cornual ruptured ectopic:
- 3.00 p.m. Patient was brought back to the ward, conscious and well orientated.
- 3.15 p.m. 90/60 mmg Hg P — 152 b/m RR 36 c/m.
- 3.30 p.m. 90/50 mmg Hg P — 152 b/m RR 32 c/m
- 3.45 p.m. 90/50 mmg Hg P — 144 b/m R 28 c/m
- 4.10 p.m. 90/60 mmg Hg P — 144 b/m R 32 c/m
- 5.00 p.m. Blood transfusion was commenced
- 7.00 p.m. Blood got finished. Another pint of dextrose saline put up.  
BP 110/60 Pulse 144 b/m RR 32 c/m
- 7.15 p.m. 300ml of clear urine was emptied  
PCV = 20%
- 11.00 p.m. iv Ampiclox 500mg } given  
iv Flagyl 500mg }

*1st Day Post Op*

- 11/8/95 BP — 90/60 mmHg Pulse 134 R = 32
- 2.30 a.m. Patient complained of pain at the operation site im analgin 5ml given
- 6.00 a.m. 500mls of urine was emptied
- 9.00 a.m. Pallor +  
Dizziness +  
Bowel sounds — was present  
She was commenced on Ampiclox, flagyl, paracetamol and Bco orally

*RX*

Ampiclox caps	500mg qds x 4/7
Metronidazole	200mg tds x 4/7

Paracetamol	$\frac{ii}{ii}$ tds	x 4/7
Vit Bco	$\frac{ii}{ii}$ tds	x 4/7

- 2.15 p.m. Intravenous fluid and catheter were removed.  
 6.00 p.m. 50mls of pap was given. This was well tolerated.  
 Patient was allowed to sit up in bed.  
 10.00 p.m. 100mls of pap was given
- 12/8/95 2nd Day Post-Op  
 Prescribed drugs were given  
 Patient now ambulant
- 13/8/95 3rd Day Post-Op  
 Patient was febrile — she also had nausea,  
 vomiting, and headache.

## RX

Chloroquine 5mls  
 Phenergan 25mg im stat

- 14/8/95 4th Day Post-Op  
 General condition continued to improve
- 16/8/95 6th Day Post-Op  
 Patient complained of watery stools. She was  
 prescribed Chloramphenicol cap 500mg stat  
 250mg qds x 3/7  
 Flagyl tab 500mg tds x 3/7
- 18/8/95 8th Day Post-Op  
 Patient complained of drainage from the operation  
 site  
 Wound site was dressed and cleaned  
 The wound was dressed daily afterwards, sutures  
 were removed.

- 24/8/95 14th Day Post-Op  
*Patient looked pale with slight puffiness of the face  
PCV — 16%*
- 4.30 p.m. *Blood transfusion was commenced one unit of blood  
was transfused*
- 25/8/95 15th Day Post-Op  
*2nd pint of blood was set up*
- 2.10 p.m. *Blood got finished, no adverse reaction noticed.*
- 28/8/95 18th Day Post-Op  
*She was prescribed Chemiron, folic acid and multi-  
vitamins.  
She was fit for discharge but could not settle her  
bills yet.*
- 1/9/95 22nd Day Post-Op  
*She was discharged on a promise of coming back to  
balance her payment.*

### **Commentary on case presentation**

Ectopic pregnancy is a very deadly condition in this environment because of the following reasons:

Patients are not sincere, either deliberately or otherwise, about the true history, the history of secondary amenorrhoea may be difficult to elicit, and the symptoms may not be rapidly catastrophic if the ectopic has not ruptured. The patients usually may be poor as in this patient and so the usual presentation is that of ruptured ectopic — right cornual.

This patient was given a bill of fifteen thousand naira (₦15,000 — about \$180), even with that she could not pay any deposit. Every management regime instituted was geared towards saving life at minimal cost. It is not scientifically tenable to institute antibiotic therapy without the laboratory result of microscopy, culture and sensitivity. But this patient was prescribed the regime of Ampiclox and flagyl (metronidazole) which effectively controlled the post-operative morbidity conveniently enough to

allow the patient to tolerate oral alimentation within 24 hours.

I have found in this practice generally that the closer the ectopic is to the uterus, the greater the morbidity associated with the condition. I have no statistics to support this observation. The blood pressure of this patient fell to 90/50, Pulse was as high as 152/minutes and respiratory rate was 36/minute. Interstitial ectopic are equally as ghastly and every minute should be maximally utilised to save life.

We were compelled to use ketamine anaesthesia in this patient because of many reasons:

The telephone in this hospital at that moment was not functioning, so to call an anaesthetist would be impossible. Of course the anaesthetist must be paid his bill, either patient is able to pay later or not. The telephone line had been connected since 1992 with telephone box, and this functioned only for two weeks. There had been constant pledges by the officials in-charge to restore it any moment since then.

Ketamine anaesthesia is easy to administer. In this case it was given by the nurse assisting, and the records reproduced are actually the nurses' own. Records by doctors are written in black ink/ biro, while nurse's records are in blue — records are written chronologically on same case file. The ketamine injection was given  $\frac{1}{2}$  to 1cc at a time, and the next injection was given when the patient was waking up or reacting mechanically. In this patient, a total of 3cc of ketamine was given to complete the operation.

The dose of ketamine given can be reduced to  $\frac{1}{2}$  cc intravenously at each injection if patient was given diazepam 10mg iv stat. It was considered risky to sedate the patient heavily in a state of hypovolaemic shock which the patient was already going through. For the same reason, narcotic analgesics like morphine, pethidine, were avoided, even mild hypnotics like phenergan and pentazocine were also avoided. Intramuscular analgin 5cc was administered immediately post-op, but experience has shown that intravenous route is safe, quick acting, and has very minimal side effects on the vital signs.

Glaring omissions must be pointed out in this case. With hypotension of 90/60 mm Hg running for 24 hours, there is need to monitor electrolyte and urea, creatinine levels of the blood, and possibly clotting time and fibrin degradation products. These would multiply the debt of the patient and repeated incidents like

this would lead the hospital to bankruptcy. These tests were suggested to the patient but she could not afford them.

The post operative febrile illness shown by this patient is not uncommon, especially when the patient had transfusion.

The blood units transfused are not usually free of *Plasmodium falciparum*. It is not uncommon to find situations whereby antimalarials are given prophylactically. I have found the combination of pyrimethamine with sulfalene (metakelfin/maloxine) very useful in these situations because patients who react to chloroquine and are just recovering from the stress of operation may not tolerate phenergan injection favourably. However in this patient, it was given without untoward sequelae.

The type of diarrhoea experienced around the 4th to 5th day post-operation can usually be traced to the diet. The condition, under which food brought from home or bought from street hawkers, cannot be guaranteed hygienic. Many patients are so poor that they cannot afford the hospital food, no matter how cheap they rely on the food brought by caring relatives. Infective enteritis occasionally result and once this is discovered, the food is stopped and replaced with pap prepared by staff of the catering department of the hospital. Some common food items like yam, cassava, and plaintain flour (Iyan, eba, amala respectively) are deliberately restricted.

Around the 5th to 7th day post-operation, patients complain of occasional bouts of low abdominal pain. Urine can be taken for culture and sensitivity, and while awaiting result, patient could be commenced on septrin tab, II bd x 3/7. Invariably the patient may be well before the result comes.

Getting the patient to pay the outstanding bill is always a problem. Some are genuinely very poor, but the truth is that once the relations are satisfied that the patient has come out of operation successfully, and now taking food orally, the need for urgent payment is removed. Occasionally, what one gets is kneeling, prostration, prayer and all sorts of pampering or cajollery which could be infuriating and disconcerting. At this juncture, the treatment would be stopped and the relations may come with some payment. It is impossible to wait for full payment in these dire emergencies, but the relations are made to realise that no gestures or gesticulations can replace the money which had been spent to procure the drugs or the blood transfused to the patients in the first instance. The blood was screened for HIV

and hepatitis B before transfusion.

All these problems were manifested in this patient, and that was why she was discharged home on 22nd Day post-op, still unable to settle all her bills.

This is not narrated with a view to discouraging competent specialists from continuing with their vocation of saving lives.

## SONOGRAPHY OF ECTOPIC PREGNANCY

### Uterine Findings

The first step is to assess the uterus for any evidence of an intra uterine gestation. The following intrauterine findings are diagnostic of pregnancy:

- (a) a live embryo;
- (b) a gestational sac containing dead embryo;
- (c) a gestational sac with yolk sac;
- (d) or an empty gestational sac. (double decidual sac sign or intra decidual sign). The diagnosis of intrauterine pregnancy does not absolutely exclude the existence of another extra uterine gestation as it occurs in heterotopic pregnancy. However this occurrence is very rare but it does occur especially with in vitro fertilisation.

In ectopic pregnancy, the endometrial cavity is usually empty. There could be present tiny decidual assets at the base of the endometrium. The uterus itself is uniformly enlarged, evidence of endocrine stimulation.

### Extra-Uterine Findings

The extrauterine findings are classified into 3 types.

1. Diagnostic;
  2. Suspicious;
  3. Non specific.
1. *Diagnostic:* Identification of a live embryo at the extra uterine location is the most definite evidence of an ectopic pregnancy. If an extra uterine gestational sac is identified the diagnosis is confirmed. An extra uterine gestational sac usually shows as an hyperechoic ring of trophoblastic tissues (tubal ring sign) and occasionally a yolk sac may be identified within the sac.

2. *Suspicious:* Findings include the complete absence of embryo or yolk sac from apparent extra-uterine gestational sac in which case the condition should be distinguished from an ovarian cyst, either accident or haemorrhage into an ovarian cyst.
3. *Non-specific findings:* Include the existence of a complex mass at the adnexium — This could be a chronic tubo ovarian mass, pelvic inflammatory disease, pelvic abscess or haemorrhage. The co-existence of echogenic peritoneal fluid which may be moderate or massive in quantity increases the probability of ectopic pregnancy.

In patients with suspicious but non diagnostic findings, a quantitative serum hCG level can help to yield a more reliable diagnosis. This facility is not available in this unit.

Quantitative hCG level is almost an impossible task in this environment. My recommendation is that if there are two factors coexisting either in the suspicious or non specific category, the patient should be subjected to four quadrant diagnostic tap and if positive for haemoperitonium, proceed to exploratory laparotomy, any delay arising from quantitative serum hCG could be catastrophic. Quantitative hCG is not done in this unit for the diagnosis of ectopic pregnancy.

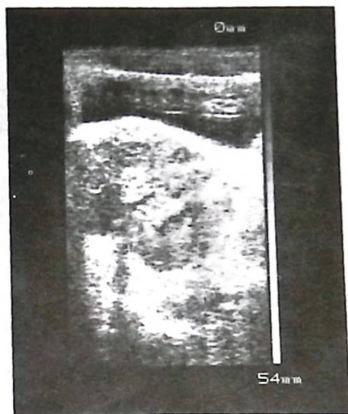


Fig 5.9: The tubal ring sign — Note the hyperechoic rim of the small gestational sac. The rim is composed of trophoblastic tissue. Note the location of the ectopic gestation (Left adnexium), the uterus (upper part) and a corpus luteum cyst of pregnancy (Right adnexium).



Fig. 5.10: Heterotopic pregnancy — Note the small intrauterine gestational sac and a complex left adnexial mass. This was confirmed at laparotomy to be due to organised blood and products of conception at the distal end of the left fallopian tube.

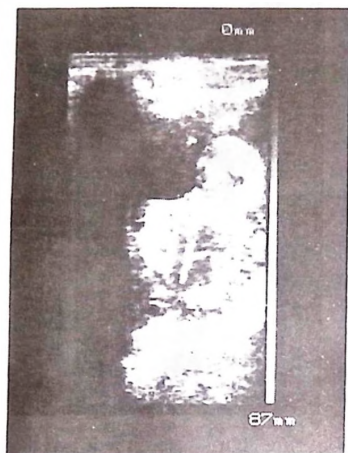


Fig. 5.11: Ectopic pregnancy detected by transabdominal sonogram. The ectopic gestational sac is surrounded by thick ring of trophoblastic tissue and clearly outside the uterus. There is a midline echo inside the uterus, and massive peritoneal fluid.

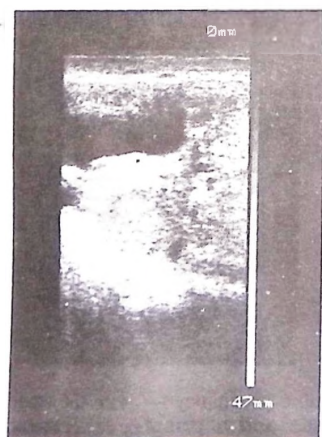


Fig. 5.12: There is an ectopic gestation at the adnexium with 'tubal ring sign', i.e. surrounded by trophoblastic tissue.



Fig. 5.13: Shows the same patient with probe moved towards the umbilicus — the abdominal sonogram shows copious peritoneal fluid with gut structures floating freely inside. At laparotomy, it was left cornual ectopic gestation.

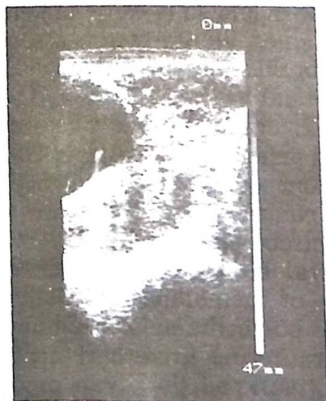


Fig. 5.14: A pelvic sonogram showing the extrauterine gestational sac surrounded by the trophoblast. The uterine cavity is empty and peritoneal fluid is minimal. At laparotomy, it was a right ampullary ectopic gestation.

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## Antepartum Obstetric Complications

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### PRETERM LABOUR

Preterm labour is a common occurrence in private practice. Although direct cause of premature contraction may be unknown, certain conditions are known to be associated with it. The conditions associated with preterm labour can be classified into *maternal, uterine and fetoplacental*.

Any acute systemic illness in the mother can initiate labour. The commonest associated systemic maternal illness in this community is *malaria*. Similar systemic causes usually encountered include pyelonephritis, urinary tract infection, gastroenteritis, appendicitis, pneumonia, typhoid fever and hepatitis. Trauma as a result of spouse abuse or road traffic accidents have all been known to cause preterm labour.

One of the commonest uterine factors associated with preterm labour is uterine fibroids. Fibroids is very common in the uterus of black population and has been associated with many obstetric and gynaecological complications like infertility, abortion, preterm labour and general fetal wastage. Trauma to the uterus, surgical manipulations, cervical incompetence, uterine abnormalities, intrauterine contraceptive device are all associated with preterm uterine contractions.

The fetoplacental conditions include chorioamnionitis, premature rupture of membranes (PROM), placenta praevia, abruptio placentae, polyhydramnios, multifetal gestation, fetal abnormalities, intrauterine growth retardation (IUGR) and intrauterine death (IUD), all these can predispose to preterm labour.

## **Investigations**

Before inhibiting uterine contraction by drug therapy, it is necessary to attempt some baseline investigations:

- cervical cultures for gonorrhoea, and chlamydia.
- clean catch of midstream urine for microscopy, culture and sensitivity.
- confirmation of presence or absence of ruptured membranes.
- ultrasound scan — biparietal diameter, abdominal circumference, femur length, foetal weight, amniotic fluid volume, fetal anomaly, placental location and any other pelvic masses.
- White cell count
- Electrolyte and urea

In private practice, it is however impossible to obtain all these results before definitive treatment is instituted.

Four criteria are required to make the clinical diagnosis of preterm labour:

1. Gestational age between 20 and 36 weeks.
2. Estimated fetal weight less than 2500 gm
3. Uterine contractions every 10 minutes or less, lasting 30 seconds or more, for at least 30 minute period.
4. Cervical dilation of 4 cm or more.

Without wasting precious time, the four criteria can be established rapidly by ultrasound with clinical examination alone. In this unit, if the estimated fetal weight by ultrasound is above 2kg, no effort is made to stop contraction, and no sedatives are administered to the mother if the cervix is more than 4cm dilated. If a 2kg baby is born without respiratory distress or neo-natal asphyxia, the chance of survival is high and no incubator service is required. The paediatric consultant is however notified before delivery.

## **DRUG THERAPY**

### **Contra-indications to Tocolytic Therapy**

There are contra-indications to tocolytic agents:

- foetal congenital abnormality incompatible with life.
- intrauterine foetal death.

- maternal illness that is life threatening, i.e. severe cardiac disease.
- severe pre-eclampsia and eclampsia.
- abruptio placentae.
- chorioamnionitis.

There are various tocolytic regimes which are used in different centres such as magnesium sulfate,  $\beta_2$  receptor agonists such as ritodrine hydrochloride and terbutaline. The latter two drugs selectively inhibit smooth muscle contraction in the uterus, these are also found in the bronchioles and blood vessels and their stimulation results in bronchial relaxation and hypotension. They are also weak  $\beta_1$  receptor agonists, so tachycardia is common.

Prostaglandin inhibitors, i.e. indomethacin have been tried but prolonged usage may result in closure of the ductus arteriosus and persistent fetal circulation. However, it could be useful as an adjunct to steroid therapy to enhance pulmonary fetal maturity in patients who are refractory to other tocolytics.

These drugs have not been very popular in this unit. The drug of choice has been salbutamol which is readily available in tablet and injectable forms.

Chloroquine injection is given at the same time, this has been shown to have specific inhibitory effect on uterine muscles apart from treating malaria. Antipyretic analgesics, i.e. analgin, and antispasmodics like buscopan are given at the same time.

The advantage of these drugs is that there is no depression of the respiratory system of the baby which could take place in hypnotic analgesics.

### **PREMATURE RUPTURE OF MEMBRANES (PROM)**

Premature rupture of the membranes (PROM) is defined as spontaneous rupture of the amniotic membranes occurring at any gestational age before the onset of labour (i.e. uterine contractions).

Diagnosis depends on the finding on speculum examination:

- visualization of amniotic fluid coming from cervical ostium
- testing the fluid for pH (nitrazine positivity).
- ferning.

As much as possible digital examination should be minimal in

order to reduce the risk of infection. Cord prolapse should be ruled out.

*Ultrasound scan* is performed routinely on these patients for the documentation of gestational age, fetal weight, amniotic fluid volume, fetal presentation, presence of twins or any foetal malformations. Ultrasound dating may be difficult because the biparietal diameters and abdominal circumferences may be lower, the femur length is the most reliable parameter for dating in this condition.

## Management

The definitive line of management is to balance the risks of prematurity and infection. If there is any suspicion of septic premature infant, or the fetal weight is less than 2 kg, consultant neonatologist is informed for further management.

Theoretically, many cases of idiopathic preterm birth may be due to subclinical intraamniotic infection. As a result of this infection, indigenous host products are produced — called cytokines — interleukin-1, interleukin-6, interleukin-8, and tumour factor cachectin, all products of activation of macrophages. High vaginal swab culture is necessary, and white cell count is very informative. The lecithin/sphingomyelin (L/S) ratio and phosphatidyl glycerol estimation are necessary for checking fetal lung maturity, but because of the economic constraint, these are not always done, but corticosteroids are given prophylactically when delivery before term is anticipated, especially if gestational age is less than 34 weeks.

### Term (37 weeks and above)

Most patients in this category will go into spontaneous labour within 24 hours. Attempts are first made to determine the ripeness of the cervix (Bishop Score). If favourable (above 8), induction of labour is commenced immediately after the 24 hours. Unfavourable Bishop Scores are associated with greater risk of operative delivery. Intra-vaginal prostaglandin E<sub>2</sub> is not usually available and so we have no experience of that in this unit.

### 34–37 weeks

Oxytocin induction is utilised in most instances. This is to accomplish delivery shortly after 24 hours. If Bishop Score is

extremely unfavourable, conservative management is prolonged a bit — 48 hours.

### **28–33 weeks**

The risk of pulmonary immaturity is more than the risk of infection in this group. Conservative principles are established, but patient is given prophylactic antibiotics.

### **Before 28 weeks**

These patients are given prophylactic antibiotics and the fetal well-being monitored serially. Experience has shown that even when all liquor has drained out almost completely, the fetal heart may still be pulsating. But soon after this, labour automatically sets in, and non-viable fetus is expelled. The main principle is to protect the mother from spreading chorioamnionitis and refer to a better equipped unit.

## **MULTIFETAL GESTATION**

With routine ultrasonography, multiple gestation are diagnosed even very early in pregnancy as early as 6 weeks once the gestational sacs are formed.

### **Anti-Partum Management**

The following conditions are known to be associated with twin pregnancy — maternal family history of dizygotic twins, older multigavida, fertility pills (clomiphene) or injections (Pergonal) and uterine size is greater than menstrual dates.

Proper care requires regular clinic visits to check blood pressure, blood count and urinalysis is done to screen for diabetes. Serial ultrasound examination (every 3–6 weeks) are done because it is known quite often that pregnancy could start with multiple (e.g. twins) and one of the fetus may be aborted. This could leave the other one to survive and continue to develop until term.

There is greater risk of preterm labour but routine cervical cerclage for twinning is not justified. The same guidelines for the administration of tocolytic drugs and corticosteroids as applied to singletons are also applicable to twins.

Mothers of triplets are advised to stay in bed throughout the pregnancy.

During the third trimester, ultrasound scan is also useful in searching for placenta location, conjoint twins, stuck twin syndrome, mono-amniotic twins with cord entanglement, and any space occupying anomalies.

## **INTRA-PARTUM MANAGEMENT**

### **Vaginal Delivery**

At the onset of labour, sterile vaginal examination is performed. Artificial rupture of membrane is carried out. If there is uterine inertia, especially in primigravida, pitocin augmentation is carried out cautiously. Episiotomy is performed and twin A is delivered in the normal manner of a singleton.

### **Delivery in twin B**

In this unit, *active management* of twin B is the rule. In passive management, patient is allowed to remain on the delivery couch until she naturally feels like pushing, membrane is allowed to rupture spontaneously and if presenting part is cephalic or breech, delivery occurs naturally with minimal intervention. If it is hand prolapse or transverse lie, then Caesarean section is performed.

### **Dangers of passive management of second twin**

There is greater risk of:

1. abruptio placentae
2. constricted uterine ring
3. cord prolapse
4. hand prolapse
5. transverse lie
6. intra/post partum haemorrhage
7. retained second twin.

### **Active management of twin B**

Immediately twin A is delivered, an intravenous line is set up with 5% dextrose:

- If the presentation is cephalic, artificial rupture of membrane is performed immediately, and labour is allowed to progress normally to vaginal delivery.

- If presentation is breech — ARM is done, and normal assisted breech delivery is performed.
- If presentation is abnormal, i.e. hand or cord presentation or transverse lie ARM is done and immediately before all the liquor drains out, the gloved hand is inserted into the uterus to hold the feet (recognise the heels) and this is pulled down — this is breech extraction. The hallmark of success here lies in making sure the hand is *NOT* mistaken for the leg, and the intra uterine manouvre is carried out when liquor is still present.

I have used this method before in the delivery of quadruplets — the Q<sub>2</sub>, Q<sub>3</sub>, Q<sub>4</sub>, management with internal podalic version (see Chapter 9).

Indications for Caesarean section in multifetal pregnancy:

- Breech presentation in Twin A.
- Cord prolapse.
- Delivery of Twin B if there is prolapse cord: persistent transverse lie; constricted uterine ring; abnormal fetal heart rate pattern, and failure of descent of presenting part.

The technique in Caesarean section depends on the situation of the fetuses and the expertise of the physician. When in doubt at all, a vertical skin and uterine incision may be necessary for adequate space.

However, as much as possible vertical uterine incisions are avoided because of the risk of rupture in the next pregnancy.

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## Obstetric Haemorrhage

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There are many causes of bleeding in the second half of pregnancy, labour and early puerperium.

### *Obstetric*

*Causes:* Labour — bloody show  
vasa praevia  
placenta abruptio  
placenta praevia  
post partum haemorrhage  
ruptured uterus

### *Non-Obstetric*

*Causes:* cervical erosion  
cervical polyp  
cervical carcinoma  
trauma

Haemorrhage from various causes constitute the major reason for maternal morbidity and mortality in obstetric and gynaecological practice. Any patient presenting with bleeding at any time must be assessed rapidly and treatment instituted promptly.

A detailed but relevant history is taken. The amount and character of the bleeding is determined. Is there any pain prior to the bleeding, and how is it related to uterine contraction? Vital signs of the patient are recorded. The uterus is examined for tenderness, tone, or contractions. Digital vaginal examination is *NOT* done until ultrasonography has ruled out placenta praevia. Fetal heart activity is noted and monitored.

Blood is taken for packed cell volume (PCV) and for Grouping and Cross-matching. Clotting time using the capillary tube technique is done occasionally. Coagulation studies (PT, PTT, platelet count fibrinogen, fibrin degradation products) are desirable but are not done here because the facilities are not available.

An infusion of 5% glucose or Dextrose in saline is set up using an 18-Gauge cannula.

Ultrasonography is necessary as soon as possible. The diagnosis of placenta praevia can be made with utmost precision. A full bladder enables a clearer vision of a lower placental abruption. This usually appears as a sonolucent retroplacental mass, or an elevation of the membranes. However, occasionally, the retroplacental blood appears homogenous with the placenta. The cloudy view of the liquor may be an evidence of haemorrhage due to abruption.

If pregnancy is not near term, and ultrasound has ruled out major praevia, the patient is to be admitted into the hospital for a while until bleeding has stopped, after which the patient is discharged home. Where there is no access to ultrasonography, the patient may be advised to stay in hospital until term. Sexual intercourse is contraindicated, and physical activities are restricted. Such patients are seen in the clinic weekly until term.

### **Placenta Praevia**

Certain factors are known to be associated with placenta praevia: These include the following:

- uterine contour abnormalities
- multiparity
- multifoetal pregnancy
- prior Caesarean deliveries

In 2nd trimester, almost 50% of all placenta are low lying, many are only diagnosed by ultrasound without any bleeding. They are called 'silent placenta praevia.' But as pregnancy approaches term, they are said to 'migrate' upwards, and only about 3% are still praevia at 38 weeks.

As a rule, a patient with placenta praevia is admitted for hospital management. However, there are specific criteria for discharge and follow-up outpatient management:

- (a) Bleeding has stopped completely for 5 days or more

- (b) no severe anaemia, PCV > 30%
- (c) prematurity of the fetus
- (d) ultrasound scan revealed minor praevia
- (e) patient has ready access to the hospital in case of emergency

### **Technical Details or Caesarean section in Placenta praevia**

Certain conditions are commonly associated with major praevia:

1. the placenta may occupy the anterior lower segment of the uterus.
2. the lower segment may contain aggressively dilated vascular blood vessels.
3. foetus may be transverse or oblique, because head is not engaged. The usual recommended operative technique here is classical Caesarean section.

However, in this unit, I have never had to do classical Caesarean section for these conditions. A 'high' lower segment incision is made, and if the placenta is felt low or down, the hand is swept to the upper edge, and artificial rupture of membrane is performed. With the gush of liquor, amni, the fetus is delivered cephalic, but in any other abnormal lie or presentation, delivery is by breech, and may be preceded by internal podalic version. Classical incision, and all its attendant complications are thus avoided.

### **Abruptio Placentae**

This condition is most commonly associated with:

- hypertension
- smoking
- cocaine use
- trauma
- marginal placenta

These conditions all lead to chronic utero-placental insufficiency. In order to be able to manage this condition with successful maternal and fetal outcome, two considerations should be made urgently:

- Is the baby still alive?
- How far dilated is the cervix?

It is unfortunate that most of the cases of abruptio that present to this unit already come with intra-uterine death with 'couvalaire' uterus. If the cervix is ripe and already dilating, management in this condition is artificial rupture of the membrane and pitocin augmentation. Vaginal delivery can be successfully accomplished.

However, if the fetus is still alive and the cervix is not near or already at 2nd stage, the management is emergency caesarean section. Fetal demise is very precipitous in this condition and every second gained is essential to ensure fetal survival.

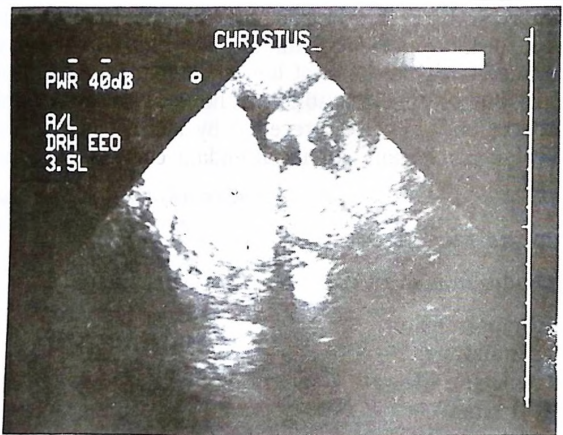


Fig. 7.1: Shows a low-lying placenta at 25 weeks. The patient was reassured that there is still the possibility of relative migration fundally as pregnancy advances. A repeat scan is requested at 37 weeks gestation if there is no further bleeding. Can one make a diagnosis of placenta praevia at 25 weeks? Yes, by ultrasound.

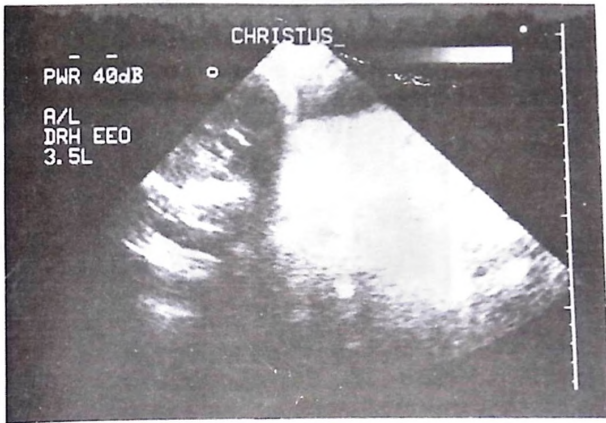


Fig. 7.2: Shows the fetal head covering the lower edge of a low-lying placenta. The patient had slight bleeding at 32 weeks. This is Type IIB placenta praevia. A repeat scan is requested at 37 weeks.

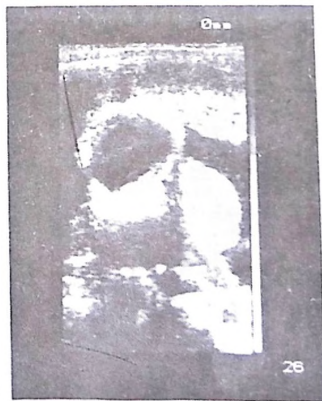


Fig. 7.3: Two placenta sites are identified — the anterior placenta and the posterior succenturiate lobe. This is separate from the main body of the placenta thinning between the two portions of the placenta. This may increase the risk of retained placenta at delivery with this anatomical variation.

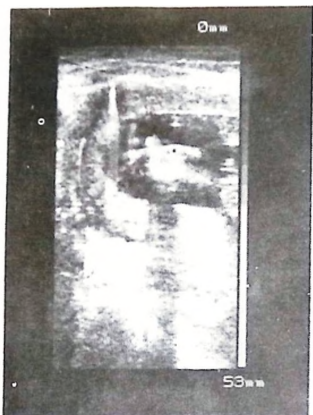


Fig. 7.4: Shows the placenta extending from the anterior lower segment, to the inferior and then posterior lower segment. The patient showed no symptom of bleeding at the time of this scan (26 weeks). This insertion is central and a repeat scan at 37 weeks is mandatory.

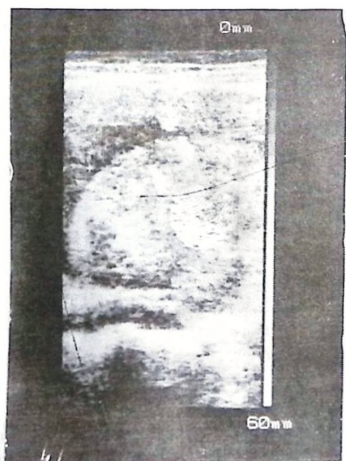


Fig. 7.5: Placentomegaly: There is a thick homogenous placenta with oligohydramnios. There is associated intrauterine growth retardation in the foetus. The mother is rhesus negative.

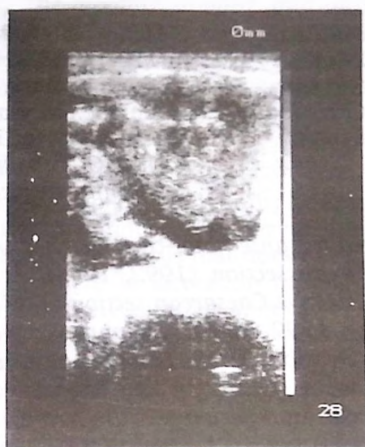


Fig. 7.6: Abruptio placenta showing retroplacental clots.



Fig. 7.7: There is huge concealed retro placental clot — abruptio placenta. The mother had severe hypertension.

**CASE PRESENTATION**

<b>NAME:</b>	<b>MRS L.O.</b>	<b>DATE:</b>	<b>12/11/98</b>
<b>Unit No:</b>	<b>2460</b>	<b>D.O.B:</b>	<b>1968</b>
<b>Occupation:</b>	<b>Secretary</b>	<b>Date of marriage:</b>	<b>1992</b>
<b>Religion:</b>	<b>Christianity</b>	<b>Menarche:</b>	<b>16 years</b>
<b>Husband:</b>	<b>Lawyer</b>	<b>Menstrual cycle:</b>	<b>3/28 days</b>
		<b>Parity:</b>	<b>G<sup>3</sup>P<sup>2+0</sup> all alive</b>
		<b>Last confinement:</b>	<b>1995</b>

*Mr. L.O. was booked for ante-natal care on 12/11/98. She had two previous Caesarean section (1992, 1995). At booking she was counselled for elective Caesarean section at 37 weeks which was to be 10th May, 1999. She agreed and even wanted to sign for Bilateral tubal ligation (BTL). She was advised to seek her husband's consent before signing for that.*

*The rest of the ante-natal period was uneventful.*

*She came for admission on 6th May, 1999.*

*On 7th May, 1999, 5.00 p.m., she was taken to theatre for elective Caesarean section. The operation was straight forward, no apparent complication, and patient was taken back to her room.*

*9.30 p.m. The patient was said to be bleeding, BP was 90/70. Pulse 92 beat/minute, respiratory rate 22 cycles per minute. The foot of the bed was elevated.*

*10.00 p.m. Intravenous fluid was changed, BP was 90/50 mm. Normal saline was set up, with 40 units of pitocin added, and iv Ergometrine 0.5mg given. The bleeding did not stop despite all these regimes. It was decided that laparotomy should be carried out urgently. On inspection, all the operation sites were intact, no slipped knots and the peritoneal cavity was clean.*

*But the uterus was like sponge soaked with blood. The husband was summoned and advised to sign for hysterectomy, which he did immediately and without hesitation. Sub-total abdominal hysterectomy was performed. On removal the uterine cavity*

was filled with blood (see Fig. 7.8).

The bleeding stopped, and although the patient went through a very protracted post-operation recuperation, she was discharged home with her son on the 32nd post-operation day.

### Commentary

Hysterectomy may be performed during Caesarean section in any of the following conditions: intrauterine infection, a defective scar, severely hypotonic uterus that does not respond to oxytocin and massage, if there is laceration of major, uterine vessels. Caesarean hysterectomy may be done in cervical dysplasia or cervical myoma and placenta accreta or increta.

In this patient, the cause of the bleeding might have been due to an unidentified rent in the previous scar, uterine atony or both. Whatever the case, the operation saved the patient from catastrophic primary post-partum haemorrhage.

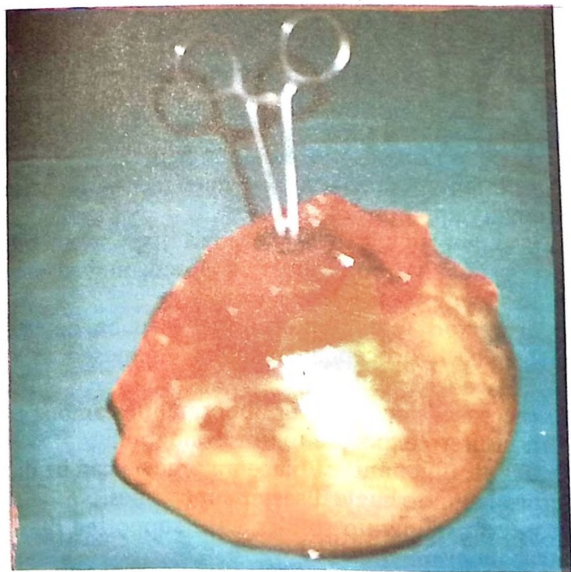


Fig. 7.8: The uterus was sponge-like and filled with blood. It was removed as a result of intractable post-partum haemorrhage.

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## Fetal Well-Being (FWB)

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### THE FETUS AS A PATIENT

During pregnancy, it is always necessary to establish parameters which will help to determine the fetal well being. If these parameters are defective, this is indicative of fetal malaise and corrective measures are taken as appropriate.

### ULTRASONOGRAPHY

In this establishment *ROUTINE* ultrasonography is done for all our ante-natal patients for the following reasons:

- (a) the level of education, many patients may not remember their LMP accurately — accurate dating by ultrasound becomes necessary.
- (b) early detection of multi-fetal pregnancy.
- (c) ectopic pregnancy may be detected early before it is clinically apparent or ruptures.
- (d) missed abortion can be detected even when pregnancy test is positive and cervix is closed, and even with no clinical symptoms whatsoever.
- (e) unsuspected fetal abnormalities can be detected very early, i.e. hydrocephaly can be diagnosed as early as 14–15 weeks cysis.
- (f) no increased incidence of abnormalities among offspring with in-utero exposure to ultrasonography.
- (g) non-clinically manifest placenta praevia can be diagnosed before haemorrhagic disaster supervenes.
- (h) long-term follow-up studies have supported the safety of ultrasonography.

- (i) the cost has been deliberately kept within the limits that are easily affordable by the patient (roughly \$3 per scan).

Routine ultrasonography is the key factor in prophylactic obstetric practice.

### **Gestational Age Determination**

Different parts of the fetal body are measured in order to determine the gestational age. The parts that are measured depend on the gestational age of the fetus at that time, the position of the fetus, the experience of the obstetrician and the quality of ultrasonic equipment.

### **Diagnosis of Pregnancy**

Pregnancy can be diagnosed with confidence and reliability by the sixth week amenorrhoea. But even from the fourth week, pregnancy can be suspected.

At fourth week amenorrhoea, the uterus already becomes bulky, there may be a disappearance of the midline echo, and the echogenicity of the myometrium becomes less specular or granular. This is the typical picture of uterus under increased hormonal influence. This could occur also in patients taking hormonal contraceptives. A corpus luteum cyst of pregnancy may be detectable in one of her ovaries, the latter is not invariable.

At fifth week amenorrhoea a small gestational sac is usually detected. The sac is small, ring-like, intact, with regular wall. No fetal 'cloud' is visible at this stage.

At sixth week amenorrhoea, the sac will have increased in size, fetal echo usually can be seen but no fetal heart pulsations.

At seventh week amenorrhoea fetal heart can be detected unequivocally by visualising the pulsations of the fetal heart.

The diameter, area and volume of the sac have all been used to estimate the gestational age. But in my practice, I have found the measurement of crown-rump length much easier and very accurate as from seventh week onwards.

However, there are some scans that may throw one into dilemma. If there is fetal 'cloud', and no heart beat, one may not be sure whether one is dealing with '6 week cyesis' or "missed abortion". This is usually resolved by asking the patient to come back in two weeks for a repeat. If it was "6 week cyesis" the pregnancy would have grown to 8 weeks, with the fetal

crown-rump length accurately measurable. If the situation is static or even the sac has collapsed or the edge is ragged, missed abortion is confirmed.

### **Gestational Sac**

This measurement is useful from 5 to 10 weeks of gestation. It increases 7mm/week, 2cm in 6 weeks, 5cm in 10 weeks. The shape of the sac can vary due to compression of the bladder. The shape is also affected by myomas. I have not found it necessary to measure the gestational sac diameter to determine the gestational age of pregnancy.

### **Crown-Rump Length (CRL)**

This is useful from 7 weeks to 14 weeks. It increases by 1mm/day or roughly 1cm/week, and reaches 7.5cm at 14 weeks. Small measurement errors are of very little clinical significance, and projected crown rump lengths are the most accurate in all gestational age measurements.

The reason for this high accuracy in fetal length and age in early pregnancy is that pathological disorders will minimally affect the growth of the fetus at this age.

If a sonogram is not readily available to read the gestational age, a convenient GA in weeks = CRL in cm + 6. The CRL is not considered accurate after the 12th week because of the flexion and extension of the active fetus.

*Biparietal Diameter (BPD)* increases by 3mm/week between 16–29 weeks. It increases less than 2mm/week between 30–40 weeks.

This measurement is usually perpendicular to the mid-line echo complex. Along the midline echo, the paired thalamus lies on each side of the midline. The thalamus assumes a heart shape with the apex projected towards the occiput of the skull. Between the thalamus lie the slit-like cavity of the third ventricle. The rectangular-shaped cavum septum pellucidum is anterior to the thalamus. The anterior horns of the right and left ventricles are noted as two parallel interphases located within the frontal lobe. The area of the corpus callosum is located between these structures.

The calipers should be placed from the leading edge of the parietal bone to the other edge, or “outer edge to inner edge”.

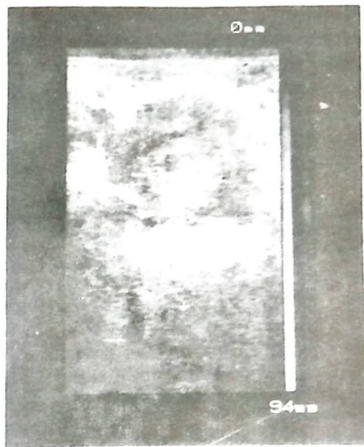


Fig. 8.1: Intradecidual sign — early implantation of the gestational sac. A gestational sac with diameter of 19mm is implanted into the superficial aspect of thickened endometrium. Note that the uterus is already enlarged AP 9.4cm. This corresponds to 5 weeks menstrual age.

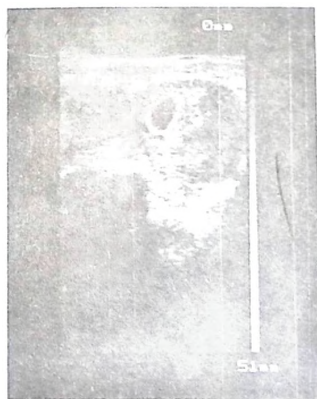


Fig. 8.2: The intradecidual sign plus double bleb sign is noted. The gestational sac is surrounded by hyper-echoic rim. The gestational sac diameter is roughly 5mm (5.4 weeks menstrual age).

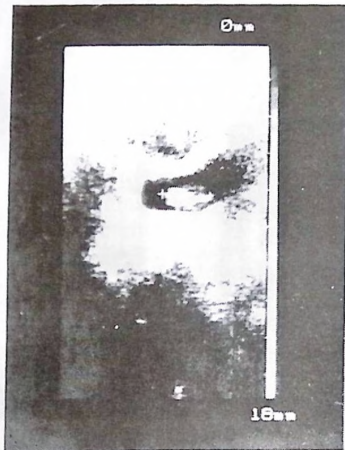


Fig. 8.3: A coronal sonogram of the embryo with CRL of 18mm. The posterior elements of the thoraco-lumbar spine is vaguely delineated despite the lack of ossification at this stage. The embryonic length corresponds to 8<sup>+4</sup> weeks (8 weeks 4 days).

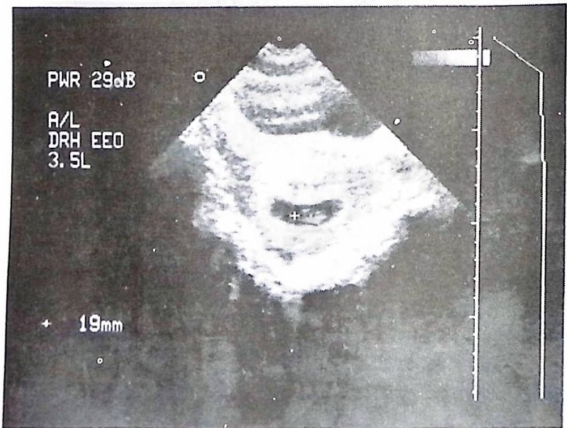


Fig. 8.4: Transverse pelvic sonogram of a fetus with crown-rump-length of 19mm. The gestational age is 8 weeks 4 days. This is sector probe.

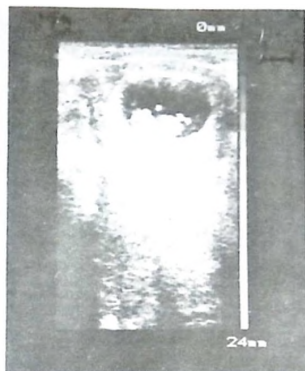


Fig. 8.5: The embryo and amnion at 9 weeks 3 days. The embryonic head is well defined. There is absolute increase in the volume of the amniotic sac compared with the embryo at 8 weeks +. There is lack of ossification at the cranial vault.

### Head Circumference (HC)

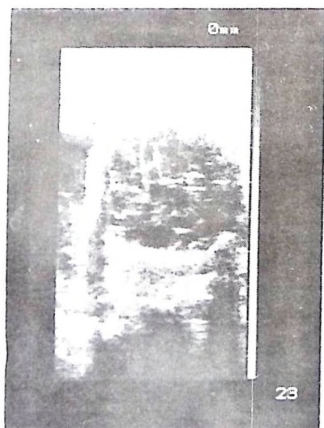
This measurement is valuable between 15 and 40 weeks. It increases 13cm/week between 23–31 weeks, increases 1cm/week between 32–40 weeks.



Fig. 8.6: The midline echo from which the BPD should be measured. The line is interrupted in front by the cavum septum pellucidum.



**Fig. 8.7:** Thalamic scan plane at 31 weeks gestation. The cavum septum pellucidum is located at the anterior portion of the head. The ambient cistern is located at the posterior portion of the head. The cerebral peduncles lie along the anterior aspect of the ambient cistern. This thalamic plane is used to measure biparietal diameter (BPD) and the Occipitofrontal diameter (OFD).



**Fig. 8.8.** The ventricular plane is used to measure the lateral ventricles. It is slightly cranial to the thalamic plane and it gives optional visualisation of the body and atrium of the lateral ventricles.



Fig. 8.9: The cerebellar plane is obtained by rotating the thalamic scan plane into the posterior fossa to show the cerebellar hemispheres. Landmarks include the cerebellar hemispheres, the cisterna magna, the thalamus, and the cavum septi pellucidi. The cerebellar plane is used to measure the antero-posterior diameter of the cisterna magna and the width of the cerebellar hemispheres. The width of the cerebellum can be used for dating purposes.

### **Abdominal Circumference (AC)**

It increases by 1.1cm/week between 14–28 weeks. Transverse section through the fetal abdomen at the level of the fetal stomach and umbilical vein as it branches into the left portal sinus.

### **Femur Length**

This measurement increases by 3mm/week between 14–25 weeks, from 26 weeks till term, the increase is 2–3mm/week.



Fig. 8.10: Femur length is measured along the axis of the diaphysis.



Fig. 8.11: The femoral curvature is disregarded. A straight line measurement is made from one end of the diaphysis to the other.



Fig. 8.12: It is advisable to measure the distal femur if both are visible on the screen. The one proximal to the transducer is less distinct and poor near-field resolution.

### Estimation of Fetal Weight

There are various techniques for the estimation of fetal weight. The most accurate and of course the most tedious is to take transverse scans of the fetus at regular small intervals along its length. The area of fetal parts shown on all the scans is then measured and multiplied by the distance interval between scans to give an estimate of fetal volume (Morrison, J. 1974). I have never attempted this method.

The second method for the prediction of fetal weight is to determine the abdominal circumference at the level of fetal liver, i.e. the visualization of fetal umbilical vein and base of stomach (Campbell, 1975). Other structures found at this section include fetal spine, aorta, the vena cava. Direct measurement of abdominal circumference can be made on the screen in most ultrasound machines.

The third method is most often used as a screening technique. This is to take the ratio of fetal head circumference to abdominal circumference. There is good evidence to suggest that all fetuses

in weight group above the lower percentile have abdominal circumference that exceed the head circumference after 36 weeks gestation.

### **Threatened abortion**

Visible milestone include seeing the gestational sac at 5 weeks, the embryo at 6 weeks and foetal heart pulsations at 7 weeks.

A blighted ovum or missed abortion is to be suspected if the gestational sac does not increase in size during a period of 2 weeks.

### **Fetal Malformations**

Fetal genetic malformations should be suspected if there is polyhydramnios or oligohydramnios.

## **Intrauterine Growth Retardation**

In order to make accurate diagnosis of IUGR, the following findings on ultrasound are very suggestive:

### **A. Biparietal diameter (BPD)**

- not very helpful because fetal head growth may not be affected.
- if BPD and HC measurements are small, then microcephaly is suspected.
- there could be a flattening pattern of the skull.

### **B. Oligohydramnios**

- normal liquor volume is inconsistent with IUGR.
- if no pocket of fluid is observed that is at least 2cm in perpendicular dimension, or an amniotic fluid index (AFI) of less than 5, IUGR is suspected.

### **C. Femur Length (FL)**

- measurement is useful especially if dwarfism is the cause of the IUGR.
- after 22 weeks, the ratio of femur length to abdominal circumference (FL:AC) is equal to  $0.22 \pm 0.2$  in normal growing fetus. A FL:AC of more than 0.24 is suggestive of IUGR.

**D. Head Circumference/Abdominal Circumference**

- as gestational age increases, the ratio decreases.
- the measurements are equivalent at 36 weeks.
- if the AC fails to increase by at least 10mm over a 14 day period, IUGR is highly suggestive.

**E. Estimated Fetal Weight (EFW)**

- accurate determination of gestational age is necessary.
- weight of the fetus can be predicted from published tables if the BPD or FL and AC are known.
- EFW is less accurate in predicting IUGR if there is oligohydramnios, multifetal gestation, fetal malpresentation or the fetal weight is above 2500g.

**Large-for-gestational-age**

If the uterine size is greater than predicted for date, the following conditions are considered: inaccurate dating, large-for-gestational age (LGA) fetus, multi-fetal gestation, polyhydramnios, pelvic mass (i.e. uterine fibroid and ovarian tumor) and hydatidiform mole.

**Multi-Fetal Gestation**

The following characteristics are worthy of note:

- two sacs usually can be identified in the first trimester.
- in small proportion, the twins may be mono amniotic, this condition may lead to umbilical cord entanglement, twin-twin transfusion, birth trauma, congenital anomalies or conjoint twins.
- repeat scans are needed to rule out intertwin growth discordance, twin-twin transfusion, difference in amniotic fluid volume, fetal size and fetal heart rate.
- biophysical profile — breathing patterns, limb motion, muscle tone and amniotic fluid volume.

For beginners, it is a common mistake to diagnose multiple pregnancy simply by identifying the skull in one segment, and the thorax in another segment. A patient has been referred to me who had been told she was carrying triplets when actually the pregnancy was singleton. The mistake must have arisen by taking

various segments of head, thorax and abdomen as different heads.

The problem is to decide which heads, thoraxes and breeches relate to each other. In common case of twins, both heads should be visualised in the same plane, or the same corresponding parts of both fetuses, i.e. both hearts, or skull, or even both scrotal sacs if both are males.

### Additional use

Ultrasonographic surveillance is required in the following:

1. Before and after special procedures, i.e. cervical cerclage, location of the placenta before Caesarean section.
2. Determination of fetal presentation.
3. Diagnosis of Intrauterine Fetal Death (IUFD): No fetal heart or limb motion, collapsed cranium.
4. Localising fetal heart and other body parts during the delivery of a second twin.
5. Determination of fetal sex by visualising the penis as early as 16 weeks.
6. Assessing fetal maturity — biometry and placental grade.

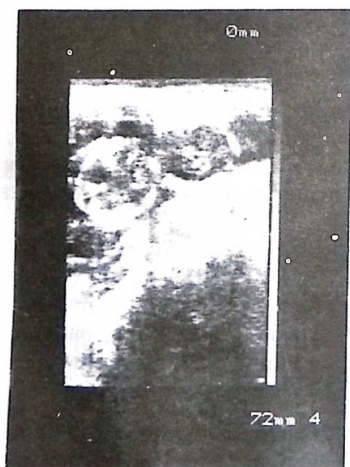


Fig. 8.13: Twin pregnancy — two fetal heads are shown on the screen simultaneously.

## Amniotic Fluid Volume

A semi-quantitative way to describe amniotic fluid volume is the *amniotic fluid index*. The uterus is divided into four quadrants as defined by the linea nigra and the umbilicus. In each of the four quadrants the largest vertical pocket of amniotic fluid free of umbilical cord and fetal parts is measured. These four numbers are added together. The normal values vary from 5 to 24. Values above 24 or less than 5 are clearly abnormal.

The biophysical profile, BPD and the amniotic fluid index (AFI) are the most valuable predictors of fetal well-being. In this unit, the amniotic fluid index is found very predictive of fetal well being in postdatism.

## Fetal Gender

In this unit, male sex is recorded as XY, while female sex is recorded as XX.

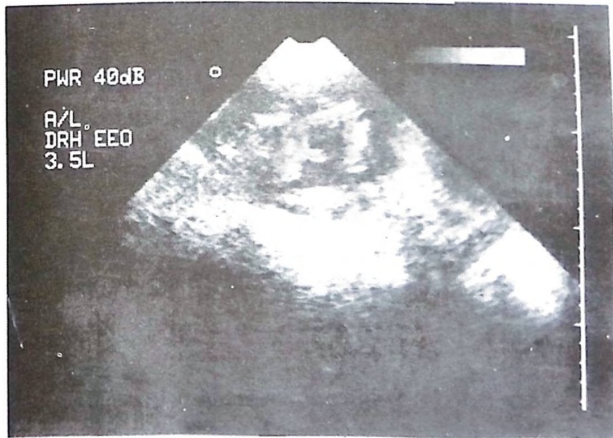


Fig. 8.14: Sex  
The budding phallus is identified at 17 weeks gestation.

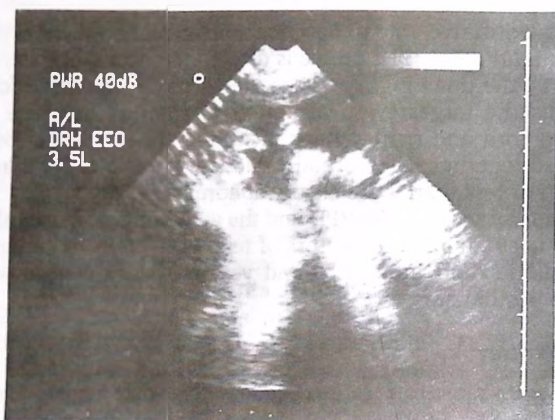


Fig. 8.15: Sex XY  
The phallus and the scrotum at 30 weeks gestation



Fig. 8.16: XY  
The full grown phallus and scrotum at 37 weeks gestation

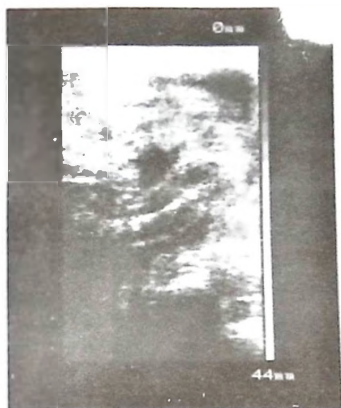


Fig. 8.17: XX  
Labial folds at 24 weeks gestation

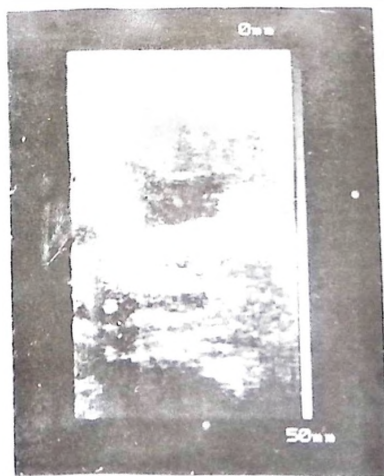


Fig. 8.18: XX  
Labial folds at 27 weeks gestation



Fig. 8.19: Female Sex  
Full grown labia majora at 36 weeks gestation

## COMMON CONGENITAL ABNORMALITIES

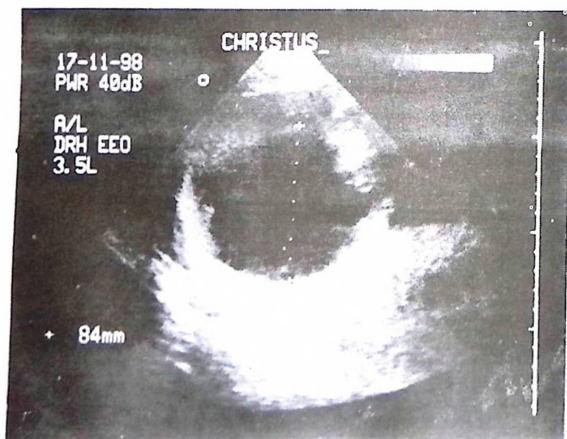


Fig. 8.20: Hydrocephalus  
The cerebral ventricle is 84mm dilated

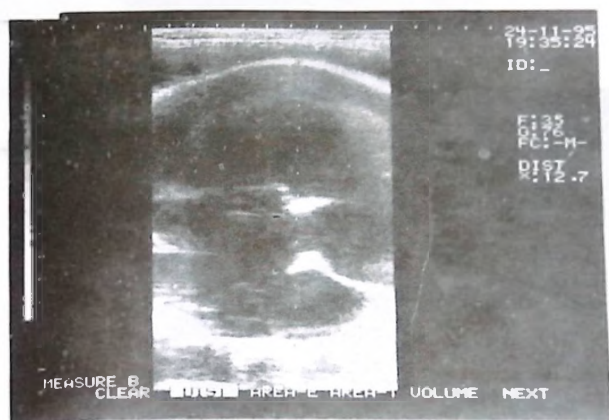


Fig. 8.21: Hydrocephalus  
BPD 12.7cm there is pan-ventriculomegaly



Fig. 8.22: Hydrocephalus  
The cerebral ventricle is dilated to 66mm

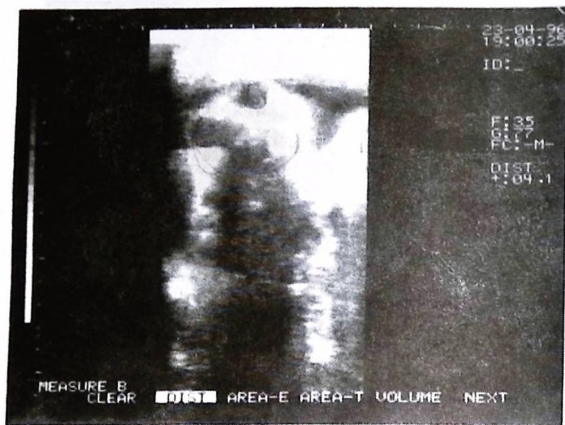


Fig. 8.23: Anencephaly at 31 weeks

### **Sonographic Features of Fetal Hydrops**

1. There is increased thickness of the placenta — hyperplacentosis. A placenta measuring 4cm is abnormal.
2. Increased thickness of the body wall and of the scalp.
3. Hepatosplenomegaly.
4. Dilatation of the umbilical vein and ductus venosus.
5. Pleural and pericardial effusions with ascites.



Fig. 8.24: Hydrops fetalis  
There is increased thickness of the scalp



Fig. 8.25: Hydrops fetalis  
There is polyhydramnios, maximum liquor depth recorded at 115mm



Fig. 8.26: Hydrops fetalis  
Massive fetal ascites with gut structures floating inside

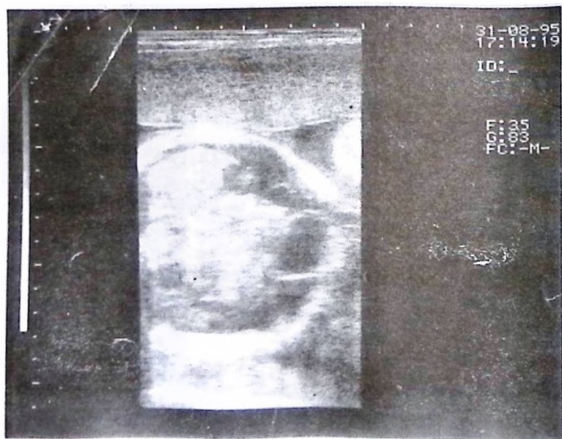


Fig. 8.27: Fetal ascites  
The gut structures and general visceral organs are hyperechoic

## Intra-Partum Monitoring

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### INDUCTION OF LABOUR

Before labour can be successfully induced, two conditions must be satisfied:

- (a) the cervix must be ripe — sufficient cervical compliance.
- (b) there must be means of achieving adequate uterine contractions.

### Indications for induction of labour

Labour is induced in situations whereby the intrauterine environment is no longer favourable for continued fetal survival i.e.

- postdatism
- abnormal fetal heart rate pattern
- intra-uterine growth retardation (IUGR)
- premature rupture of membranes for 24 hours
- chorioamnionitis
- poorly controlled diabetes
- pre-eclampsia
- significant cardiac/pulmonary disorders
- neoplasia.

The following are the relative contra-indications:

- previous Caesarean section
- grand-multiparity
- feto-pelvic disproportion.

Extreme caution is required in inducing labour in polyhydramnios because of the risk of the following complications:

- cord-prolapse
- abruptio placentae
- ruptured uterus.

Labour could be induced with caution in twin pregnancy, breech presentation and previous full-thickness myomectomy — but if there is no progress, the trial should be quickly abandoned for Caesarean section.

The probability of achieving successful induction is predicted by Bishop score as shown in the following table:

### **Bishop Score for Assessing the Cervix before induction**

	0	1	2	3
Dilatation (cm)	0	1-2	3-4	5-6
Effacement (%)	0-30	40-50	60-70	80-100
Station	-3	-2	-1, 0	+1, +2
Consistency	firm	medium	soft	
Position	Posterior	mid	Anterior	

A Bishop score of 9 is almost always associated with successful induction. If the score is less than 4, the cervix is unfavourable and carries a poor prognosis.

### **Cervical Ripening**

There are various methods of ripening the cervix:

- intracervical application of 0.5mg of prostaglandin E<sub>2</sub>.
- stimulating the nipple for ½ hour 3 times daily.
- stripping of membranes.
- mechanical dilatation using foley catheter.

In our practice in this hospital we have been able to achieve considerable degree of success with the latter two methods i.e. stripping of membranes and insertion of Foley's catheter.

A patient for cervical ripening is usually admitted to the ante-natal ward, and the Foley's catheter is inserted into the cervix under direct vision. The balloon is then inflated with 30mls of normal saline, sterile water can also be used. The patient is allowed to move about freely in the ward.

Between 12 and 24 hours, the catheter would have dropped out by itself or can be pulled out easily. By the time this happens, the cervix is almost 4cm dilated, and Bishop score must have increased to 9.

### **Oxytocin Administration**

An intravenous infusion of 5% dextrose is administered through an 18 gauge intravenous cannula. Four units of pitocin is added to 500mls of dextrose and allowed to run at 15 drops/minute. If there is no response, the rate is increased to 30, and then 60 drops per minute. If there is still no response, pitocin units added is increased to 8, 16, 32, 64, 128 respectively by upward gradation until contraction is established. This hospital has not been using calibrated infusion pump.

Immediately labour is established intra partum monitoring is done with the partogram (see Christus' Partogram in chapter 2).

### **Failed Induction**

If all the necessary conditions for induction are satisfied — it is not likely that labour would fail to start. But in some rare occasions, the baby would have been under stress, the placenta may have developed features of insufficiency. The most logical option is to perform emergency Caesarean section. (Fig 9.1). If patient is discharged home after a failed induction, she will most likely come back with intra-uterine death.

### **Vaginal delivery after Caesarean section**

In this hospital, the notion that "once a Caesarean section, always a Caesarean section" is not tenable.

Patients with one previous Caesarean section are usually given the benefit of a trial of vaginal delivery under the following conditions:

- The previous Caesarean section is for a non-recurrent factor, i.e. not due to contracted pelvis or cephalopelvic disproportion. If the indication for the previous Caesarean section is pre-eclamptic toxæmia, or eclampsia, ante-partum haemorrhage due to placenta praevia or placental abruptio, such patients are allowed the benefit of trial of vaginal delivery.

- The previous operation is not classical Caesarean section. It is significantly more associated with greater risk of rupture.
- Intensive surveillance is maintained, partographic intrapartum monitoring — there should be no abnormality as labour progresses.
- Consent should be obtained for operation prior to commencement of procedure.
- An intravenous line should be set up once labour is established.
- Oxytocin stimulation or augmentation is not allowed.
- Clinical pelvimetry, particularly the head fitting test, is performed to ascertain whether the pelvis is adequate and no cephalopelvic disproportion.
- Prophylactic use of forceps or vacuum delivery is not routine.
- Lower segment exploration is carried out after baby is delivered.
- $\frac{1}{4}$  hourly monitoring of the mother's vital signs continues for 6 hrs after delivery.

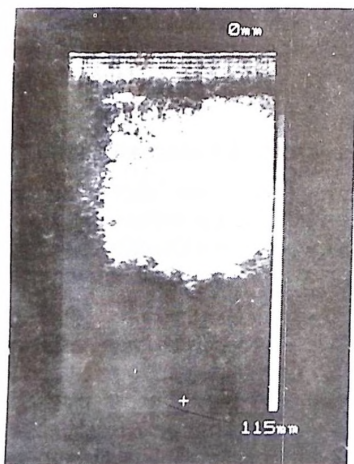


Fig. 9.1: Placenta after failed pitocin induction. There is ground-glass mottled appearance of the placenta. Any further delay would lead to fetal distress and intra uterine death.

In this hospital, there is no place for trial of vaginal delivery when Caesarean section has been done twice or more. At the 4th Caesarean section, the patient is advised to sign for bilateral tubal ligation which is usually done during the operation for elective Caesarean section.

## PROPHYLACTIC ANTIBIOTICS FOR CAESAREAN SECTIONS

In spite of all sterile and aseptic techniques embarked upon for Caesarean sections, prophylactic antibiotics are routinely administered. There are numerous conditions that even make it mandatory for prophylactic antibiotic therapy to be administered, viz: ruptured amniotic membranes for 6 hours or more, multiple vaginal examinations and low socio-economic status.

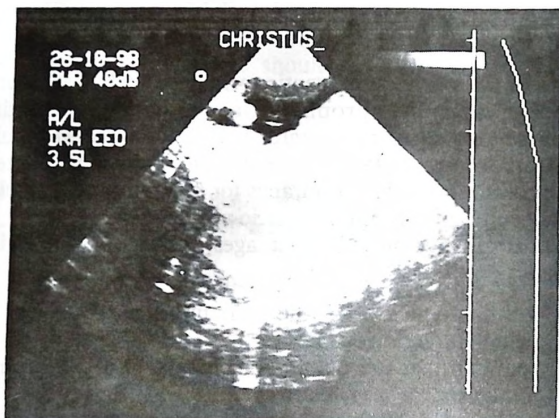
There are other added advantages arising from prophylactic antibiotics:

- low incidence of febrile morbidity, wound infection and urinary tract infection.
- reduction in the quantity and duration of post operative analgesia
- ambulation of patient is rapid, patients can commence on graded oral feeding within 24 hours of the operation, as soon as bowel sounds are present.

For many years, ampiclox and metronidazole (flagyl) have been administered intravenously immediately after the last skin stitch.

However, recently, a single antibiotic with broad spectrum coverage, a class of the first-generation cephalosporins appears to be more effective — this is used alone or combined with metronidazole.

The antibiotic is not administered for more than 48 hours post-operatively. Since no infection has been allowed to set in, this limited regime reduces financial cost and potential drug complications.



**Fig. 9.2:** *Placenta in Pitocin Stimulation:* The placenta has ground glass mottled echodense appearance, but no calcification. There is a clear anechoic margin at the base. This picture has been noticed also in patients with:

1. Pre-Eclamptic toxemia
2. Preterm labour

It is a picture which indicates that placenta insufficiency is imminent.

## Intrapartum Complications

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Progress of labour is evaluated by comparison with established normal ranges. The determinants of labour that are evaluated include:

- strength of uterine contraction — its frequency and duration.
- progressive dilation of the cervix.
- progressive descent of the presenting part.

Adequate contraction means frequency of 1 in 2–3 minutes, and duration of 45–60 seconds on the average. Cervical dilatation during active phase of labour is about 1 cm per hour.

The first stage of labour occurs from the onset of true labour to complete cervical dilation and typically lasts from 6–18 hours in primigravida, and 2–10 hours in multiparous women. The second stage from complete dilation of the cervix until birth usually lasts 30 minutes to 3 hours in primigravida and 5 to 30 minutes in multiparous women.

### Breech Delivery

The overall incidence of Breech-presentation becomes less and less the nearer the gestation is to term. The incidence is substantially higher in earlier gestation, being roughly 40% at 28 weeks, 20% at 32 weeks; and 3% at term. Breech presentation is associated with higher incidence of cord prolapse, congenital malformations, placenta praevia and abruption placenta.

### Route of Delivery

Every patient coming into the labour room must have had an

ultrasound scan done if she is a booked patient. If the patient is unbooked, or the previous scan is breech, a repeat scan must be done before she enters the labour ward. Delivery materials required should be brought to labour room (see Table 10.1).

TABLE 10.1

**Christus Specialists' Hospital Nig Ltd****REQUIREMENTS FOR DELIVERY****BABY**

1. Baby Napkins 1 Dozen
2. Nappy Pants 2 Pairs
3. Baby Dresses 4 Pairs and 2 Bibs
4. Shawl 2, 1 Big towel
5. Small Towel, Sponge & Soap
6. Feeding Bottle, 2 tins of Glucose D
7. Small Cup, Spoon, Cotton-wool
8. Cord Clamp, Dusting Powder
9. Baby Oil, Soap, Lotion and Powder
10. Dettol, Comb, Spirit, Olive Oil
11. Disposable Nappy
12. Mother Care Sterilizing Unit
13. One Container for Placenta

**MOTHERS**

1. Pads 7 Packs
2. Iro & Buba 2 Pairs, or Maternity/Gowns
3. Slippers, 1 Big Towel
4. Sponge, Soap, Tooth Brush
5. Firm Brazier 2 Pairs
6. Bournvita, Milk, Sugar
7. Omo 2, Key Soap or Premier Soap
8. Big Cup, Spoon, Plate
9. Big Flask, 1 Packet of Blade
10. Face Powder, Comb

## **Caesarean Section**

The following are the indications for Caesarean Delivery of the breech fetus:

- footling and complete breech presentation
- frank breech presentation with Estimated fetal weight (EFW) 3800gm
- insulin dependent diabetes
- pelvic contracture by X-ray or clinical pelvimetry
- previous Caesarean section
- any co-existent obstetric indication for Caesarean section.

## **Vaginal Delivery**

In the absence of any of the conditions mentioned above, a patient with breech is allowed trial of vaginal delivery.

## **Forceps Delivery**

Forceps should be applied with cervix fully dilated and in the absence of cephalopelvic disproportion. The biparietal diameter should have passed through the pelvic inlet and the leading part of the skull has passed below the ischial spines (station 0+2).

In this hospital, forceps delivery has not been found to offer any advantage over vacuum extraction, and so the latter has been our preferred method of assisted vaginal delivery.

The following maternal complications are associated more with forceps:

- laceration of supporting pelvic structures
- cervical tear
- rupture of the bladder and rectum.

The fetal complications include:

- intracranial haemorrhage
- linear or depressed skull fracture
- brachial plexus injury
- cephalhaematoma
- fetal paralysis
- clavicular fracture

## Vacuum Extraction or Ventouse

The prerequisites for vacuum extraction of the fetus are the same as for forceps. These are:

- presenting part must be cephalic
- biparietal diameter has passed the pelvic inlet
- The leading part of the skull has gone below the Ischial spines
- the cervix must be fully dilated (or almost fully dilated)
- there should be no pelvic contracture by clinical or radiological pelvimetry
- the bladder must be empty
- there must be strong uterine contractions (occasionally this is achieved by pitocin augmentation)
- no pelvic outlet obstruction, although this can be overcome by generous episiotomy.

### Advantages of vacuum extraction

Of particular advantage is the fact that when the cervix is 8cm, the cup of vacuum extractor can be applied without traumatizing the cervix:

- the mechanical force applied to the fetal vertex is less
- the analgesic requirements are less (in many centres where forceps delivery is done, epidural anaesthesia is ideal)
- the application of the cups are considerably easier than the forceps blade
- less likelihood of genital and perineal lacerations
- the rotation of the head is not manual, the fetal head rotates by intrinsic dynamics of labour at 2nd stage to find its way out of the maternal pelvis.

One disadvantage of vacuum extraction is that caput formation may be scary to the mother, but this disappears within few days of delivery.

When the cup is applied to the fetal head, before the traction pressure is created, there should be no vaginal mucosa or cervical tissue caught between the vacuum and the fetal head.

Vacuum pressure of up to 50mm Hg should be maintained, and traction is applied during uterine contraction with the mother bearing down. The plane of traction is usually perpendicular to that of the cup application. A safety feature of the vacuum cup is its inability to remain on the fetal head during excess traction.

The operator's hand is maintained on the cup, so that if the cup disengages inadvertently, it will not move freely through the vaginal canal and trap maternal tissue.

Immediately the baby is delivered, the birth canal is inspected very diligently for any lacerations — the usual locations are on the cervix, vaginal vault, vaginal outlet, as extension of episiotomy. Any laceration detected is sutured immediately.

### **CASE PRESENTATION** **Vacuum Delivery**

Date: 4/10/93 Hosp. No. 7745  
 Age: 32 years  
 Para: 3<sup>+1</sup> 3 Alive All normal deliveries  
 Name: Chief Mrs. S.F.

Chief Mrs. S.F. was a 32 year old business woman, para 3<sup>+1</sup> 3 alive, all normal deliveries. Last confinement was 3 years before L.M.P. was 9-8-93, E.D.D. 16-5-1994. She was booked in this clinic on 4-10-93 and had an uneventful ante-natal period.

#### **21-4-94**

11.30 p.m. Patient was admitted into the labour room with complaint of low abdominal pain.

On examination, fundal height was 36 weeks size, lie longitudinal, right occipito-anterior, the head was not engaged and about 4/5 palpable above symphysis pubis. Foetal heart beat was heard and regular.

Vaginal Examination: The vulva and vaginal were normal. The cervix was 3cm dilated, membrane was already ruptured with clear liquor draining. Decision was to allow labour to progress.

Patient was re-examined regularly every hour, and put on partogram, only vital signs and fetal heart rate monitored, no vaginal examination.

#### **22-4-94**

6.00 a.m. B.P140/80 mm Hg.  
R.R.30/min.

*Pulse 72/min.*

*T-37°C, cervix was 6cm dilated.*

*10.00 am V.E. was done. Cervix was fully dilated*

*Head was at station 0+1*

*Right occipito-transverse.*

*12.00 noon Head was still at station 0+1*

*Decision was taken to deliver the baby by vacuum extraction.*

### **Procedure**

*Patient was put in supine position, with legs in lithotomy position.*

*The vulva was swabbed clean and bladder was catheterised and concentrated urine drained. The vacuum extractor was assembled, the medium cup was applied to the fetal scalp and the pump was manipulated to create negative pressure.*

*Episiotomy was performed; gentle but steady traction was exerted. The head rotated to the R.O.A. position and pulled down to the perineum.*

*Episiotomy was performed and head was delivered by pulling it down to the perineum.*

*The cup was disengaged, the posterior shoulder was rotated to the cavity of the sacrum, the anterior shoulder was delivered and body and legs followed. Placenta was delivered by controlled cord traction and episiotomy sutured. The patient was prescribed prophylactic antibiotics and discharged home the third day post partum.*

### **Commentary**

This is the type of labour that one might have described as normal and uneventful if not for the delay in the second stage. This delay was due to the deep transverse arrest. Vacuum instrument has been found very useful in this hospital.

Forceps: Wrigley's, Keillands, and Neville Barnes forceps are all available but we have not had any need to use any of them for the past twelve years.

The conditions that were satisfied before vacuum delivery was undertaken were as follows:

1. Cervix was almost fully dilated.
2. Presentation was cephalic.
3. Position was favourable.
4. There was good uterine contraction.
5. Membranes were ruptured.
6. Episiotomy was performed.
7. Bladder was empty.

### The Advantages of Vacuum Delivery

The advantages of vacuum deliveries over forceps are as follows:

1. Vacuum can be applied even when cervix is not fully dilated. It only means using a smaller cup.
2. The risk of genital laceration is very minimal in vacuum compared with forceps delivery.
3. Vacuum delivery is technically easier than forceps.
4. Vacuum delivery can be easily learnt by doctors who are not qualified obstetricians.
5. Vacuum delivery can be carried out by midwives.

It is my humble submission that private practice can function maximally with safety and efficiency in the area of obstetrics and midwifery without the use of forceps.

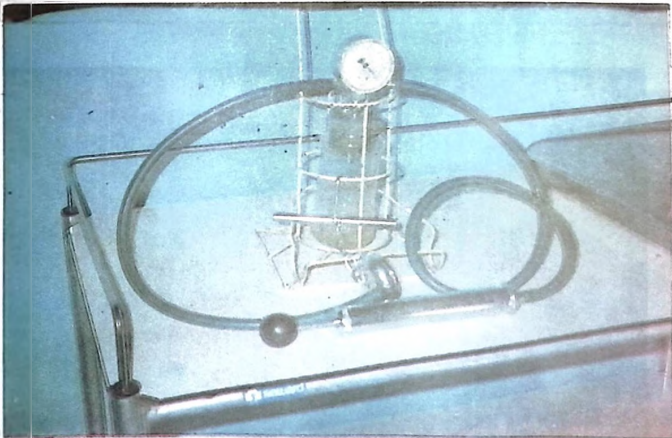


Fig.10.1: Component parts of a vacuum extractor — the cup applied to the baby's scalp, the glass bottle inside which the vacuum is created, the pump manually operated to create negative pressure, the gauge on top of the bottle is to indicate the negative pressure created.

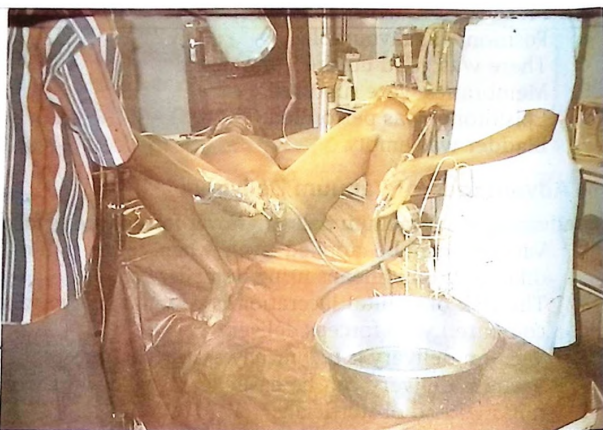


Fig. 10.2: The vacuum cup has been securely applied to the scalp of the fetus; care has been taken to ensure that neither the cervix nor the vaginal wall has been trapped by the edge of the cup. Episiotomy is performed at this stage.

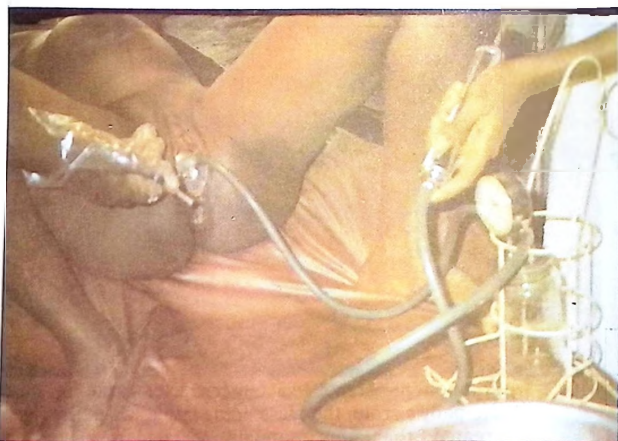


Fig. 10.3: The pump is manually operated to create negative pressure, and gentle but steady traction is exerted on the cup.



Fig. 10.4: With gentle pull downwards and then upwards, the head of the baby completes internal rotation in the birth canal and the head delivered by extension.



Fig. 10.5: The head of the baby is delivered with the chin resting on the perineum. The knob is unscrewed, pressure released and the cup removed. The rest of the delivery follows the normal dynamics of second stage.



headache, plus fever, and vomiting. She also had cough, insomnia and abdominal tenderness. Her L.M.P was 10-6-88.

Ultrasound scan was reported as triplets, BPD'S were 3.9cm, 3.7cm and 3.7cm. Gestational age was estimated to be 17 weeks.

She had a course of antimalarial treatment and she got better. She was registered in the Ante-Natal clinic and advised to be on bed rest throughout the pregnancy — but she refused on social grounds. (Her husband might marry another wife). She was not attending ante-natal clinic regularly either.

**3/3/89**

- 4.35 a.m. I was called to see our booked patient in labour.
- 4.40 a.m. Patient was examined in labour ward. The cervix was fully dilated. Patient was asked to bear down. First baby was delivered cephalic. Apgar score at birth 1min — 6, 5min — 10.
- 5.10 a.m. VE was done — bulging membrane was ruptured — presentation was footling breech — 2nd baby was delivered by assisted breech delivery. Apgar score at 1min was 6, 5 minute was 10.
- 5.20 a.m. VE done — membrane was felt, multiple fetal parts were felt through the membrane, ARM done, internal podalic version and assisted breech delivery was performed — 3rd baby. Apgar score at 1 minute was 4, 2 minutes was 8.
- 5.35 a.m. VE was done — intact membrane was felt, ARM done, presentation was footling breech — assisted Breech delivery was performed. Apgar score at birth 1 minute 4, 2 minutes 10 — 4th baby.
- 5.50 a.m. The four umbilical cords were held together and the placentae were delivered by controlled cord traction. All the babies were female.
- The following were their birth weights:

Q1 — 2.75 kg

Q2 — 2.65 kg

Q3 — 2.35 kg

Q4 — 2.75 kg

*All the babies had very good suckling reflexes and they were put to breast within 12 hours of delivery. They were also fed with glucose water and given prophylactic antibiotics.*

- 11-4-89** *The four babies thrived well and it became obvious that the parents may not be financially strong to pay the hospital bills or even feed the babies to survival.*

*An appeal for help was launched by the hospital calling on philanthropists to come to the aid of the babies.*

*The Government of Oyo State responded favourably, the wife of the State Military Governor visited the hospital accompanied by the Commissioner for Health. Donations were given in cash and kind.*

*The hospital bill — total of one thousand, one hundred and forty naira (₦1,140 about 114 US Dollars) was written off by the Christus Hospital Management Board.*

*In all, there were 350 donors to the fund, and a total of (₦1,178.30) one thousand, one hundred and seventy eight naira, thirty kobo were collected (about 117.8 US dollars) and this was signed for on discharge.*

*"I, Mrs. M.O., mother of the quadruplets that were delivered in Christus Hospital collected the sum of eight hundred and ninety six naira, eighty kobo and a cheque of two hundred and fifty naira being donation from the public in support of the care of the quadruplets. I also collected another thirty one naira fifty kobo cash — Total ₦1,178.30."*

*Signed Mrs. M.O.*



Fig. 10.6: The mother, carrying the quadruplets on the eighth day for naming ceremony.



Fig. 10.7: The wife of the Military Governor of Oyo State “paying military salute” to the new born babies. She also donated a handsome cash to the mother for the care of the babies.



**Fig. 10.8:** The quadruplets are celebrating their birthday.



**Fig. 10.9:** The quadruplets came to rejoice with their obstetrician during his 50th birthday celebrations (7th June 1999).

## Commentary

This case illustrates one of the many pitfalls that could occur with the ultrasound diagnosis of multiple pregnancy. All along during the ANC, I thought I was dealing with triplet pregnancy. I had never encountered quadruplet and my mind never went to that. Ultrasound practitioners should be careful about this, and when multiple deliveries are being carried out obstetricians and midwives must be fully satisfied that the uterus is empty before giving ergometrine or delivering the placenta by active controlled cord traction.

This patient had a course of antimalarial treatment at 17 weeks. This is stressed because many pregnant women in this community associate chloroquine injection with spontaneous abortion. Giving prompt antimalarial therapy is like "a stitch in time which saves ninth".

This patient displayed the typical truancy that is characteristic of many pregnant women in ante-natal clinic attendance. She attended the clinic only a couple of times. It is not uncommon to find that a pregnant woman registered in three health institution — in Faith home, government hospital, and in private. In fact, the number of patients who registered with qualified obstetricians is the least in the above categories. They come to the obstetricians as a last resort. The aversion that they have towards obstetricians is the fact that they (obstetricians) know how to perform Caesarean section. They are even scared of booking with a doctor at all in the first instance.

It is ironical that this patient who could have been on bed rest throughout pregnancy actually came into labour room at 2nd stage of labour. She must have been in labour for some time either at home or in another maternity before deciding to come at second-stage.

All these circumstances notwithstanding, the patients should be properly counselled that high risk pregnancy must be taken care of, by specialists. No obstetrician just does Caesarean section without indications. Despite the risks involved in the delivery of these quadruplets, they were all delivered, by vaginal delivery.

Because of lack of social welfare services or health insurance, it became necessary to see whether help could be mustered for the survival of the babies. It is exhilarating to note that the babies survived, the Ministry of Health, Oyo State followed up the babies and monitored their development. Although doctors in private

sector are particularly prone to criticisms, I have always been an unrepentant and puritanical disciple of medical ethics and when more lives are being saved and more babies are surviving, I am all the more undaunted in my conviction that such pursuits are ethical. This is to allay the anxiety of those who grumble that seeking financial aid for a poor patient is tantamount to advertisement.

### **Sonographic Characteristics of Multifetal Gestation**

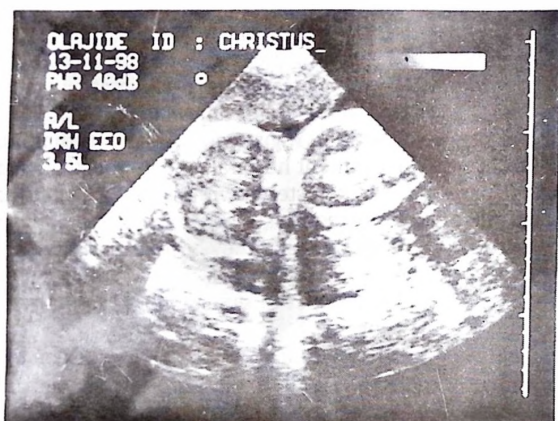


Fig. 10.10: Multiple Pregnancy  
Two corresponding parts are shown on the screen at the same time

### **Prolapse of the Umbilical Cord**

Cord prolapse is an obstetric emergency that is frequently associated with polyhydramnios, breech presentation, early artificial rupture of membranes, and malpresentation of the fetus.

## **Emergency Measures**

In this hospital, ultrasound scan is done immediately to ascertain fetal heart beat and all other parameters of routine scan.

Vaginal examination is done immediately after to ascertain cervical dilation and the presenting part is pushed up and away from the umbilical cord, Patient is placed in knee-chest or Trendelenburg position.

## **Delivery Considerations**

Unless the cervix is fully dilated and the head is at the perineum, Caesarean section is the usual mode of delivery. Any further procrastination will lead to fetal demise.

Vaginal delivery is allowed in the following conditions:

- fetus is dead
- fetus has congenital malformation incompatible with life
- fetal immaturity — with no hope of survival.

## **Emergency Caesarean Section**

Emergency Caesarean sections in this hospital are commenced within 10 minutes of taking the decision to proceed to surgery, the duration for setting up a drip passing Foley's catheter and draping. The indications for emergency surgery include the following:

- foetal and maternal distress
- cord prolapse
- placenta praevia
- abruptio placentae
- ruptured uterus
- abnormal presentation
- hand prolapse
- severe pre-eclampsia/eclampsia
- two previous or more Caesarean section in labour.

## **Maternal Preparation**

Blood samples are sent routinely for pcv, grouping and cross-matching. A platelet count, prothrombin time, partial thromboplastin, fibrinogen, and fibrin split products are not determined here as a routine.

An intravenous line is set up with 18 gauge cannula and dextrose saline is put up, dropping slowly to keep the line open. The abdomen and vulva are shaved, and Foley's catheter is inserted immediately into the urinary bladder. As soon as urine appears in the Aldon's bag, the balloon is inflated with 10mls sterile water.



Fig. 10.11: A 30-year old lady — Para 2 — with hand and umbilical cord prolapse — emergency Caesarean section was performed.

## **Ketamine Anaesthesia in Emergency Caesarean Section**

Ketamine anaesthesia has been the preferred method of anaesthesia because of the following medical and circumstantial advantages:

- ease of administration — it can be administered by the resident doctor, any trained nurse, or even an auxilliary nurse.

- rapid onset of action, the time interval between ketamine injection and delivery of the baby is usually less than 3 minutes, onset of action is less than 15 seconds.
- no gastric tube is passed to aspirate stomach contents.
- no administration of antacids like mist magnesium trisilicate or sodium citrate.
- no risk of Mendelson's syndrome apparently because the oro-pharyngeal reflexes are not abolished.
- the baby's respiration is not unduly depressed — the duration of ketamine action is very short, in some cases within 5 to 10 minutes, so the baby recovers from its effect immediately, and so Apgar score improves rapidly.
- no complication of general anaesthesia like difficult intubation, oesophageal or bronchial intubation occurs.
- patient recovers fully and completely on the operating table without using any reversing agent, so no need of special intensive care unit surveillance.
- vital signs are usually stable, Ketamine has a tendency to elevate the blood pressure and the amount of bleeding (500mls – 1 litre) tends to lower it. However, if there is haemorrhage, blood transfusion is commenced immediately to replace the blood loss. But ketamine, unlike halothane, does not cause uterine atony.

It has been found very convenient in this practice for the obstetrician alone and two qualified nurses/midwives to carry out Caesarean sections successfully. Anaesthetists, neonatologists are summoned only when time permits but in a system where there is no telephone service, the waiting time may spell disaster for the unborn baby and the mother, if action is delayed.

### **Technique**

Patient is put in supine position, cleaned and draped. Suction machine is connected and baseline blood pressure is checked. Ketamine is drawn up in 2mls syringe, and one ml injected intravenously. The depth of surgical anaesthesia is attained within ten seconds.

Decision has to be taken on individual patient as to whether vertical midline infraumbilical incision is to be made or low transverse-pfannenstiel.

The advantages of vertical incision are as follows:

- bleeding is minimal, usually no need of ligating arteries before delivery of the baby.
- better exposure of the uterus and lower segment is guaranteed.
- it is more convenient to insert the abdominal swab/pack into the abdominal cavity to push the gut away and reduce the spillage of uterine contents into the peritoneal cavity.
- there is less risk of injury to the bladder, in some patient the bladder may have been drawn up due to previous laparotomy or peritonitis.
- there is room to extend the incision upwards if extensive surgery becomes necessary for example — sub-total hysterectomy may have to be performed if ruptured uterus is discovered incidentally at surgery.
- the head of the baby is easier to deliver through a vertical incision than transverse.

It should be noted however that one major complication of midline vertical incision is the development of incisional hernia in future (Fig. 10.12).

*Pfannestiel* incision has these advantages:

- it has good cosmetic appearance.
- risk of incisional hernia is almost non-existent

I have not seen one in this hospital.

*Pfannestiel* has particular disadvantage in the following:

- every subsequent Caesarean section is particularly more difficult than previous one because of multilayered adhesions and fibrosis.
- risk of injury to the bladder is more.
- in this area women like to have more babies, so third or fourth laparotomy is more traumatic in *Pfannestiel* than midline incisions.
- bilateral tubal ligation is technically very difficult with *pfannestiel*.

*Pfannestiel* has a wider application in certain cases such as elective Caesarean section for breech presentation in primigravida.

Routinely, lower segment incision is made on the uterus.

The alternative to this is classical incision. In the past, the following were the indications for classical uterine incision:

- transverse lie.
- shoulder presentation or prolapse hand.
- Type III or IV placenta praevia.
- inaccessible lower segment either due to fibroids or adhesions.

We have delivered babies successfully by lower segment Caesarean section in patients with the first three complications listed above. Internal podalic version has been a very useful manoeuvre.



Fig. 10.12: Incisional hernia following midline infra umbilical incision

Classical section has been the preferred approach in cases of three previous Caesarean sections, and if bilateral tubal ligation is planned with the fourth Caesarean section.

The reason for avoiding classical section when it is possible is the increased tendency of rupture of the uterus in subsequent pregnancies. This is particularly relevant in this environment where our women may want to run away to faith homes in subsequent pregnancies to try and avoid another operation.

Immediately the baby is delivered, ergometrine 0.5mg, 10mg valium are given intravenously. The placenta is routinely removed manually, and uterine cavity swabbed clean. This ensures that no membranes are left behind to cause post partum haemorrhage and post operative endometritis.

The uterine wall is repaired in double layers, the visceral and parietal peritoneum are reconstituted, abdominal wall is closed in layers, with interrupted stitch to skin.

At anytime during the operation, 1cc of ketamine is given when patient is agitated — usually 3-4mls may be administered before the operation is completed. Usually 45 minutes to one hour is spent to complete a Caesarean operation, depending on the original complication that necessitates the operation, and the expertise of the surgeon.

Quite often a litre of fluid may need to be rushed in to keep the circulating blood volume up and maintain stable pressure. Prophylactic antibiotics are given as previously described.

### **CASE PRESENTATION** **Ruptured Uterus**

Date:	15-10-86	Hosp. No: 0144
Age:	35 years	Cycle: 5/28
Para:	6 <sup>+0</sup>	LMP: about 9 months before
Last confinement: 7 years ago		

*The above patient (Fig. 10.12) presented in this clinic with history of inactive fetal movements. Ultrasound scan confirmed intra-uterine death at a gestational age of less than 7 months. The cervical score showed cervix to be rigid (score 5).*

*She was prescribed low dose pitocin 0.5 units in 500 mls of dextrose/saline, running at 15 drops/minutes.*

#### **16-10-86**

- 8.00 a.m. Pitocin stimulation was commenced — as prescribed above.
- 2.00 p.m. Patient complained of sudden sharp pain in the abdomen, cold sweat and shock, and vaginal bleeding.

*Diagnosis: Silent ruptured uterus. Immediate Laparotomy and sub-total abdominal hysterectomy was performed. The procedure was performed under ketamine anaesthesia. She had two units of blood transfused, condition was stable and she was discharged home on 30-10-86.*

### **Commentary on Case report**

Grandmultiparity is always more associated with complications than oligoparity. It is not advisable to proceed to elective Caesarean section because of a dead fetus. So all efforts were geared towards vaginal delivery. But the uterus was so weak that it could not withstand the stress of the contractions, and therefore ruptured.

The spontaneity of action with prompt surgical intervention managed to save the life of the woman. Of course ketamine anaesthesia was used for the operation. An elective Caesarean section may have been less risky.

### **Sonographic Characteristics of Intra-uterine Death (IUD)**

There are basic features that make the diagnosis of IUD very highly suggestive i.e. overriding skull bones, hyperechoic cerebrum, abnormal curvature of the vertebral column, hyperechoic viscera, but the pathognomonic features are absent heart beat and lack of pulsation in the abdominal aorta.



Fig. 10.13: I.U.D.  
Overriding skull bones



Fig. 10.14: I.U.D.  
Lack of pulsation in abdominal aorta



Fig. 10.15: I.U.D.  
Hyperechoic viscera

### CASE PRESENTATION

#### Ruptured Uterus

DATE: 24-01-96  
 NAME: MRS. B.A.  
 HOSP. NO Z 722  
 PARA: 5<sup>+2</sup> — All alive  
 Last Confinement: 1993.

**24-01-96:** Mrs. B.A. was referred at 10.00 p.m. from a nearby maternity home due to draining of liquor and also that fetal heart beat was not heard.

On examination, she was slightly pale, not jaundiced. B.P was 110/70 mm Hg. Respiratory rate 24 b/minute Pulse 88/minute.

Abdominal ultrasound was done which confirmed intra-uterine death. Estimated gestational age was 38 weeks.

*Vaginal examination revealed cervix to be 4cm dilated. No membranes felt, foul smelling vaginal discharge was coming out of the cervical os. The impression was intra-uterine death with genital sepsis.*

*Intravenous fluid was set up. 5% Dextrose in water and prophylactic antibiotics were given.*

*Ampliclox 500mg and Flagyl 500mg intravenously.*

*Patient was observed to see whether there would be progress in Labour.*

11.00 p.m. *Patient was said to be having rigor*

*Pulse was 120/minute*

*Respiratory rate was 38/minute*

*BP. 80/40*

*Decision was taken immediately to take the patient into the theatre for Emergency Caesarean section.*

### **25-1-96: Operation Notes**

*Findings: The abdominal cavity was opened through a mid-line infraumbilical incision. There was longitudinal rupture found at the anterior surface of the uterus. Liquor was foul-smelling and a macerated female foetus was extracted. The uterus was repaired and haemostasis achieved and the abdominal wall was closed in layers with silk to skin.*

### **Commentary**

This case is presented because it illustrates the dilemma that can confront an obstetrician in the middle of the night.

This woman is a grand-multiparous patient. On many occasions, they infact have had more pregnancies than they volunteered from the history. Women in this part of the country do not want to count children that are dead.

The dilemma was whether to proceed straight to do a Caesarean section and deliver a dead fetus or put up pitocin to augment labour.

It was decided to temporize by observing the progress of labour for sometime under our care; to see the abdominal contractions and the yield of the cervix.

The sudden rigor that occurred within two hours made emergency Caesarean section inevitable, and the operation saved the patient from the disaster of ruptured uterus.

In view of what happened, a private practitioner in obstetrics should always consider the "minimal risk approach", because mortality could damage the reputation of the clinic.

The decision to operate is appropriate once we have satisfied ourselves that pitocin augmentation could be disastrous.

Another question posted by this patient was whether the fallopian tube of this woman should be tied. The family history of this patient was gruesome. The five children alive were delivered for a former husband who died of road accident two years before. She was left alone to take care of five children, no helper, no insurance or government support. It was then the new husband came in to lend a helping hand. This offending pregnancy was the first issue she would deliver for the new husband.

No man in this environment would be so magnanimous as to take on the management of five children for a woman who can no longer reproduce.

In the present circumstance, it was thought more expedient to save the life of the woman first, leave the fallopian tubes alone and when the turmoil subsides, any decision they arrive at would be without duress. It is damaging to the reputation of a private clinic, if tubes are tied without expressed patient's consent particularly that of the husband.

The post-operative condition of this patient was very turbulent. She had a roaring septicaemia, wound dehiscence and secondary suturing. She spent fifty-four days in the hospital ward before she was discharged home.

Her bill was calculated to be forty-eight thousand naira, (₦48,000) i.e. \$565 — five hundred and sixty-five U.S. dollars. She ended up paying twenty thousand naira (₦20,000) i.e. two hundred and thirty five U.S. dollars (\$235).

Some of the complications she ran into were due to anaemia, chronic malnutrition and septicaemia. Inherent poverty actually led to the high management cost. The husband signed an undertaking to pay the rest of the bill, but he was never seen again.

### **CASE PRESENTATION** **Destructive Operation**

Name: Mrs. A.F. Date: 5-12-98  
 Hosp. No: Z 1330  
 Age: 37 years.  
 Gravida: 6 Para 5<sup>+0</sup> (3 alive)

9.00 p.m. Mrs. A.F. was referred from a faith home with history of lower abdominal pain. She was said to have been draining liquor for the past 24 hours. Ultrasound scan done was reported as follows:

Biparietal diameter	8.9cm
Femur length	7.9cm
Gestational age	40 weeks+
Expected date of Delivery	Post term
Fetal presentation	Cephalic LOT
No of gestations	One
Fetal heart beat	Nil
Amniotic fluid	Scanty
Placenta Location	Posterior
Maturity	Grade III
Miscellaneous	I.U.D.

Vaginal examination revealed normal vulva and vagina, cervix was 6cm dilated.

No membrane was felt.

Presentation was confirmed to be cephalic

Impression: Intrauterine death  
Grandmultiparity  
Post maturity.

A decision was taken to allow labour to progress.

#### **6-12-98:**

2.00 a.m. Cervix was examined and found to be fully dilated — presenting part was at the midcavity. She was encouraged to bear down.

7.00 a.m. The patient was still unable to deliver herself.  
 Decision was taken to do a destructive operation.  
 Operation: Destructive Operation  
 Indication: IUD with delay in 2nd stage  
 Surgeon: Dr. Kayode Obembe  
 Assistants: Dr. Oyeleke.  
 Olowookere (S.N.M.)

**Procedure:** Patient was transferred to the labour room. An intravenous line was secured and 500mls of Dextrose saline was put up. The legs were put in lithotomy position. The perineum was cleaned and draped. The bladder was catheterised and drained.

Craniotomy was performed by holding the fetal scalp with sponge holding forceps and then cutting the soft tissue at the region of occipital fontanel with scissors.

The brain tissue gushed out and the head collapsed. The two blades of parietal bones were held tightly with hysterectomy clamps and this was used to drag the head down the birth canal (Fig 9.16).

The bones of clavicles were broken with straight scissors and with gentle traction with the woman bearing down, the baby was delivered. The delivery of the placenta was uneventful.

1v ergometrine 0.5mg was given and 20 units of pitocin was put in the drip to prevent primary postpartum haemorrhage.

The perineum was intact.



Fig. 10.16: Craniotomy was performed by cutting through the occipital fontanel. The brain tissue gushed out and the head collapsed. The head was delivered by traction on parietal bones using hysterectomy clamps.



Fig. 10.17: This woman was brought with baby's body hanging from the vulva neck downwards. The cranium was perforated by cutting with strong straight scissors below the occipital region. Brain tissue gushed out, head collapsed, and baby was delivered. The baby had been hanging in that position for 8 hours before the patient was brought into Christus.



**Fig. 10.18:** The unfortunate baby with head impaction. The point of penetration can be seen at the base of the skull.

## The Newborn

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### The Compromised Infant

All operative deliveries, either abdominal or vaginal can result in the baby being asphyxiated at birth. Intrapartum conditions that may result in compromised infant include meconium staining, fetal malpresentation, failure of descent of the presenting part, and fetal heart rate irregularities. Excessive maternal sedation can also result in fetal compromise.

### Care of the Newborn

Immediately after delivery, a potentially compromised infant is cleaned, wrapped up in warm/humid environment. The upper respiratory airway and the oro-pharynx are cleaned by mucus extractors, and head should be inclined down at an angle  $30^{\circ}$  to the horizontal. There should be no mucoid or amniotic debris in the upper airway.

Apgar score is assigned at 1 and 5 minutes after birth (see Table 10.1). The baby is stimulated more forcefully by mechanically slapping the muscular parts of the baby i.e. the buttocks.

Table 11.1: Apgar Scoring System

	0	1	2
Heart Rate	absent	100 bpm	> 100 bpm
Respiratory effort	absent	slow, irregular	Good crying
Muscle tone	flaccid	some flexion of extremities	Active motion-flexed extremities
Reflex irritability	No response	Grimace	vigorous cry
Colour	Blue, pale	Body pink, extremities blue	completely pink

Intermittent mouth-to-mouth ventilation have been noticed to give salutary effect. A sterile gauze is put to cover the mouth of the baby; the medical staff then breathes into the baby through the gauze — this exhaled gas usually elicits sneezing response from the baby and respiratory excursion commences spontaneously.

The mode of action postulated is that the compromised infant is weak and has not acquired enough energy to overcome the inertia inherent in the static thoracic cage with solid unexpanded lung. Once this external force has been provided externally, the baby can then resume spontaneous breathing activities.

Oxygen is administered using a face mask. This may act as physiological stimulant to the anoxic respiratory centre, while at the same time, pulmonary ventilation is maintained.

Please note that the medical staff does not inhale the air coming from the baby, and even the mouth of the medical staff does not come in contact with any part of baby's body let alone the mouth that is covered with gauze. This is a precaution against oral transmission of any congenital infections that may already be present in the baby and which has not been detected.

When the anaesthetist is present or the neonatologist, direct endotracheal intubation with intermittent positive pressure ventilation is necessary when respiratory difficulties are encountered.

Blood is taken for analysis and the result will determine the next line of treatment — if there is hypoxia, oxygen is given, acidosis — sodium bicarbonate; anaemia — blood, hypoglycaemia — glucose. The infant is monitored for signs of

hypotonicity, irritability, jitteriness and feeding problems.

In this context, special mention should be made of hyperbilirubinemia resulting in neonatal jaundice.

### **Circumcision**

in this environment culturally, all male children are circumcised. In Christus Hospital, the complications of circumcision are not frequently encountered.

The method of circumcision most frequently performed here is the plastibel technique.

But most male children are circumcised by native or traditional birth attendants. A lot of taboos surround the art of circumcision, for example, some believe that the foreskin should not be cut with knife or surgical blade but with the sharp edge of the shell of a snail. After cutting the foreskin, the raw areas are covered with faecal materials from the cow or sheep while some are covered with dried tobacco leaves. Babies in this condition are prone to tetanus infection, and many babies have lost their lives as a result of this process.

Another serious complication is bleeding. Quite often, the foreskin is removed, and extensive area of skin covering the penis is denuded. The penile artery continues to pulsate, and pushing out blood. In desperate attempt to stop the bleeding, used clothes — rags — are applied as firm bandage around the corona so tightly that the baby may not be able to urinate. The pain experienced by the child could be imagined to be very excruciating, the baby would refuse to suck breast. Terminally some would die of anaemia, toxæmia or septicaemia.

In managing this condition, the first line of management is to remove all the materials used in dressing and get a clean area of tissue; with 2-0 chromic catgut on round bodied needle, a simple figure of 8 stitch would arrest the bleeding from the penile artery. The raw surface is covered with penicillin gauze and the child is prescribed oral antibiotics for prophylaxis. Antitetanus serum is administered if the mother is not already immunised during pregnancy.

As a rule, no female circumcision is done here, and mothers requesting for it are actively discouraged from such an act.

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## Post Partum Care

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### Post Partum Haemorrhage (PPH)

Post partum haemorrhage is blood loss as a result of child birth in excess of 500mls in the immediate post partum period. This is usually a frightening emergency encountered in this hospital because patients with primary post partum haemorrhage (PPH) referred from other hospitals may have bled to shock before arrival.

### Predisposing Conditions to PPH

<i>Uterine</i>	<i>Placental</i>	<i>Foetal</i>
— grand multiparity	Abruptio placentae	multifetal pregnancy
— previous PPH, inhalational anaesthesia	Placental praevia Chorioamnionitis	Polyhydramnios Prolonged retention of dead fetus
— Prolonged labour		Difficult forceps
— Excessive/prolonged Oxytocin administration		Difficult vacuum Breech extraction

### Causes of Post Partum Haemorrhage

- uterine atony
- retention of placental tissue
- cervical or vaginal laceration
- vulva, paravaginal or broad ligament haematoma

- intraperitoneal bleeding from ruptured uterus
- hypo fibrinogenemia
- septic shock
- inversion of the uterus

### **Prophylactic Measures**

When haemorrhage is anticipated, and the patient is in labour. Blood is taken for pcv, grouping and crossmatching, and at least two units of blood is reserved.

Intravenous line is set up, and, as soon as baby is delivered, iv ergometrine 0.5mg is given, and 40units of oxytocin is put in dextrose to run slowly at 15 drops per minute. This should continue for at least six hours postpartum. In frank atony, the uterus is massaged and maintained contracted.

### **Supportive Measures**

When bleeding is excessive or becomes life-threatening, manual removal of the placenta should be carried out promptly. The uterine cavity is explored and certified empty.

The genital tract is thoroughly inspected — cervix, vault, vagina and perineum. If blood pressure has fallen, no general anaesthesia is administered only oxygen by face mask. Any lacerations detected is sutured immediately. Until blood is available, normal saline or plasma expanders are given to sustain the blood pressure. Depending on the level of pcv, whole blood should be transfused.

An ultrasound examination of the uterine cavity to look for retained placental fragments is always useful either in the Primary or Secondary PPH.

Packing of the uterus or warm saline lavage are practices that are prohibited in this unit. Packing does not allow the bleeding to be visible in time, and so there is delay in mounting up resuscitative measures.

Other measures that can be taken include ligation of uterine or hypogastric arteries. Circumstances have not compelled us to do any of these. If bleeding still persists, the last resort is to perform hysterectomy.

### **Post Partum Infection (Puerperal Sepsis)**

Post partum infections morbidity is present when a parturient

experiences a fever of at least 39°C on two occasions or more during the first 10 post partum days, exclusive of the first 24 hours. In this practice, certain factors are known to be commonly associated with puerperal fever: emergency Caesarean section ruptured membrane for more than 6 hours, frequent vaginal examinations, low socio-economic status, anaemia, general anaesthesia, poor nutrition. It is ironical that obesity is also associated with febrile illness in the puerperium.

The differential diagnosis for puerperal sepsis would normally include the seven W's

- wound
- womb
- wind (atelectasis, pneumonia)
- water (urinary tract)
- wonder drug (drug allergy)
- walk (thrombophlebitis)
- woman's breast

On most occasions, only the swab test relevant to a particular location of pain symptom, is sent to laboratory for microscopy, culture and sensitivity.

Most febrile illnesses are polymicrobial in aetiology and frequently involves anaerobic organisms — *Bacteroides fragilis*, and *peptostreptococcus*. The follow-up treatment is according to the sensitivity results.

In this unit, the following drugs have been found useful at different times:

Amoxycillin	— 500mg orally 4 times daily for 7 days
Gentamycin	— 5mg/kg/day i.v. every 8 hours
Clindamycin	— 20–25 mg/kg/day every 6 hours orally or iv every 6 hours or cefoxitin 2g iv every 8 hours
Unasyn	— 1.5gm bd x 3/7
Metronidazole	— 500mg 8hrly i.v. x 3/7

Combination of the latter two drugs have been very effective in controlling most infections.

If there is a failure to respond, efforts are made to rule out abscesses, haematoma or septic pelvic thrombo-phlebitis.

Tarivid and Zinacef are costly but equally useful drugs.

## Breast Feeding

Breast feeding is actively encouraged as soon as the mother is physically fit to give it. The benefits of breast feeding are greater to the newborn than even the best nutritional formula. The following merits of breast feeding are recounted to the mother:

- the composition of human milk makes it the most ideal for the newborn
- breast milk contains no impurities.
- there are more calories per unit weight in human milk than you have in any formula.
- passive immunisation takes place in the child, and this reduces the risk of infection.
- involution of the uterus is faster with breast feeding, so maternal reproductive organs return to normal as soon as possible.
- breast feeding is more economical both for the mother and for the society.
- intelligence quotients have been reported to be higher in premature infants who were breast-fed than those who were not.
- breast feeding is more convenient, natural, and easier.

It is one of our conditions in this hospital to ensure that breast feeding is established before the mother is discharged. Milk production is a function of prolactin stimulation. Although immediately after delivery the maternal prolactin level falls, each act of sucking must be maintained. For primigravida, it takes about 3–5 days post partum before they are finally discharged home.

If for one reason or the other, the mother fails to breast feed, there is more likelihood of breast engorgement and pain, and may lead to fever. The women are usually seen the following Friday during which the first immunization is administered to the baby.

However, there are conditions when lactation suppression is indicated — these include patients with IUD or immediate neonatal death. These women are advised to wear a tight-fitting bra or wrapper, avoid stimulation by hot or warm shower. If this is not satisfactory, stilbestrol — 5mg tabs, bd 3/7, and dly for 3 days — is prescribed.

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# GYNAECOLOGY



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## Infections/HIV

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### Vaginitis

Vaginal itching is a common complaint and this occasionally is accompanied with burning sensation.

### Evaluation of a patient with a Vaginitis

A detailed history is taken from the patient. This should include itching, burning sensation, pain, the amount, color and odour of any discharge. It is vital to rule out any underlying medical conditions such as diabetes, pregnancy, or immune suppression. In this community, there is no restriction to antibiotic use, patients with vaginitis, may have taken a lot of various types of antibiotics, thus allowing the yeast infection to grow — as an opportunistic infection.

The dominant organisms in normal vaginal flora are Lactobacilli, Group B streptococci, mycoplasma hominis, Ureaplasma urealyticum, Gardnerella and Bacteroides species. The antibiotics taken without doctors prescription may not be able to eradicate all the organism thus leaving the non-sensitive species to flourish. Sexual history normally includes whether there is dyspareunia and the number of sexual partners.

Physical examination should include search for vulva lesions to give more clue.

Specimens from the discharge are usually sent to the laboratory for microscopy. Saline mount usually reveals the trichomonads "clue" cells, while 10% potassium hydroxide preparation is used to evaluate the fungal forms; culture and sensitivity tests would isolate the aerobes, anaerobes, trichomonads and fungi.

### **Treatment of Vaginitis**

In bacteria vaginitis, there is alteration in the normal flora. There may be a reduction in the number of Lactobacilli or over growth in Gardnerella or anaerobes. The treatment of choice is metronidazole or clindamycin.

Patients are screened for syphilis by performing the VDRL (Venereal Diseases Research Laboratory). Experience here has shown that none of the patients was recorded positive. This may be explained by the fact that since the spirochaete is sensitive to benzathin penicillin 2.4 million units; many of the patients have bought the single dose penicillin from chemist shops and got nurses to give them at home. It is only when there is still residual symptoms that they come to the hospital.

### **Pelvic Inflammatory Disease**

Pelvic inflammatory disease is a broad term which includes endometritis, salpingitis, tubo-ovarian abscess or pelvic peritonitis. The complications of PID could be very severe if treatment is not instituted in time: these include infertility, ectopic pregnancy, and chronic pelvic pain. PID could be associated with sexually transmitted disease. It could also be linked with menstruation (post menstrual) abortion (post abortal) delivery (post partum) or with intra—uterine contraceptive device.

Clinical diagnosis rests on the presence of three criteria:

1. Low abdominal tenderness
2. Cervical motion tenderness
3. Adnexial tenderness. It is usually accompanied with pyrexia temperature greater than 38°C.

Laboratory evidence rests on isolation of N gonorrhoea or C trachomatis. Endometrial biopsy could reveal endometritis, tubo-ovarian abscess can be diagnosed by ultrasonography and laparoscopic abnormalities consistent with PID is a definite evidence.

The usual regime used in this clinic include clindamycin 900 mg intravenously every 8 hours plus gentamycin 2mg/kg as a loading dose, and 1.5mg/kg every 8 hours for 72 hours. Out patient treatment includes clindamycin 450 mg 4 times daily plus metronidazole 500 mg twice daily for 14 days.

Fungal vaginitis is usually due to *Candida albicans*. Diagnosis is by KOH preparation and treatment is by insertion of vaginal imidazoles; ketoconazole and fluconazole are reserved for resistant forms.

Many women report that they develop a fungal infection after using broad spectrum antibiotics. This occurs especially after the use of prophylactic antibiotics for minor surgical procedures. Since the course of antibiotic therapy is short, usually the symptoms subside once treatment is discontinued.

Infections due to trichomoniasis are treated with metronidazole. A 2gm single dose is as effective as 250mg 3 times daily for 7 days.

## **Sexually Transmitted Diseases**

### ***Gonorrhoea***

Many females with gonorrhoea are asymptomatic, causing them to delay diagnosis and treatment. If the gonorrhoea is not properly treated, it could lead to pelvic inflammatory disease or disseminated gonorrhoea infection.

Diagnosis can be made by combination of endocervical gram stain, and culture of endocervical swab.

At laparotomy, huge tubo-ovarian masses, with purulent spots, have been identified (Fig. 13.1)

All cases of gonorrhoea diagnosed are usually treated with their spouses when they can be traced. On many occasions, the infection may be co-existent with trichomoniasis and chlamydia trachomatis. Treatment regimes include single dose of ciprofloxacin 500mg orally, or intramuscular ceftriaxone 125mg. These are combined with metronidazole or doxycycline depending on the co-existing organisms.

### ***Syphilis***

Syphilis is caused by spirochaete, *Treponema pallidum*. The disease is known to progress in four stages. The first stage by syphilitic chancre, second stage by bacteraemia, tertiary syphilis result in involvement of cardiovascular, musculo-skeletal and central nervous system. The area of concern mostly in this unit is in ante-natal care.

Pregnant women who gave any history of contact with syphilis, most likely with their husband, are sent for antibody tests —

Venereal Disease Research Laboratory Test. The number that come out positive has been very low. This may be accounted for by the fact that the spirochete responds to penicillin treatment. These injection is given liberally by nurses and quacks without doctors' prescription. These practice tend to alienate the patients from doctors the more, since they believe doctors bill might be too exorbitant for them to pay.



Fig. 13.1: Gonorrhoea resulting in urethritis, vulvitis, genital sepsis, pelvic inflammatory disease and disseminated gonorrhoea. At laparotomy, huge tubo-ovarian masses with purulent discharges were identified.

### **CASE PRESENTATION AIDS**

*Name:* Miss I.A.  
*Hosp No:* Z-031  
*Age:* 27 years Para 0<sup>+</sup>4  
*Address:* Akobo, Ibadan  
*Tribe:* Ibo  
*Occupation:* Journalism  
*Religion:* Christianity

The above named patient was brought to Christus at 7.30 p.m. on 20 December, 1992 from a nearby tertiary health institution because there was an industrial action.

The referral letter reads thus:

TO WHOM IT MAY CONCERN  
RE: MRS A.I. TWIN PREGNANCY

LMP: 8-3-92  
EDD: 15-12-92  
GA: 40/52 + 3 DAYS

The above named is a 27 years old journalist Para 0<sup>+</sup> patient with twin pregnancy. She was admitted in August 1992 at a gestational age of 21 weeks. Ultrasound scan showed a twin pregnancy.

She developed a chronic dry cough for which she had anti-biotics. She also developed a chronic anaemia and was treated with double dose haematinics. The latest PCV was 32%. Patient had ovarian cystectomy in June 1992, the histology of which came out as corpus luteum cyst.

As part of investigations which were carried out, ELISA was positive but Western Blot was not confirmatory.

Patient is now 40 weeks plus 3 days. Later ultrasound showed both twins presenting breech with a low lying placenta. Placenta praevia NOT confirmed.

In view of the current industrial action in this hospital, there are no facilities to manage her labour. Therefore, she is being referred to you for adequate management.

Thanks for your co-operation.

Yours faithfully  
Signed

An abdominal scan was done immediately which showed that Twin one was alive, oblique breech RSA, Twin two was dead, transverse. Vaginal examination showed very unfavourable cervix — Bishop Score 3.

Emergency Caesarean section was carried out, twin one cried spontaneously without resuscitation. But twin two did not show

any sign of life.

Twin one weighed 2.8 kg at birth. Immediate post-operative condition was satisfactory.

One curious observation about this patient was that the relations did not show up again. Not even a kobo was paid in the hospital bill.

On the 2nd post-operative day, the relative, her sister sent a note:

*Good day doctor,*

*Please I will see you first thing tomorrow morning for my payment. I am ill and I have not been able to see the girl and the baby since then due to the illness. I felt very bad about the whole thing, I am very very grateful for every thing. Thanks, once again and God bless, See you tomorrow.*

*Mrs G.*

*Up till today I have never set my eyes on Mrs G.*

*On 4th post operative day, one of the visitors to other patients in the hospital now gave us a full background history.*

*This patient was a journalist working for a popular newspaper in Nigeria. She was posted to London where she had spent about two years and has had four pregnancies terminated. She was pregnant, and detected to be AIDS positive and sent back home to Nigeria. In the hospital from where she was brought, the operation could have been done at 37 weeks but nobody wanted to take the risk. The industrial action was an opportunity to push her out.*

*The revelation was alarming, and I felt this was the end of the road. I contacted the referring doctor and asked why he did not give the full details of the social history. He claimed ignorance of that aspect of the history.*

*The patient did well, and since no relative was coming up to see her, we had to provide the ambulance and carried her to her house at Akobo.*

## Commentary

An obstetrician is like a soldier in the war front, whose mission, rather than destroy life, is to save it. In this environment, it is not possible to insist that unless a patient has an HIV test done a day before presentation as an emergency, the patient will not be attended to. Although the above patient is well fitted to the usual epidemiology of AIDS i.e. she has travelled widely, she was a socialite and by all standards a celebrity, definitely with multiple sex partners, there are thousands that will not fit into this category and yet will be AIDS *positive*.

The big question is "should an obstetrician refuse to operate on an AIDS patient?" Or on the other way round, should an obstetrician refuse to treat or carry out delivery on a patient who does not hold a current laboratory result of her HIV test? To carry the analogy further: "Should an orthopaedic surgeon refuse to operate on a road traffic accident (RTA) victim unless he gets a laboratory confirmation or result of Western Blot?" If this posture is adopted, more 'non-infected' patients are going to die of 'AIDS' than those infected.

The discipline of surgery, obstetrics and gynaecology definitely incorporate some professional risks. The only practicable answer to these questions is for every operating surgeon to galvanise himself against HIV at every encounter with every patient. Curiously enough, it has been said that this risk of transmission through surgery is very low (about 0.03%).

Precautionary measures include making sure that the hands are doubly gloved and all instruments are sterilised with agents that could kill the virus.

In this hospital, household bleach was liberally used in the sterilisation of all our instruments, and this was applied to this patient. This household bleach is widely accepted as anti-bacterial and antiviral and very suitable for hospital use.

The following groups of women are at high risk of infection: intravenous drug users, and those who exchange needles, prostitutes, professionals who are posted away from their families like soldiers, sailors and even student populations in the universities. It is common also among wives of ex-prisoners, drivers who are away from home for many weeks, traders and business men who travel round the world and are very affluent.

In all these high risk patients serological screening for antibody by enzyme linked immunosorbent assay (ELISA) should be

performed with the woman's consent. If a repeat test for HIV is positive, confirmation should be obtained by the more expensive Western Blot assay.

The attitude of this patient's relative leaves much to be desired. They managed to dump the patient into the hospital and then abandoned her. AIDS is not even as infectious as tuberculosis which is spread by air-borne droplet infection. It is this attitude of social neglect and ostracism that make people run away from screening centres, so that they are not stigmatised if confirmed positive. A lot of public enlightenment is required in this direction.

## Common Gynaecological Problems

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### LEIOMYOMATA (FIBROIDS)

Fibroids are the commonest pelvic tumors found in the female. It has the following characteristics:

- Originate from smooth muscle.
- Oestrogen-dependent.
- Most common during the fourth and fifth decades of life.
- Commonest site is the uterine corpus.
- Found in roughly 25% of white women and 50% of black women.

Fibroids are usually described according to their various locations:

- Subserous — located under the outer serosal surface of the uterus.
- Intramural (interstitial) are within the muscular walls of the uterus.
- Submucous myomas are under the endometrium and may prolapse through the cervix.
- Intraligamentary myomata are within the broad ligament and may be confused with adnexial mass.
- Pedunculated fibroids may arise from the intramural or subserous locations, and be supported by pedicles.
- Parasitic fibroids have acquired separate blood supply other than that from the uterus. Cervical fibroids originate from the cervix, and may protrude into the upper vagina.

On gross examination the uterus is invariably enlarged but this may be regular or irregular. Solitary intramural fibroids may be regularly enlarged while multiple uterine fibroids can present with nodular irregularity. The cut surface is pearl — white and glistening, occasionally showing the fibromuscular tissue in whorled appearance.

The clinical presentation may be diverse and varied. Many are asymptomatic, they are discovered incidentally by ultrasonography or clinical pelvic examination. Pelvic pressure symptoms include urinary frequency or obstruction of impacted fibroids. The mass could compress on the ureters leading to hydro-ureters and hydro-nephrosis. Pain arising from fibroid may present as dysmenorrhoea, dyspareunia or chronic pelvic pain. Acute infarction in fibroid could be the cause of acute abdominal pains.

Abnormal uterine bleeding is common with fibroids. The mechanism of bleeding is three fold: (1) thin endometrial covering of the submucous myomas may not respond well to hormones (2) the endometrium ulcerates very frequently and (3) interstitial fibroids may cause an increase in the surface area of the endometrium, thus leading to menorrhagia and anaemia.

Fibroid has been known to be associated with primary and secondary infertility. This may be due to occlusion of the cornual end of the Fallopian tube. Pregnancy complications include recurrent abortions, preterm labour, abruptio placentae and dystocia. During pregnancy, fibroids could undergo red degeneration and lead to infarction. This usually results in acute abdominal pain.

The diagnosis is suggested by the history in symptomatic cases. Pelvic ultrasound is very useful in confirming the diagnosis and in defining the location of the fibroid. Laparoscopy may probably show involvement of the fallopian tubes and differentiate a myoma in the broad ligament from a solid adnexial mass.

As a result of growth, the blood supply to the centre of the fibroid may be greatly reduced. Various degenerative changes would then take place — these include hyaline myxomatous, calcified and cystic degenerative changes. Red degeneration can become calcified to form a carneous mole. This infarcted fibroid could become infected secondarily. The risk of sarcomatous or malignant change is very low.

## Treatment

If fibroids are asymptomatic and sizes are smaller than 14 weeks pregnancy, they may be kept under surveillance.

In some selected cases myomas that cause infertility may be treated with Gonadotropin Releasing Hormone (GnRH) agonists. This hormone mimics menopause by stopping gonadotropic stimulation of the ovary. Oestrogen production is thus reduced and this reduces the growth of the fibroid. This method may be used to treat fibroid before surgery. Progestin therapy can be administered to reduce oestrogen levels and to decrease bleeding. Drug therapy for fibroids is not popular in this unit.

The definitive treatment for fibroid is surgery — myomectomy. This is performed usually when fertility is to be restored. Myomectomy has been found to improve the chances of conception in many cases. The risk of recurrence has also been known to be very high. Myomectomy is carried out routinely by laparotomy, although myomectomy by laparoscopy and hysteroscopy have been described.

If fertility is no longer desired hysterectomy is the usual mode of treatment. In most cases where myomectomy is contemplated, patients are counselled to sign for hysterectomy should in case this procedure becomes necessary to save life.

However, in this practice, most patients would rather hold on to their uterus than sign for hysterectomy. Even patients who have completed their family still believe that they need their uterus during their next life. Some patients would also rather hold on to their uterus if all the siblings are female. In any case, when bleeding becomes life-threatening, they usually succumb.

At menopause, myomas usually shrink. But if growth continues patient should be carefully evaluated to rule out functional ovarian cancer.

## CASE PRESENTATION

Date:	1-3-88	Hosp. No:	Z-291
Name:	Mrs. N.O.	LMP:	17-2-88
Age:	32 years		
Menarche:	16 years		
Cycle:	3-5/28 days		
Para:	0 <sup>+3</sup>		
Married:	22nd May, 1988		

Mrs. N.O. was a 32 year-old caterer who presented in this clinic on 1-3-88 with complaint of inability to get pregnant for five years. She has been pregnant thrice and had repeated dilatation and curettage, the last one was in 1982. She had lower abdominal pain after the dilatation and curettage.

She had an HSG report which read thus:

*"The uterus is normal, only a proximal segment of the left fallopian tube is outlined. The right tube was not demonstrated. The appearances are suggestive of bilateral tubal blockage. There are some intravasation of contrast medium outlining the pelvic veins — presumably due to a pressure build up within the uterus."*

• *Ultrasound scan showed a slightly enlarged uterus AP 5.9cm. There is a spherical mass at the right adnexium (Fig 14.1).*

8-3-88 *Patient had laparoscopy done. There are multiple subserous fibroids on the uterus, with some cystic areas of degeneration. The right Fallopian tube was buried in the Pouch of Douglas. The left tube was grossly normal. The ovaries appeared normal, but no ovulation spots. Dye test was negative.*

*On account of fibroids with tubal occlusion, the patient was counselled for surgery.*

22-10-88 *Patient had surgery done — myomectomy, right salpingostomy and adhesiolysis. The operation was performed under ketamine anaesthesia. The total bill was two thousand, one hundred and fifty naira (₦2,150), roughly two hundred and fifteen U.S. dollars (\$215).*

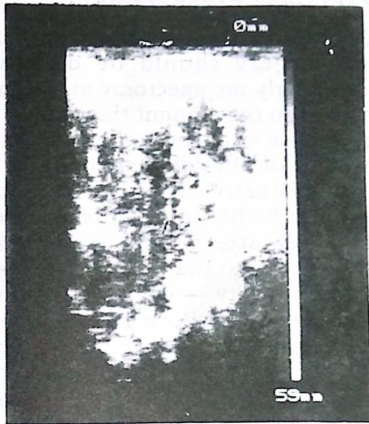


Fig. 14.1: Ultrasound shows multiple subserous and intramural fibroids, with AP diameter ranging from 3.5cm to 5.9cm to 7.4cm.



Fig. 14.2: At operation seven pieces of fibroids were removed, all of various sizes and shapes.

### **Commentary on Case Presentation**

Under normal conditions, apart from cost consideration, no elective major surgery should be done under ketamine anaesthesia, particularly myomectomy and salpingostomy as this patient. However, even the amount this patient was charged, she could not afford it until after seven months.

However, the case of fibroids that could be handled this way must be critically evaluated. The patient should not have had previous laparotomy, the fibroid must be of moderate size — not bigger than 14 week size pregnancy. By palpation, and by ultrasound, it should be less than 10cm in diameter. There should be no evidence of chronicity — i.e. patient must not be in a state of severe anaemia, or heart failure and no evidence of secondary complications. i.e. pressure symptoms like hydronephrosis and hydroureters. If these conditions are not met, it is risky to imagine putting the patient to sleep under ketamine. General anaesthesia should be advised, whether patient can afford to pay or not is another issue.

Consider the next case:

### **CASE PRESENTATION**

*Date:* 15-1-97  
*Name:* Mrs. T.A.  
*Age:* 32 years  
*Para:* 0<sup>+1</sup>  
*Cycle:* 4-5/27  
*LMP:* 15-1-97

*Mrs. T.A. was a 32 year-old nulliparous, who got married in April 1996. She started noticing a mass on the left iliac fossa since 1995 for which she has contacted various medical personnel for help.*

*The mass was getting bigger in size progressively until June that year when hysterosalpingogram done revealed some uterine fibroids, with bilateral tubal patency despite peritubal adhesions.*

*Ultrasound scan showed multiple uterine fibroids. She was advised to have surgery i.e. laparotomy, done under general anaesthesia.*

24-1-97 Anaesthetist record:

5.02 p.m. 32 year-old nulliparous woman for laparotomy, myomectomy, or cystectomy.  
 No previous general anaesthesia  
 Had lumpectomy of (Rt) breast with L.A.  
 No history that is suggestive of hypertension, sickle cell disease or diabetes mellitus, or asthma. The only known drug history is allergic reaction to chloroquine.

**On Examination:** She was healthy looking, not pale, anicteric.

Chest: Clinically clear

CVS: Pulse 96/minute, regular good volume

BP: 130/90 mm Hg

HS: I & II only, no murmurs.

ASS: A.S.A. I

Plan: PCV,

Group and X match 2 units of blood

For surgery — as planned.

PCV: 35%, two units of blood were cross matched ready.

24-1-97 OPERATION NOTE

Operation: Myomectomy and Rt Ovarian Cystectomy

Indication: 1<sup>o</sup> infertility, menstrual abnormality and progressively painful suprapubic swelling

Anaesthesia: General anaesthesia.

### Findings

An enlarged irregularly shaped uterus about 24 weeks size of a normal gravid uterus. There was a huge right pedunculated (subserous) fibroid superior to the isthmic orifice at the uterine fundus. A right ovarian cyst was also found, containing serous fluid. Both fallopian tubes were examined and found to be grossly normal. A thick, straw—coloured fluid suspected to be an outcome of undiagnosed endometriosis oozed out copiously from the Pouch of Douglas.

### **Procedure**

A left paramedian incision on the abdomen was made and opened up in layers to enter the peritoneal cavity.

Fibroid uterus and ovarian cysts were exposed. Fibroids were shelled out by blunt dissection and their various cavities were obliterated to prevent haematoma and secure haemostasis. The ovarian cyst was ruptured and content drained out — A specimen of the cyst wall was sent for histology. Peritoneal toileting was done. Abdomen was then closed back in layers with silk to skin. Immediate post-operative conditions were satisfactory. Estimated blood loss was 400mls.

### **Immediate Post Operative treatment**

iv. Unasyn 1 ampoule stat

iv. flagyl 500mg stat

iv. Analgin 5cc iv stat to be repeated (diluted) prn  
NPO till Bowel sounds returns to normal.

iv. 5% Dextrose saline 500mls to run 6 hourly



Fig. 14.3: A segmental view of a huge multilobulated fibroids. This view illustrates one of the fibroids with AP diameter 11.7cm.



Fig. 14.4: The fibroid uterus has just been delivered out of the abdominal cavity before the myomectomy starts properly.

*Urethral catheter to remain in situ for the next 24 hours*

*Vital signs to be monitored ½ hourly until stable.*

*Patient had uneventful post operative recovery and was discharged home on 2nd February 1997.*

*Histology was reported as benign wall of ovarian cyst, no evidence of malignancy or endometriosis.*

### **Commentary**

The fibroid in this patient was described as multiple, irregular and about the size of twenty four week-size uterus. The incontrovertible option is to advise general anaesthesia, because the bleeding could be torrential.

The anatomy was complicated by the existence of an ovarian mass which was covered with adhesions, whose histology came out luckily to be benign.

The blood loss in this patient was estimated to be 400mls. With

initial PCV of 35%, she did not require additional transfusion. In most of our patients, if post-operative packed cell volume is above 25%, no blood is transfused.

Blood transfusion itself is a stress on a surgical patient and its own inherent risks — i.e., allergic blood transfusion reaction, haemolytic jaundice, malaria, renal shut down etc. HIV transmission is another risk that must be borne in mind. Although all the blood transfused in this unit is 'screened' by the Oyo State Government for HIV, it is still discretionary to reduce blood transfusion to the barest unavoidable minimum.

Bleeding is a serious problem that has to be tackled during surgery for fibroids. Surgical instructions/texts usually advise the use of McBurney's clamps. I have not been using this McBurney's clamp to occlude the vascular channels going into the fibroids, so that when the operation is going on the field would be dry. The risk involved is that when the clamp is removed, there could be primary haemorrhage in the field of operation, resulting in hypotension and cardiovascular collapse.

Without McBurney's Clamp, all the bleeding sites are dexterously occluded with figure of eight (8) stitch and haemostasis is guaranteed before the abdomen is closed up.

Antibiotic therapy has been found very indispensable especially when used prophylactically. It has saved us the embarrassment of "running after the lion when it has escaped". Intravenous Unasyn and metronidazole are given prophylactically immediately after the operation and continued for 48 hours. Post operative morbidity is considerably reduced. The antibiotics that are given prophylactically may be costly when compared with common types like Crystalline penicillin, streptomycin or ampiclox, but in private practice, the best option is minimal risk regime which guarantees that patient gets well quickly and goes home. Wound dehiscence or infection that prolong the hospital stay would not be in the interest of the hospital or the patient.

Another advantage of prophylactic antibiotics is that when infection is controlled, there is no need for strong hypnotic analgesic. These hypnotic analgesics have their potential side effects. Occasionally they cause patient to be very weak and frail, and in patients with unstable vital signs the patient may slip into uncontrollable hyperventilation. The normal physiology of the patient becomes beserk and patient may succumb as a result. These scenario is not palatable in a private practice setting.

Intensive care management automatically demands intensive cost. I am a strong advocate of routine prophylactic antibiotics for all surgical procedures in private practice. Even if the antibiotic is very costly the resultant outcome will be cost-saving and cost-effective.

For almost seven years of my practice in private. I was using fortwin (pentazocine 30mg) to relieve post operative pain. For about the past four years now, the only analgesic I used after the anaesthetist has administered all the necessary medications and left, is intravenous analgin. I reserve fortwin now for isolated cases when the patient still complains of pain or may not be able to sleep due to anxiety. Intramuscular feldene (piroxicam) has been found useful on some occasions too. This drug is relatively inert, like analgin. It is not hypnotic and does not affect the cardiovascular stability like some strong hypnotic analgesics.

Unlike the case described before, the patient paid thirty five thousand Naira (₦35,000) i.e. three hundred and ninety dollars (US\$390) for this operation. This was the expedient management and this patient could afford it. However, even if she could not afford the bill, it would have been audacious to contemplate ketamine.

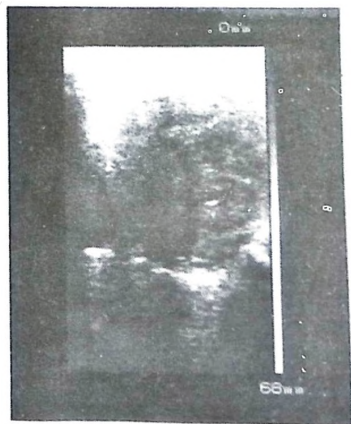


Fig. 14.5: Huge solitary intramural fibroid  
AP: 68mm  
The AP diameter of the uterus is 8.1cm



Fig. 14.6: The fibroid has been removed and displayed. It is a huge solitary fibroid, but with smaller seedlings at the base.



Fig. 14.7: A calcified solitary fibroid (could be mistaken for a baby's head).

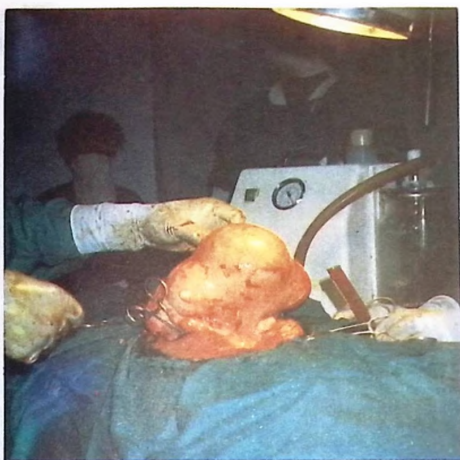


Fig. 14.8: A huge multi-lobulated uterine fibroid at surgery.



Fig. 14.9: A 36 year-old woman complaining of abdominal swelling and 2<sup>o</sup> infertility. Picture shows the uterine mass with fibroids at operation.



**Fig. 14.10:** A 30 year-old woman presenting with menorrhagia and 1<sup>o</sup> infertility. 29 pieces of fibroids were extracted from the uterus.



**Fig. 14.11:** A 34 year-old woman complaining of abdominal swelling, pain and menorrhagia. Laparotomy showed multiple lobulated uterine fibroids.



Fig. 14.12: 40 year old woman Para 2<sup>+0</sup> with 2<sup>0</sup> infertility. Children are 18 and 16 years old. Laparotomy showed multiple fibroids. She has been diagnosed for 12 years before consenting to surgery.

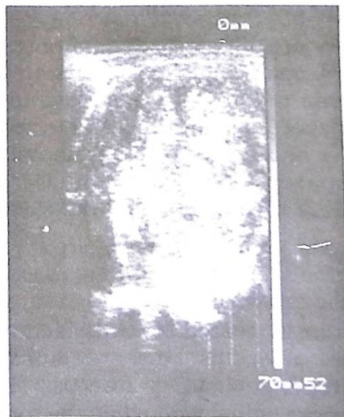


Fig. 14.13: Ultrasound showed a uniformly enlarged uterus with localised areas of increased echo-density. A diagnosis of adenomyosis was made which was confirmed later after laparotomy and histology.

## PELVIC RELAXATION

Pelvic relaxation is the disorder resulting from weakness of the pelvic support structures. The term thus include urethrocoele, cystocele, uterine prolapse, enterocele and rectocele. These occur when there is defect in the endopelvic fascia.

The bladder, uterus and rectum are supported by a sheet of fibrous tissue called endopelvic fascia. This is attached anteriorly to the arcus tendineus where obturator internus and the levator ani join. It is attached superiorly and posteriorly to the sacrum and lateral pelvic side walls. The utero-sacral, cardinal and pubovesico-cervical ligaments, are condensations of this tissue. Weakness or tears in this pelvic fascia result in relaxation.

Factors associated with pelvic relaxation include the following

- Obesity — by increasing the intra abdominal pressure.
- Childbirth in patient who push through cervix that is not fully dialated.
- Smoking — resulting in chronic cough.
- Low oestrogen level especially during menopause.
- Repeated and long-term lifting of heavy luggage.

### Symptoms

Patients complain of fullness or “something coming down”. A particularly wearisome complaint is that urine comes out anytime they cough or even talk loudly. They have to use pad, and this could occur anywhere even in the market place. This is stress incontinence, low backache and chronic pelvic pain are often associated. Dyspareunia is common. Occasionally urinary urgency and feeling of incomplete voiding are commonly seen with cystocele.

### Examination

Clinical examination is geared towards identifying the defect in the pelvic support. This is better demonstrated with Sims speculum and a sponge holding forceps. The Sims speculum retracts the posterior vaginal wall while the forceps pushes on the anterior.

A urethrocoele is a bulge in the lower third of the anterior vaginal wall underlying the urethra. Small urine may be expelled

if the urethrocoele is compressed. The rugae of the anterior vaginal wall is normal, and if there is no associated cystocoele there is no bulge.

A cystocoele result from tear in the central anterior endopelvic fascia. In some patients there is history of previous lower segment Caesarean section. Typically in this category, there is loss of the urethro-vesical angle.

A rectocoele is a bulge at the posterior vaginal wall due to a central tear of the posterior endopelvic fascia.

An enterocoele is a protrusion of peritoneum and small bowel through the Pouch of Douglas into the apical region of the vagina. Enterocoeles are common complication arising from hysterectomy. They arise as a result of defect in the endopelvic fascia at the site of the cervico-vaginal junction between the utero-sacral ligaments.

Prolapse of the uterus is described in degrees — first degree prolapse is descent into upper vagina. Second degree descent into the level of introitus, third degree prolapse is descent through the introitus. Procidentia uterii is when the whole uterus has descended below the introitus. This is caused by tears in the uterosacral and cardinal ligaments.

All these varieties present very commonly in private practice.

The patients feel very embarrassed and in some cases, the husband or close relatives, associate these with sexually transmitted diseases and promiscuity. Usually, there are various combinations of these defects: cystocoele + urethrocoele, uterine prolapse + enterocoele etc. During surgery, each pathological entity is identified and surgically repaired.

### **Non-Surgical Treatment**

Various types of pessaries have been described for the temporary management of these conditions, these include Smith-Hodge and circular or ring pessaries. Pelvic floor exercises are also recommended when the descent is moderate. Most of the cases presenting in this hospital have been so chronic and advanced that conservative treatments are not recommended.



Fig. 14.14: This 65 year-old woman presented with 'prolapsed uterus' — the whole uterus is outside. She had vaginal hysterectomy, anterior colporrhaphy and posterior colpoperineorrhaphy — all under ketamine and valium.

## URINARY INCONTINENCE

Urinary incontinence is involuntary voiding of urine which can be objectively demonstrated. There are four types of incontinence.

- (a) stress
- (b) urge
- (c) overflow incontinence
- (d) extraurethral

*Stress Incontinence:* is involuntary and immediate voiding of urine when intravesical pressure exceeds urethral pressure. The symptoms include urine leakage with cough, sneeze, laugh, lifting and certain exercise activities. Under normal condition, raised intra abdominal pressure is accompanied by reflex contraction of levator ani and in elevation of the posterior urethro-vesical

junction. In the defect, the urethral resistance is lowered due to displacement of urethro-vesical junction away from the pubic bone and out of abdominal cavity with increased intra-abdominal pressure.

Anterior colporrhaphy with Kelly plication is the treatment of choice. This has proved satisfactory for all our patients. Burch procedure resuspends the anterior and lateral vaginal wall to the pectineal ligament (Cooper's ligament). Marshall-Marchetti-Krantz (MMK) suspends the anterior vaginal wall to the posterior pubis. These procedures have not been found necessary in this centre.

*Urge Incontinence:* is inappropriate contraction of the detrusor resulting in urinary incontinence. It is also called detrusor dyssynergia or detrusor instability. It may result from inhibited detrusor contraction without a strong sensory input (motor type) or from strong sensory input from the bladder (sensory type). The sensory type could be due to interstitial cystitis mechanical irritation, neoplastic, epithelial changes or radiation. The motor type is usually of unknown aetiology but upper motor neuron lesions are suspect.

*Overflow Incontinence:* Occurs automatically when intravesical pressure exceeds intraurethral pressure. This is called neurogenic bladder quite separate from detrusor dyssynergia. Predisposing factor may be CNS trauma or tumors.

*Extraurethral Incontinence:* is defined as involuntary leakage of urine through any channel other than the urethra. This channel is usually called a fistula. The varieties are vesicovaginal fistula, uretero vagina fistula, or ectopic ureter.

The commonest of these variety is vesicovaginal fistula (VVF). Examination under anaesthesia is done to define the location of the VVF. To perform the dye study, three cotton balls are placed in the vagina. The bladder is then filled with a solution of methylene blue or indigo cammine. If the most distal cotton ball is stained, it may be due to urethro vaginal fistula. If the upper one is stained, it is due to vesico vaginal fistula. If the upper one is wet but not stained, it is indicative of uretero vagina fistula. The diagnosis of uretero vagina fistula can be confirmed by placing new cotton balls and giving intravenous indigocamine. If the upper cotton is

then stained, diagnosis is confirmed. Surgical repair of the anatomical defect is the definitive treatment.

## **ACUTE RENAL FAILURE**

Acute renal failure is characterised by low urine output. The cause of oliguria should be determined. Pre-renal oliguria is secondary to low pump pressure i.e. low cardiac output or hypotension secondary to vasodilatation.

Renal oliguria is due to acute decrease in glomerular filtration rate (GFR). This is caused by blockage of filtration from debris and interstitial oedema. The evidence for this lies in the fact that early intervention with fluid or diuretics tends to correct acute renal failure. The acute decrease in GFR leads to oliguria azotemia and electrolyte imbalance.

Post renal oliguria is caused by obstruction. Obstruction of the urethra could be by surgical trauma, oedema, a pelvic mass or haematoma, ureteral obstruction is a rare cause, and has to be bilateral to cause anuria.

Fluid intake is restricted in the management of acute renal failure. Normally, fluid is restricted to 1 litre per day. Otherwise, the insensible loss (500-750 ML/day) is added to daily urine output and this volume of fluid is given.

### **CASE PRESENTATION** **Post-Coital Laceration**

<i>Date:</i>	<i>30-12-86</i>	<i>Name:</i>	<i>Miss. G.O.</i>
<i>Age:</i>	<i>15 years</i>	<i>Hosp. No:</i>	<i>394</i>
<i>Menarche:</i>	<i>13 years</i>		
<i>Cycle:</i>	<i>4/30</i>		
<i>LMP:</i>	<i>15-12-86</i>		

*Miss G.O. was brought by her parents as a case of post-coital laceration. It was as a result of willful consent to coitus between the patient and her proposed fiance.*

*On examination, there was a longitudinal tear at the vaginal vault which extended to the perineal body and lower rectum.*

*Patient was taken to theatre, 10mg valium iv was given, and ketamine 1cc, the vault laceration was repaired and posterior — coisoperineorrhaphy was done.*

### Cancer of Cervix

Age: 72 years

Para 6<sup>-0</sup> (all alive)

C/O: Bleeding PV.

The uterus is bulky AP: 6.4cm, longitudinal 7.2cm. There is a cavity inside, 0.9cm in diameter. There is moderate ascites behind the uterus. The picture is very suggestive of cyesis <6, weeks. But in a 72 year-old — it is indicative of malignancy. In this patient, it is carcinoma of the cervix (Fig. 14.15).

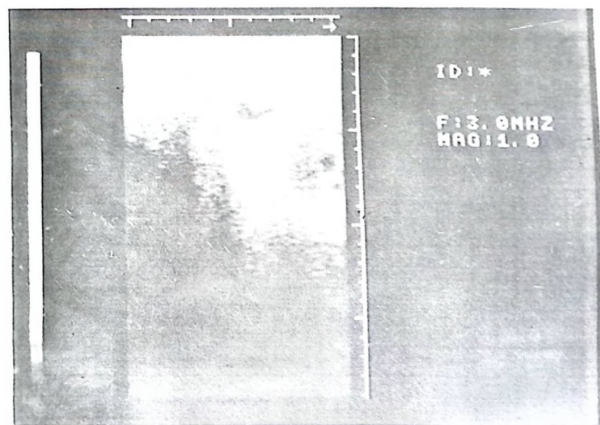


Fig. 14.15: A 72 year-old woman, complaining of post-menopausal bleeding. Transverse pelvic sonogram shows a small fluid filled cavity inside the uterus. EUA, biopsy and histology revealed carcinoma of the cervix.

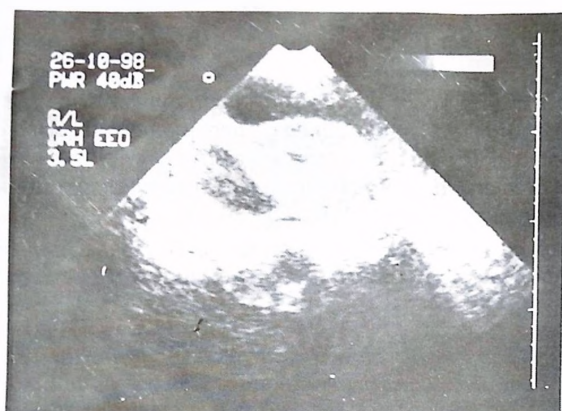


Fig. 14.16: Sonograms of Carcinoma of Cervix

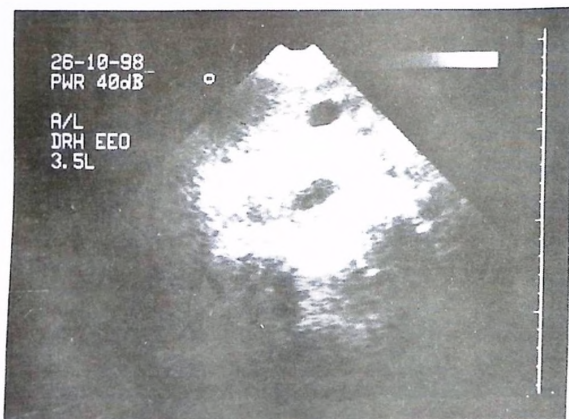


Fig. 14.17: The echo free space inside the uterus is like a 'gestational sac'. This picture in a menopausal woman is cancer until proven otherwise.

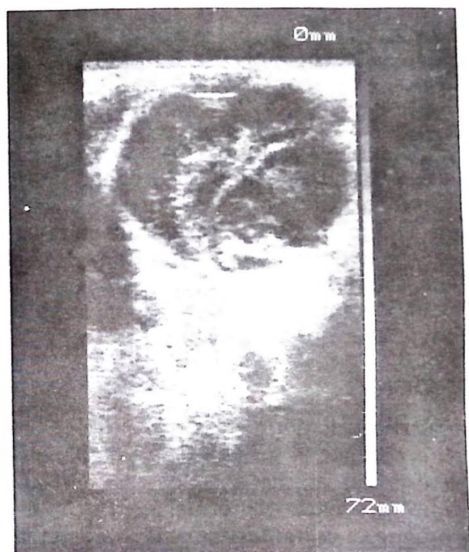


Fig. 14.18: Mrs. L.G. is a 35 year-old teacher complaining of abdominal swelling. Abdomino-pelvic sonogram revealed a cystic mass with multiple septae, laparotomy and ovarian cystectomy was performed. Histology was reported as pseudo-mucinous cystadenoma.

## Disorders of Menstruation

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The process of menstruation is due to declining levels of progesterone and to a lesser extent oestrogen. This is preceded by vasoconstriction of the spiral arteries at the base of the endometrium. This constriction results in endometrial necrosis and damage to the endothelium of blood vessels so that when the arterioles relax, haemorrhage ensues. This haemorrhage is due to release of local vasodilators including histamine, bradykinin, prostacyclin and other prostaglandins.

### AMENORRHOEA

Primary amenorrhoea is defined as the absence of menarche by age 14 with the absence of growth or development of secondary sexual characteristics, or the absence of menarche by age 16 regardless of the presence of normal growth and development and the appearance of secondary sexual characteristics.

Secondary amenorrhoea is defined as the absence for a length of time equivalent at least to a total of three of the previous cycle intervals, or six months of amenorrhoea in a woman who has been menstruating.

### EVALUATION OF AMENORRHOEA

Careful history taking is the first step in the evaluation of amenorrhoea. The history lays particular emphasis on psychological dysfunction or emotional stress, sexual activities, family history of apparent genetic abnormalities.

Physical examination is carried out with special attention to secondary sex characteristics, genitalia and the breast.

Ultrasonography is carried out to find out whether uterus is

present or not and laparoscopy is done to rule out androgen insensitivity with XY gonadal agenesis, of course if there is pregnancy ultrasound will show it.

Blood is taken for prolactin estimation and if it is high, the diagnosis is hyperprolactinaemia.

If diagnosis is not established and no withdrawal bleeding occurs, the endometrium is stimulated with 2.5mg conjugated oestrogen daily for 21 days with medroxyprogesterone acetate, 10mg daily for the last five days. If withdrawal bleeding does not occur, Asherman's syndrome is the most likely diagnosis. This is usually confirmed by hysterosalpingography. If there is withdrawal bleeding, patient is referred for gonadotropin assay and chromosomal analysis. If gonadotropins are low or normal then sellar turcica and suprasella areas are evaluated for pituitary tumours.

Causes of secondary amenorrhoea can be divided into 4 groups

#### **Uterine Factor:**

- pregnancy
- Intrauterine adhesions
- Mullerian agenesis
- Hysterectomy, Asherman's disease

#### **Ovarian Factors:**

- Menopause
- Surgical removal of the gonads
- Irradiation of the ovaries
- Chemotherapy
- Viral infections
- Chromosomal abnormalities
- Enzyme defect
- Autoimmune disorders

#### **Pituitary factors:**

- Sheehans syndrome
- Hyper-prolactinaemia
- Hypopituitarism
- Gonadotropin deficiency
- Kallmann's syndrome

### **Hypothalamic factors:**

- Anorexia nervosa
- weight loss
- Pseudocyesis
- Obesity

### **Treatment of Amenorrhoea**

The treatment of amenorrhoea depends on the cause and whether or not the patient desires to get pregnant. If the patient desires pregnancy, ovulation induction is indicated. Hypo-estrogenic patient need oestrogen replacement with cyclic progestin therapy.

### **Abnormal Uterine Bleeding**

The interval of normal menstrual cycle is 21 to 35 days. The duration is 2 to 7 days. The normal blood loss has a volume of 35 to 150mls and usually not more than 2 heavy days. The number of pads and tampon used can be used to roughly estimate the amount of blood lost. An average tampon will hold approximately 5mls of blood and a pad soaked will hold 10mls. There could be changes in the interval or duration of the menses. If the interval is normal but bleeding is heavy, this is hypermenorrhoea (menorrhagia). If the bleeding is irregular or too frequent, it is polymenorrhoea. Menometrorrhagia is when there is abnormality in the interval and durations.

### **Causes of Abnormal Uterine Bleeding**

The commonest causes of abnormal bleeding are complications of pregnancy. These include incomplete or threatened abortions and ectopic pregnancy. Reproductive tract malignancies, intrauterine benign neoplasia, cervicitis, endometritis, salpingitis, endometriosis, adenomyosis, functional ovarian cysts are all common causes of uterine bleeding.

Dysfunctional uterine bleeding occurs after organic and iatrogenic causes are ruled out. It is predominantly as a result of anovulation.

Management depend on accurate diagnosis of the pathology. History is taken and physical examination is done. Pelvic examination is performed whether or not the patient is bleeding.

Ultrasonography is performed to rule out fibroids. On certain occasions examination under anaesthesia, dilatation and curettage are all done with laparoscopy. This makes diagnosis of ectopic clear and straight forward and avoids dangerous time delay. Endometrial biopsy specimen is taken for the possibility of endometrial hyperplasia or malignancy.

### **Treatment of Abnormal Bleeding**

Treatment is directed towards the specific diagnosis. In young adolescents with small amount of irregular bleeding, observation and reassurance is the best therapy. These class of patients are particularly cautioned against indiscriminate hormonal therapy or dilatation and curettage. These may compromise the future reproductive potential. Oral contraceptives may aggravate an already suppressed hypothalamic-ovarian axis.

If fertility or pregnancy is not desired, then hormonal regulation is embarked upon, cyclic oral contraceptive are tried. Occasionally, oestrogen is given alone, and during the second phase of the cycle, combined with progestins.

Endometrial polyps are treated by excision, leiomyoma can be treated by myomectomy.

Any bleeding that is heavy enough to cause anaemia and is not controlled by hormones, warrant the consideration of hysterectomy, if childbearing is not a factor to be considered.

### **Dysmenorrhoea**

Dysmenorrhoea is defined as painful menstruation. There are two types: primary and secondary.

Primary dysmenorrhoea is present from adolescence. It is due to excess prostaglandin  $F2\alpha$  production by the endometrium, causing smooth muscle stimulation and is not due to organic causes. Symptoms include lower abdominal pain, or cramps in severe cases, it may be accompanied with nausea, vomiting, diarrhoea, fatigue, and headache.

In this community, many people believe that adolescent dysmenorrhoea is due to the fact that she has not been having sexual intercourse, attempts at having sex as treatment for dysmenorrhoea often result in unwanted pregnancy. Efforts geared towards termination could result in infection, thus leading to PID, infertility and secondary dysmenorrhoea. This is how a local taboo can result in a vicious cycle.

Secondary dysmenorrhoea is due to an identifiable organic cause. Various causes include leiomyoma, PID, adenomyosis, endometriosis, polyps or IUCD. It may be associated with menorrhagia, dysmenorrhoea and fever.

General and pelvic examinations are carried out. Ultrasonography and laparoscopy are indicated for specific diagnosis.

Treatment is directed at the aetiology. Ponstan, feldene and other non-steroidal anti-inflammatory medications or oral contraceptives may be useful regardless of the aetiology. Antibiotic therapy is indicated in PID, GnRH agonists may be used to treat fibroids or endometriosis but I have no experience of these. Surgical treatment are indicated for specific pathological entities. Hysterectomy, oophrectomy are done for pathology related to the uterus and ovaries.

### CASE PRESENTATION

Date:	7-10-86	Hosp. No:	0126
Age:	30 years	Name:	Mrs. C.O.
Menarche:	12 years	Para	1 <sup>+</sup> 3
Cycle:	3-5/30	Confinement:	1979
		LMP:	19-12-85

Mrs. C.O. presented on 7-10-86 with history of secondary amenorrhoea of about 6 months duration. She was Para 1<sup>+</sup> 3, 1 alive.

1st Pregnancy:	1979 normal delivery
2nd Pregnancy:	1982 — 5 months — missed abortion
3rd Pregnancy:	1984 — 4 months — missed abortion
4th Pregnancy:	1986 — 6 months — now with profuse bleeding

She had her last normal menstruation on 19 December, 1985.

Ultrasound scan done showed normal sized uterus AP 4.0cm, longitudinal 6.9cm. The endometrium was unremarkable.

Laparoscopy was done which showed normal sized uterus, the ovaries are whitish with thickened capsule — hyperthecosis; no abnormality in the Pouch of Douglas.

Skull X-ray was done, no abnormality was detected.  
The following is the result of hormone investigation.

TESTS	RESULT	NORMAL RANGE
Prolactin (h PRL)	24 pg/ml	6-24
Oestradiol (E2)	215 pg/ml	(early follicular phase 40-100 pg/ml (Late follicular phase 100-400 pg/ml luteal phase 50-150 pg/ml

On a more meticulous interrogation, apart from the 1st pregnancy where normal healthy baby was delivered, all the other "pregnancies" had no ultrasound or hormonal confirmation. Patient thought she was pregnant, took progesterone preparation, and subsequently had withdrawal bleeding.

She later became amenorrhoeic. All hormonal preparation required to induce menstruation proved ineffective.

### CASE PRESENTATION

Date: 13-7-94  
Name: Mrs. O.O.  
Hosp. No: 1946  
Age: 50 years  
Para: 5<sup>+3</sup> 5 alive  
Last confinement: 1973  
Cycle: 3/30 — menstruation now comes every other month.

Mrs. O.O. is a 50 year-old teacher who presented with 3 month history of painless mobile lump in each breast. Patient noticed that there was a freely mobile lump in each breast, close to the nipple area. The mass appears slightly more discrete during menses, they feel like pins and needles.

- 20-7-94 Patient was taken to theatre and she had bilateral excisional biopsy of the breast lumps, and both specimens were sent for histology. Post-operative recovery was uneventful.

### **Histology report-benign**

Patient still had occasional complaints of breast discomfort, which was thought to be part of the healing process. She complains of breast fullness, tenderness and occasional heaviness.

BP 160/90.

- 19-10-94 Patient came with complaints of breast discomfort, backache, shaking of the hand when writing, abdominal pain at night, occasional dizziness. She has been a known hypertensive patient on Brinerdin and valium. She also complained of something protruding from the anal region.

On examination, she was a well covered middle aged woman, healthy looking but anxious. No masses were palpable in the breast.

The summary of the symptom complex include peptic ulcer, hypertension, osteoarthritis, haemorrhoids, chorio-athetosis, and menopausal syndrome.

- 12/12/94 She was admitted for haemorrhoidectomy

11.20 p.m. Rectal wash out was done, and she was prescribed chloramphenicol and flagyl as part of prophylactic bowel preparation.

- 13-12-94 She had antihypertensive drug brinerdin, valium, paracetamol and flagyl at 10.00 p.m. She had another rectal washout.

14-12-94

5 p.m. She was taken to theatre for operation.

- 5.20 p.m. iv 20mg valium was given  
 5.30 p.m. iv 2cc ketamine was given  
 5.40 p.m. Operation started  
 5.45 p.m. iv ketamine 1cc given  
 im fortwin 30mg was given  
 6.05 p.m. 1cc ketamine was given  
 6.15 p.m. P86, B24, BP 130/100  
 6.20 p.m. iv 1cc ketamine was given  
 6.45 p.m. iv 1cc ketamine given  
 Rectal flagyl III given  
 6.50 p.m. Operation completed patient was transferred to the ward.

### **Operation note**

*Excisional haemorrhoidectomy — haemorrhoids at 3, 7, & 11 o'clock position*

*Post-operative management*

*im fortwin 30mg 6 hrly x 24 hours*

*im Ampiclox 500mg 6 hrly x 48 hrs.*

*Oral liquid paraffin 15 mls bd*

*fluid diet to start the second day*

*Her post-operative recovery was uneventful.*

*She was discharged home on 24-12-94.*

- 18-8-95 *She came complaining about heaviness of the breast, pins and needle prick on the breast, usually relieved during menses. No swelling or masses were palpable. She was reassured, given analgesics and diuretics.*
- 18-9-95 *She complained of breast congestion, nipple discomfort. She was reassured again and discharged.*

### **Commentary**

The breast is a gynaecological organ and in this patient there was a morbid anxiety as regards breast diseases, particularly breast cancer. She had bilateral lumpectomy and she still had repeated complaints. Histological diagnosis was negative and palpation did not reveal any recurrence.

Haemorrhoidectomy was performed by consultant general surgeon, and the operation was performed with ketamine anaesthesia and valium.

Other signs and symptoms were treated according to their presumptive diagnosis i.e. hypertension was treated with brinerdin, while peptic ulcer was treated with cimetidine. Osteoporosis is a condition that is associated with menopause, this was what the patient was going through.

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## Reproductive Endocrinology and Infertility

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### PUBERTY

The transition period from childhood to adulthood involving physiological and psychological changes is called puberty. There are four stages in the sequence of events that constitute puberty:

- **thelarche** (onset of breast development) begins at an average age of 10.5 years;
- **adrenarche** (growth of pubic and auxiliary hair) begins at an average age of 11.0 years;
- **the growth spurt** begins at an average age of 11.5 years and
- **menarche** (onset of menstrual period) begins at an average age of 12.8 years.

Follicle Stimulating Hormone (FSH) luteinizing hormone (LH) and oestrogen are low prior to puberty. FSH rises first, then LH and then oestrogen. Oestrogen causes changes in the breasts, bones, uterus and vagina. Adrenal androgens cause pubic and auxiliary hair growth, while menarche occurs with the establishment of the hypothalamic-pituitary-gonadal feedback loop. The sequence of events that constitute puberty takes *about four years*. Ovulation cycles are established about two years later.

### INFERTILITY

Infertility is defined as one year of unprotected intercourse without pregnancy. Infertility is by far the commonest medical problem presenting in this private practice. The incidence of infertility has been on the steady increase for the past few years.

This is due partly to the fact that many women defer childbearing to a later age and fertility declines with increasing age. In the last few decades there has been increase in STD and this may have led to increased tubal damage.

The causes of infertility have been variously analysed as follows: male factor 40% tubal factor 25-50% anovulation 20-40%. Other factors are cervical, peritoneal and uterine about 5-10%. In about 10% of cases, no cause is found.

### **Evaluation of Infertile Couple**

The evaluation of the infertile couple is directed towards identifying the cause of infertility. The sperm count is first documented, and before treatment is commenced, the presence or absence of ovulation are determined and the patency of the fallopian tubes. The menstrual history is taken. Amenorrhoea and oligomenorrhoea suggest anovulation whereas history of molimina and mittelschmerz suggest ovulation. Galactorrhoea indicates excess prolactin secretion, pelvic pain and dyspareunia are symptoms of pelvic-infections or endometriosis. Abnormal hair growth suggest virilization secondary to excess androgen. Any history of contraception, especially IUCD or depot-medroxy progesterone is carefully noted.

The sexual history should include frequency of coitus. Has the husband contacted gonorrhoea before? Any history of mumps orchitis in childhood?

Seminal fluid analysis is routinely done. Sperm count of 20 million/ml, motile forms greater than 60% and 60% normal morphology are compatible with normal values. Normal volume is 3-5mls. The husband must abstain from sexual intercourse 5 days before collecting the sperm, and should not be collected in condom, or else falsely low result will be recorded. The specimen should be kept at room temperature and analysis should take place within two hours of collection.

The basal body temperature of the woman must be documented. This is measured early in the morning immediately after awakening, before getting out of bed. The temperature should go up 1°F 24 hours after ovulation. The rise in temperature coincides with a rise in progesterone level to more than 4ng/ml. Ovulation is confirmed by a biphasic curve. This method of determining ovulation is not very popular in this hospital since the process of follicular growth and time of ovulation are monitored

with ultrasound.

*Hysterosalpingography* is used to evaluate tubal patency. The contour of the uterine cavity is also delineated. The test is performed on Day 10 of the cycle. The test should not be performed in the presence of pelvic infection. Ideally, the gynaecologist should perform test in order to visualise the injection of the dye. Special constraints are noted with hysterosalpingogram.

These are as follows:

- unless specific request is made for this, the test is not done under general anaesthesia, this makes the test very painful.
- the patient is tensed up as a result, and there could be cornual spasm.
- negative dye test is therefore not conclusive, experience has shown that it is not advisable to proceed to tubal surgery based on HSG report alone.
- there could be flare up of infection if patient has got sub-clinical pelvic inflammatory disease.

### **Laparoscopy Hydrotubation Tubal Insufflation Chromotubation Adhesiolysis and Endometrial Biopsy Histology**

The procedures as listed above are carried out as part of the regime for investigating infertility. Details are discussed in the next chapter — (17)

## **TREATMENT OF INFERTILITY**

Treatment is usually directed to the cause although tubal reconstruction by laparotomy is always done as a last resort.

Anovulation or oligo-ovulation is a very common cause of infertility. Obese patients may have polycystic ovary disease. Treatment with clomiphene citrate is usually the first line drug of choice. In conditions of proven hypogonadotropic hypogonadism, clomiphene usually does not induce ovulation in these patients. Human chorionic gonadotropin. (hCG) is always a better choice. Women with hyperprolactinaemia are better treated with bromocryptine. The usual regime of clomiphene citrate is 50mg/day given from day 1 to day 5 of menstrual cycle. If there is no pregnancy, this is increased to 100mg and ultimately to 150mg/day. If the patient does not ovulate at this level, hCG is

added to the regime. HCG is given as a single intramuscular dose of 5,000-10,000 I.U. on the cycle day 12, or when a follicular diameter greater than 20mm is documented by ultrasound examination.

Human menopausal gonadotropin supplied as ampoules containing 75 I.U. each of LH and FSH (HMG) is administered. The gonadotropin promotes follicular growth by direct stimulation of follicles. They are the treatment of choice when the patient does not ovulate with clomiphene therapy.

The usual regime that is followed here is to give HMG 75 I.U. as daily intramuscular injection for five days. A pre-ovulation follicle is monitored by ultrasound. When the leading follicle is 16-20mm in diameter, a single dose intramuscular hCG 5000 I.U. is given to induce ovulation, which occurs usually within 48 hours of giving the injection. In suspected cases of corpus luteum deficiency, hCG is repeated on day 3 and 6 after the ovulatory dose.

In the administration of HMG, the following points should be noted:

- for the average patient in this community, HMG is a very costly drug.
- the determining factor in the dose administered, apart from the follicular size, measured by ultrasound, is the money that patient can afford to spend.
- patient should be made aware of the fact that although there is a risk of multifetal pregnancy, the pregnancy outcome is not 100%.
- even if the patient does not get pregnant in the same cycle when gonadotropin injection was administered, she could still get pregnant in subsequent cycle even without stimulation, due to rebound ovulation.
- ovarian hyperstimulation resulting in multiple pregnancy is a common complication of HMG/hCG regime. This is noted when three or more preovulatory follicles are seen.
- ovarian hyperstimulation could be mild, moderate or severe. Mild cases could just present with pelvic and ovarian enlargements. Moderate cases have nausea and vomiting in addition to the pain and severe cases could have ascites, hydrothorax and haemoconcentration occurring, resulting in exploratory laparotomy and oophorectomy.

## Male Infertility

A male factor is at least partially responsible for infertility in about 40% of infertile couples. The commonest cause of male infertility encountered in this unit includes infections (mumps orchitis) testicular atrophy and varicocele. Other causes worth noting include drug (alcohol, tobacco, marijuana) hypospadias, radiation, antisperm antibodies and sexual dysfunction.

In cases where the cause of oligospermia is due to varicocele, surgery has proved very rewarding.

## CASE PRESENTATION

Name:	Mrs. M.E.	Menarche:	14 years
Hosp. No:	7592	Menstrual cycle:	5/28
Age:	30 years	Date of first visit:	21-2-94
Parity:	0 <sup>+1</sup>	Last Normal menstrual Period LMP:	15-2-94

Mrs. M.E. presented in this hospital on 21st February 1994 with history of inability to get pregnant. She has been married to an army officer for five years without any issue. She claimed she was pregnant once when she was in secondary school, twelve years earlier.

She has done hysterosalpingogram before reporting, and the report was that the fallopian tubes were not outlined. This could have been due to bilateral cornual blockage or cornual spasm.

The husband has already done seminal fluid analysis, and the report was as follows:

## Seminalysis report

Appearance	—	creamy white
Volume	—	4 mls
Viscosity	—	watery
PH	—	alkaline
% motility	—	56% active
% normal	—	92% normal morphology
Sperm count	—	82 million/ml

She was given appointment for laparoscopy.

23/2/94 *Laparoscopy report is as follows:*  
"The uterus is normal in size, no fibroids.  
The Right Fallopian tube appears proximally normal, but terminally phimotic.  
The right ovary also appears normal, but no evidence of recent ovulation spots.  
The left Fallopian tube also has the terminal phimosi.  
The left ovary has a smooth surface, no ovulation spots.  
Dye test is negative.  
There is filling of the tube with dye but no peritoneal spillage.  
Impression — Bilateral fimbrial blockage."  
She was advised to come for surgery.

03-03-94 **Anaesthetic review**

30 year old woman scheduled for tubal surgery tomorrow. Not a known diabetic/asthmatic or hypertensive. Has not received blood transfusion before. Does not smoke, drinks occasionally, not on any chronic drug, injection, not wearing a denture.

Chest — clinically clear

CVS — Pulse 100/minute

regular in volume

BP 140/80

JVP<sup>o</sup> S1, S2 heard no murmurs

AUd — full, not distended

Ass — ASA I

Plan — tab Diazepam 5mg nocte

then tab Diazepam 5mg at 3.00 p.m.  
for surgery as planned.

4/3/94: *Operation: Bilateral cuff salpingostomy  
Adhesiolysis and plication of round ligaments  
Indication: Bilateral tubal/fimbrial occlusion.*

*Surgeon: Dr. K.O.*

*Anaesthetist: Dr. S.*

**Procedure**

Patient was shaved, cleaned, draped and put in supine position after having been anaesthetised. A Pfannenstiel incision was made through the skin and rectus muscles were separated. A midline incision was made on the parietal peritoneum to enter the abdominal cavity. A self-retaining abdominal retractor was used to retract the rectus muscles, and the gut was packed with abdominal swab. A Wilkinson cannula was passed into the cervix. The tubes were identified and repaired bilaterally — Dye test was done. There was spillage on both sides. Both round ligaments were plicated. The abdominal swabs and the retractor were removed, abdominal wall was closed in layers with silk to skin.

Immediate post-operative period was uneventful. She had hydrotubation done on the 5th and 7th post-operative days, Free flow with minimal reflux was recorded. She was discharged home. She was advised to come on the first day of her next menses for ovulation induction hormones.

- 14-4-94 She had one injection of human menopausal gonadotropin 75 i.u. and clomiphene citrate — 100mg daily for 5 days.  
She came for another injection of hCG on the twelfth day.
- 14-11-94 This patient was not seen again until November when she claimed to have missed her period for two weeks.  
Ultrasound scan revealed a bulky uterus, AP 4.9cm, longitudinal 7.4cm, no gestational sac seen and no fetal echo.  
She started bleeding the second day. She was advised to get the five day course of injection which is the normal recommended dosage of this drug, i.e. FSH and LH 75 i.u. daily x 5/7.
- 6-3-95 She commenced on this five-day course, and before every injection, she had a scan done to rule out

*ovarian cyst formation due to hyper-stimulation syndrome.*

*The ovulation was monitored to determine the probable date of ovulation and on the 15th menstrual day she was given hCG and instructed to have sexual intercourse with her husband.*

3-5-96 *She was advised to have a repeat Laparoscopy. The report was as following:*

*Normal sized uterus*

*Right tube and ovary appear normal*

*Left tube and ovary appear normal*

*Dye test is positive on both sides*

14-5-96 *The husband had a repeat seminal fluid analysis. Here is the report:*

*Delivery time — 5 mins after ejaculation*

*Volume — 5.0mls*

*Colour — Greyish white*

*Consistency — Watery*

*Motility — 60%*

*Sperm count — 78 million/ml*

*Morphology — 90% normal  
10% abnormal, with defective heads*

*WBC — 1-2 Hpf*

*Yeast cells — ++*

16-8-98 *She was commenced on another five day course of human menopausal Gonadotropin, ovulation monitor on Days 8 to 12 of menstrual cycle and hCG stimulation on Day 13 — She was seen next in the clinic on 30-9-98 with signs and symptoms of cyesis. Ultrasound scan done showed an intrauterine gestational sac AP 2.5cm but no fetal echo — cyesis less than 6 weeks. She was registered immediately to commence treatment at the Ante-Natal clinic. She carried the pregnancy to term and had normal delivery of a baby boy.*

## **Monitoring Follicular Growth for Ovulation**

Follicular growth measurement is undertaken for infertile patients in order to determine whether they are ovulating normally or in response to an ovulation induction hormone.

In cycles where ovulation is not induced, the first scan is done on day 8. The first day of the last menstrual period is taken as day one. Subsequent measurements are made on day 10, 12, 14, 16.

During this period in normal ovulation cycles, by day 8 the follicle should be about 8-10mm.

This is continued until the follicles have reached 18mm. Anytime from then, the follicle is expected to rupture. Occasionally the follicle would fail to release the ovum and continue as Luteinised Unruptured Follicle (LUF). This is the type of patient that may need assistance for the follicle to release the egg by giving human chorionic gonadotrophins.

As the follicle gets to the size of 18mm, the patient is advised to start "meeting" her husband, since under normal condition, ovulation is expected within twenty-four hours of this size.

In cycles that are stimulated by pergonal or clomiphene, multiple follicles can grow simultaneously in the same ovary.

The response of the ovary to the pergonal injection is monitored by ultrasound.

If the patient responds by rapid development of ovarian cyst i.e. hyperstimulation syndrome, the injection is withheld or else the patient might develop ovarian accident.

Hyperstimulation syndrome may manifest as multiple ovarian cysts, haemorrhage into the cysts, ascites and kidney failure, since all patients on hormonal stimulation are monitored with ultrasound, these catastrophies have not been our experience in this unit. We do not give the hCG unless the leading follicle has reached 20mm in diameter.

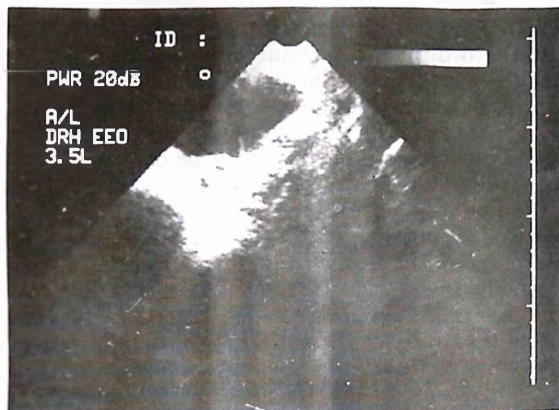


Fig. 16.1: Ovulation clinic: Day 8 of the menstrual period four follicles are identified.



Fig. 16.2: Ovulation clinic: Day 10 -- Two follicles are growing.

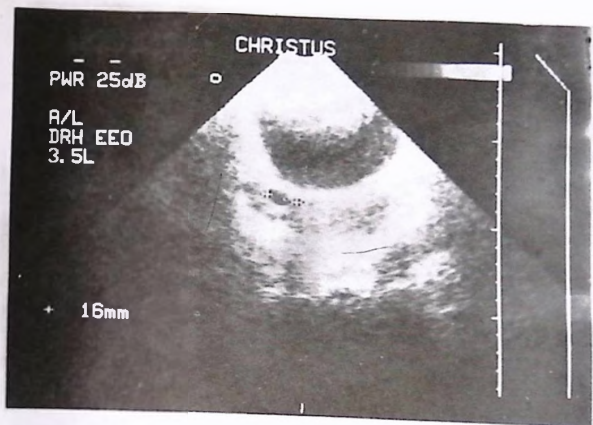


Fig. 16.3: Ovulation monitor, Follicle at 16mm



Fig. 16.4: Ovulation clinic: Day 12 — The leading follicle has attained the diameter of 20mm. This patient is a likely candidate to develop polycystic ovary if hormonal stimulation is not controlled.



Fig. 16.5: Ripe follicle at 20mm



Fig. 16.6: Ovulation clinic: Another ripe follicle at 20mm diameter. This patient was advised to start having sex with her husband as she was likely going to ovulate soon.

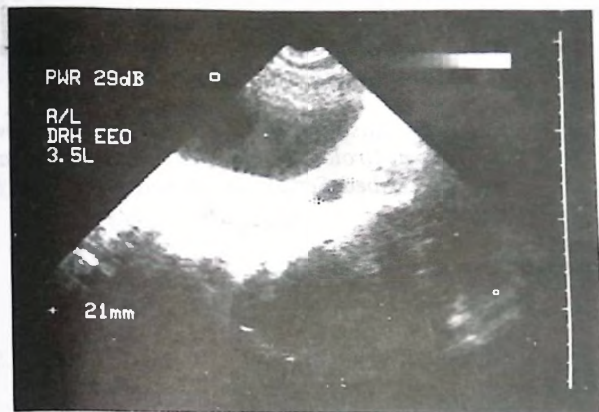


Fig. 16.7: In this patient, the follicle did not rupture but became luteinised — “unruptured follicle syndrome”.

### CASE PRESENTATION

Date: 12-8-96  
 Hosp. No: 10531  
 Age: 27 years  
 Para: 1<sup>+</sup>  
 Last confinement: 6 years  
 L.M.P. 8-8-98

Name: Mrs. V.M.

Mrs. V.M. is a 27 years old trader. Para 1<sup>+</sup>. Last confinement 6 years ago. She presented in this clinic on 12-8-96 complaining of inability to get pregnant. The husband also had difficulty in passing urine.

13-8-96 Laparoscopy was performed on the wife which was reported thus:  
 Normal sized uterus.

*Both Fallopian tubes appear normal*

*Both ovaries are also normal.*

*Dye test is positive on both sides, prognosis is good.*

29-8-96 *The husband had X-ray done, micturating cystogram — Urethral stricture was outlined.*

5-9-96 *Patient's husband was admitted for review by consultant Urologist who decided to operate. Patient was prescribed Septrin ii bd and flagyl ii bd for 3 days.*

### **Operation Notes**

8-9-96 *Operation: Internal Optical urethrotomy*

*Anaesthesia: Ketamine*

*Findings: Very tight urethral stricture about 2.5cm in length in the proximal bulbar urethra.*

*Bladder is Normal.*

### **Post-Operative Orders**

1. *1v gentamycin 80mg 6hrly for 3 doses.*

2. *1v ampiclox 500mg 6hrly x 4 doses.*

3. *Can eat and drink immediately after surgery and patient is awake.*

4. *Urethral catheter to be left in situ for 21 days.*

5. *Septrin ii bd x 10/7 after 48 hours.*

6. *Panadol ii p.r.n.*

*Patients' condition improved and post operative condition was uneventful.*

11-9-98

3.30 p.m. *Patient was reviewed. He was complaining of pericatheter urine leakage with occasional blood in urine.*

*On examination, patient was fit with stable vital signs. The urine in the Aldon bag was clear except for occasional minimal old clots with phosphatic debris.*

*Plan: Catheter was flushed with normal saline. Patient was ambulated, liberal oral fluid intake was ensured, normal diet and catheter drainage continued.*

- 29-9-96 *Catheter was removed and patient was urinating voluntarily.  
He was discharged home on 30-9-96.*
- 25-10-96 *Seminalysis was done.  
Report was as follows:*
- |                    |                                |
|--------------------|--------------------------------|
| <i>Volume:</i>     | <i>2.0 cm<sup>3</sup></i>      |
| <i>Colour:</i>     | <i>Whitish</i>                 |
| <i>Viscosity:</i>  | <i>Moderately viscous.</i>     |
| <i>Morphology:</i> | <i>50% normal form</i>         |
| <i>Count:</i>      | <i>500,000 mm<sup>-3</sup></i> |
| <i>W.B.C.:</i>     | <i>3.2/hpf.</i>                |
- 30-4-97 *A repeat seminalysis done elsewhere showed a sperm count of  $15 \times 10^6 \text{ mm}^{-3}$ .*
- 6-10-97 *Patient reported in clinic.  
She was pregnant. Ultrasound scan showed intrauterine gestational sac but no fetal echo yet —  
cyesis less than 6 weeks. She was to have a repeat scan in two weeks.*
- 22-10-97 *Two weeks later she had a repeat scan in which there was fetal echo in the gestational sac, CRL 1.7cm, gestational age 8 weeks 3 days.  
That was the last time she attended the clinic as her husband was transferred from Ibadan.*

### **Commentary**

This patient illustrated the unique role that urologists can play in the management of infertility. This patients' infertility was inevitably traced to the husband. All tests carried out on the wife showed that she was normal, but the husband who had stricture might have secondary infection of the urinary and genital tract.

Seminalysis — showed very poor sperm count during the first test. The second test showed very marked difference. Hardly did we take corrective measures on single sperm count tests. There has been various discrepancies in these results depending on which laboratory. There might have been severe oligospermia, as first reported which subsequently improved based on sound health that the patient enjoyed after the urethrotomy.

This operation was done under ketamine anesthesia and total cost to the patient was twenty-five thousand naira only (₦25,000.00) or two hundred and ninety four U.S. dollars (\$294).

## **MENOPAUSE**

Menopause is a cessation of menstruation. The average age of menopause is 40-55 years with median of 47 years. Climacteric is the process of changing from a reproductive to a non-reproductive state. The transition phase may span a period of 3-5 years. The process of climacteric is due to oocyte depletion.

The number of oocytes reached at 20 weeks gestation is the largest the foetus can attain. The number reduced progressively at birth till the age of 40 years. After this age it becomes difficult to recruit more oocyte to maturation leading to anovulation and irregular menses. The oestrogen level secreted by the remaining follicles progressively reduce while the level of Follicle Stimulating Hormone is raised by the negative feedback. Low level of oestrogen leads to the symptoms of climacteric.

The climacteric symptoms includes irregular menstrual cycle, hot flushes, vasomotor instability, emotional liability, vaginal dryness, dyspareunia and occasionally anxiety and sleep disturbance.

## **Diagnosis**

The diagnosis is made from the history. In this clinic many of these patients actually come believing that they are pregnant. Even ultrasound scan may not be able to convince them to think otherwise. Other signs include vaginal and vulva atrophy, pelvic relaxation. Laboratory diagnosis that are confirmatory include high level of FSH, low oestrogen and high LH.

## **Complication**

Osteoporosis is a well known complication. Vertebra and hip disorders occur in Caucasians — but in this community pathological fractures are not common. This may be due in part to the ceaseless sunshine that we have throughout the year and coupled with the fact that the percentage of our women that live up to 90 years is considerably less in this community, this being the age when these fractures are more common in caucasians. Cardiovascular disease and psychosexual changes are common in menopause.

## **Treatment**

The treatment of choice is oestrogen. This comes in various formulation and dosages, but they are all taken in daily dose i.e. 0.625mg conjugated equineoestrogen, 1.0mg micronized oestradiol, or 10mg ethinyl estradiol. These reduced considerably the cardiovascular complication and osteoporosis; calcium therapy is also useful in preventing osteoporosis a dose of 1,000mg/day of elemental calcium.

## Laparoscopy in Private Practice

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### Indications for Laparoscopy

The commonest indication for laparoscopy in this unit is infertility. This procedure allows clear visualisation of the pelvic organs and at the same time dynamic testing of tubal patency is carried out.

Endocrinological problems whether or not they are associated with infertility are indications for laparoscopy. Testicular Feminization Syndrome (TFS), Stein-Leventhal ovaries and other abnormalities of the Mullerian or Wolfian ducts are visualised directly for elucidation. Laparoscopy is also indicated in all cases of unexplained pelvic pains. It is the most direct method for diagnosing unruptured ectopic pregnancy. It is very helpful when perforation of the uterus is suspected.

Surgical laparoscopy can be performed as an adjunct to fertility investigation — i.e. adhesiolysis.

### Contraindications

The list of conditions, making laparoscopy to be contraindicated, has reduced considerably in this unit. Laparoscopy has been done successfully in patients with 3 previous Caesarean section, history of ruptured uterus and even in patients whose uterus had been plastered to the anterior abdominal wall as a result of infection following Caesarean section. Laparoscopy had been done in suspected cases of abdomino-pelvic carcinomatosis or tuberculosis. The risk of inadvertent damage to the gastro intestinal tract is successfully averted once pneumoperitoneum is created. If pneumoperitoneum cannot be created, then it means the intra-abdominal adhesions are so gross to the extent that any attempt

at inserting Verres needle or trocar may result in incalculable injuries.

Ultrasound scan is compulsory before laparoscopy so as to rule out huge abdominal masses like fibroids or ovarian tumours.

Laparoscopy should be avoided in gross abdominal ascites or massive haemoperitoneum.

### **Preparation and positioning of the patient**

Most of the patients for laparoscopy are booked for Day 10 of their menstrual cycle especially those being investigated for infertility. The second half of menstrual cycle is cautiously avoided so as not to dislodge or iatrogenically abort an early conceptus which has just been formed during the middle of the cycle. It is equally part of our experience that some patients still manage to get pregnant if they have sex with their husband at the same menstrual cycle after laparoscopy.

The procedure is performed obligatorily as an inpatient procedure. The patient is advised to come without breakfast and be prepared to stay overnight. The patient is adequately counselled to obtain a consent. In some cases the husbands' consent may be implied. I have been dragged to the police station before, accused of "performing operation on a woman without the consent of the husband". The accuser was not the husband but the pastor of her church! It was also this husband that gave the wife the money to pay for the procedure. So no effort should be spared in explaining the details of the procedure to the patient and her relatives.

Laparoscopy is performed every day in this hospital starting at 4.00 p.m. It is not advisable to allow the patient home that day because of transportation problem, hang-over effect of anaesthetic agents and incidental complications like abdominal pain, shoulder tip pain, rigour or occasional distressing vomiting. Any of these complications would manifest within 12 hours and the patient can go home early the next morning.

Patient is usually advised to go and void urine before entering the theatre for laparoscopy. The operating table is tilted by raising the bottom end with wooden bench.

The patient is placed in lithotomy position with the trunk gently tilted downwards towards the cephalic end. In positioning the patient, it is necessary to ensure that the buttocks extend over the edge of the operating table for about 6 inches. This ensures

that the Rubins cannula and cervical tenaculum are completely depressed. The uterus is antverted, the fallopian tubes, the ovaries and the Pouch of Douglas are brought into view.

There is no need for shaving the vulva. The abdominal wall is cleaned with povidone-iodine, and spirit. It is made compulsory for the patient to fast on the day of the operation.

### **Anaesthesia**

Routinely, in this unit, laparoscopy is performed with diazepam and ketamine hydrochloride (ketalar). An intravenous line is maintained using a scalp-vein needle, and 2mls syringe with normal saline to keep air off the tube. 10mg of diazepam is given slowly intravenously. The usual reaction is that patient feels a peppery sensation along the vein, and on few occasions the patient reacts with moderate irritant cough.

This is followed by 1cc of ketamine also given intravenously. The patient is deeply anaesthetised within 15 seconds of the administration. Usually, this would last about 8-10 minutes before the patient wakes up, but if the procedure is not completed, a top-up dose of 0.5cc of ketamine is administered so that patient is quiescent till the end of the procedure.

However, after sometime, it was no longer found necessary to put up a scalp-vein needle. The procedure is completed conveniently with 10mg diazepam and 1.5ml ketamine. 0.5ml of ketamine is however, left in the syringe as a top up dose in case the patient wakes up before the completion of the procedure.

Analgin 5cc intramuscular is given immediately after the procedure. Intravenous route has been used also without any complications.

### **Procedure**

After cleaning and draping, diazepam 10mg and ketamine 1cc are given intravenously. Within 15 seconds, the patient is anaesthetized.

To create pneumoperitoneum, a midline skin incision, 1cm in the midline starting, from the edge of the umbilicus is made. The lower abdominal region is lifted up with the hands. The Verres needle is passed through the uppermost end of the midline incision, where there is hardly any fat intervening. The needle is imaginarily pointed to the vagina, and with short but hard push,

the needle plunges through the rectus fascia, parietal peritoneum into the peritoneal cavity.

There is no need infiltrating the skin or fascial layers with xylocaine or any local anaesthetic. Verres needle is used routinely to create pneumoperitoneum. It is more secure to maintain a countertraction as described above by lifting the abdominal wall rather than by using towel clips. This risk of passing the needle into the bowel is minimised.

The pneumoperitoneum pressure registered by the apparatus is used to determine proper placement of the needle. Before the needle is inserted, the gas flow is opened to ensure that there is no obstruction along the gas cable and the needle. When the Verres needle is inserted the pressure in the peritoneal cavity will be approximately 10mm Hg. If the pressure is above 15mm Hg, then there is an obstruction i.e. the point of the needle is in the omentum, bowel, or subfascial space. Customarily, 3 litres of carbon dioxide gas is used to create pneumoperitoneum.

The Verres needle is withdrawn briskly. The trocar and cannula are inserted as far as the rectus fascia, and pointing towards the vagina, a quick, stabbing push is made to pierce the rectus fascia and the peritoneum all at once. The trocar is withdrawn leaving the cannula behind. Trocar injury to the bowel has never occurred here because pneumoperitoneum is created mandatorily before passing the trocar.

The fiberoptic light cable is now connected to the Laparoscope and the light is turned on. The Laparoscope is then inserted into the cannula and this allows all the pelvic organs to be inspected thoroughly.

While pneumoperitoneum is in progress, Rubin's cannula and cervical tenaculum are fixed on the cervix. This is used to further antevert the uterus so that a clear view is established.

Under direct vision the dye (methylene blue) is injected through the Rubins cannula. The filling of the tubes and subsequent spillage is observed through the Laparoscope.

## Complication

Various complications have been reported as being associated with laparoscopy. These include haemorrhage, injury to the gastrointestinal tract, injury to the abdominal wall, pelvic and wound infections and vascular injuries.

In this centre, care has been taken to prevent all these

complications. Laparoscopy is done only for diagnostic purposes. Female sterilisation is not done by laparoscopy here.

Roughly, an average of three cases are done every day. The largest number done in one day was 17. In a ten-year period, 8986 laparoscopies have been done; five (5) for the retrieval of intrauterine contraceptive device and two cases for removal of plastic tubes from tuboplasty. All the others are for infertility or to confirm suspected ectopic gestation.

For every patient that is being investigated for infertility, hydrotubation is performed — the fluid is made up of 1G streptomycin 0.5GM hyalase, hydrocortisone 500mg, this is diluted with normal saline made up to 20mls. This mixture is aimed at opening up the intra-luminal adhesions in the fallopian tube and in the cavity of the uterus.

### CASE PRESENTATION

Date:	16-10-86	Cycle:	4/24
Name:	Mrs. F.A.	Para:	0 <sup>+4</sup>
Hosp. No:	150	Last Pregnancy:	1980
Age:	29 years	LMP:	4-10-86

*Mrs. F.A. presented in the clinic on 16-10-86 with history of inability to get pregnant for about 6 years. The last conception was in 1980, which was electively terminated, and this was before she was married to her present husband in 1982.*

*The husband had two boys by a previous marriage which had been dissolved. No history of mumps or gonococcal urethritis.*

*Pelvic ultrasound scan was done which revealed a normal sized uterus, measuring AP 4.6cm by longitudinal 7.1cm, no fibroids were seen, the ovaries were not cystic and there were no masses in the Pouch of Douglas. Patient was scheduled for laparoscopy.*

4-11-86: *Patient had laparoscopy done  
iv diazepam 10mg  
iv ketamine 1cc*

**Report:** *The cervix is healthy  
the uterus is normal in size  
no fibroids seen  
The right fallopian tube appears grossly normal  
The left fallopian tube also appears grossly normal.  
No ovulation spots on the ovaries.  
The Pouch of Douglas is clean, however, dye test was  
negative, no filling of the tubes with dye.*

*The patient was discharged home the second day on the usual prophylactic antibiotics.*

9-11-86: *The wound site gaped slightly — this was sutured secondarily under local anaesthesia.*

15-11-86: *Patient was counselled on fertile periods. She was prescribed Clomid 50mg daily for 5 days and Vit. E. 100mg daily for 5 days. This prescription was to be started on the day she started her following menstrual period.*

23-11-86: *Patient commenced above prescription for 5 days.*

21-12-86: *Patient had her period on 17-12-86  
She had a second course of Clomid  
100mg daily for 5 days.*

18-1-87: *Patient came to the clinic with bleeding per vaginam.  
She claimed to have been pregnant because her cycle was 24 days.*

21-2-87: *Patient started another episode of bleeding from 16th Feb., 1987.*

15-9-87: *Patient came with history of headache  
LMP was 16-6-87  
Ultrasound scan showed that she was already 13 weeks pregnant.*

26-9-87: *She was registered for ante-natal clinic, whereby the pregnancy was taken care of until she delivered.*

### **Commentary**

This patient illustrated one of the isolated cases of infertile patients who were negative on dye test and subsequently got pregnant without surgery.

Anatomically, one would expect that negative dye test, especially without filling of the tubes with dye indicate non-patency and pregnancy may not be expected.

Isolated cases of this nature have made us very cautious in immediately subjecting patients to laparotomy and surgery, especially when no other surgically correctable pathology such as fibroid, hydrosalpinx, ovarian cyst or adhesions are present, I have always subjected such patients to what I called "empirical trial". If this patient has had surgery, and she became pregnant, one might have erroneously claimed the success to be as a result of surgery — which is spurious. On the other hand, surgery might in fact have caused more serious mutilation that might have reduced the chance of conception.

I do not rush ahead to surgery as a principle unless:

1. there is an associated gross pathology surgically treatable like fibroids, hydrosalpinx, or adhesions.
2. the patient had been tried on ovulation induction drugs — on empirical bases for about 3 cycles.
3. patient is above 30 years of age, and marriage is more than 3 years old.
4. hydrotubation and tubal pneumo insufflation have been done either separately or in association with laparoscopy. If after all these factors have been considered, then the patient is counselled for surgery according to the findings prescribed by laparoscopy.

By implication, patients who have negative laparoscopy result and still get pregnant, definitely still have some patency — however minute, why should this be so?

1. Faulty technique --- the human factor should be considered. The tip of the uterine cannula may be aborting inside the uterine muscle, and chromotubation results in intramural infiltration.

2. There may be some endosalpingitis which makes blockage sub-absolute with some pressure due to hydrotubation or pneumo insufflation — partial microscopic and minimally functional patency may be achieved enough to allow conception.
3. Laparoscopy here is done under intravenous diazepam and ketamine. In many patients anaesthesia is deep and relaxation profound. No evidence of normal spasm. But in very few patients, those who have been using cerebral stimulants like caffeine or tobacco, the relaxation may not be complete and top-up doses need to be added before the procedure can be completed. This class of patients may give false negative laparoscopy result.

Two characteristics of infertile patients are demonstrated in this patient:

1. Irregular attendance to clinic — many do not attend clinic regularly and
2. Some will come making claims of pregnancy that has been aborted. It is only when the menstrual cycles are regularly monitored, and the pregnancy diagnosed by ultrasound that the pregnancy can be confirmed.

The danger inherent in claims of pregnancies not sonographically confirmed is that quite often these patients put themselves on self medication, i.e. some take gestanin, or primolut depot or other progesterone preparation which do not only serve as contraceptive in non-pregnant women but also lead to secondary ovarian suppression and amenorrhoea. Self medication is particularly dangerous in the realm of infertility because quite often wrong or inappropriate medication achieves the opposite result.



**Fig. 17.1:** Modified lithotomy position. This is to ensure that the abdominal viscera gravitates upwards towards the diaphragm so that pelvic structures are seen with clarity.



**Fig. 17.2:** Modified lithotomy position. The wooden bench is used to raise the bottom end of the obstetric bed. This makes the use of Lloyd-Davies stirrups unnecessary.



Fig. 17.3: The basic units of light source and carbon dioxide pneumo insufflator. The cylinder of carbon dioxide is shown at the upper case, while light source and voltage stabiliser are shown at the lower case.



Fig. 17.4: The components of laparoscopy set displayed from left to right, these are uterine manipulator, Verres needle, trocar and cannula, laparoscope, forceps, gas and light cable, light source and air pneumo insufflator.

## **CASE PRESENTATION**

### **Ectopic Pregnancy**

HOSP NO: 3814  
DATE: 3-05-90  
AGE: 25 YEARS  
CYCLE: 5/28

MRS. L. A.  
MENARCHE: 13 YEARS  
PARA: 2<sup>+</sup>2 NONE ALIVE

*Mrs. L.A. is a 25 years old house wife who presented on 3rd May 1990 with history of weakness, vomiting, headache, abdominal pains and irregular menses. The L.M.P was 10-03-90. She was now married for about a year. On examination she was not pale, nor jaundiced, eyes were mildly sunken, her abdomen was soft and full. There was vague generalised tenderness, more marked in the umbilical, suprapubic and left iliac fossa. No rebound tenderness.*

*Vaginal Examination: Showed normal external genitalia. cervix was long and firm, cervical excitation was positive. The uterus was bulky, tenderness in iliac fossa was mild.*

*The impression was pelvic inflammatory disease to exclude cyesis and ectopic pregnancy.*

*Ultrasound scan was done which showed bulky but empty uterus.*

*A.P 5.9cm Longitudinal 7.8cm. There was a localised area of enhanced echogenicity at the left adnexial region. No fluid in the Pouch of Douglas.*

**4-5-90:** ***Laparoscopy** was done which revealed a mass at the fimbrial region of the left Fallopian tube. The mass was bluish in colour with smooth surface. There was mild blood staining of fluid in the Pouch of Douglas. The view confirmed slow leaking ectopic pregnancy.*

***Laparotomy** was carried out immediately and left salpingectomy was performed.*

*Peritoneal toileting was done. Abdomen was closed back in layers with silk to skin.*

*Post operative period was uneventful and she was discharged home on 10 May, 1990.*

*As of the time of writing this book. (Sept. 1998) Mrs. L.A. had delivered thrice in this hospital normally, and vaginally, all the babies are surviving.*

## Commentary

The presentation here was not too striking as an ectopic pregnancy. There was no history of dizziness, collapse or shock.

Examination did not reveal any hypotension or tachycardia and the abdominal symptoms were vague and evidences were not too strongly suggestive.

However, with the history of amenorrhoea and ultrasound scan showing empty uterus, laparoscopy is clearly indicated. This is the most direct way of diagnosing ectopic pregnancy under direct vision.

I have found the two equipments absolutely very complimentary in the management of abdominal problems, ultrasound and laparoscope. There has also been rare conditions to warrant exploratory laparotomy.

In any small scale specialists' practice in obstetrics and gynaecology, these two instruments are strongly recommended.

However, instruments should not replace clinical acumen. Over-dependence on instruments to the neglect of clinical signs and symptoms could be detrimental. Thus in this patient, the absence of typical features of ectopic pregnancy is not enough to make one sit down with complacency.

In a situation where the sonographic findings are not confirmatory, urinary HCG could be done where the reagents are available and there is no laparoscopy. Where there is no ultrasound, laparoscope, and no facility for urinary hCG, exploratory laparotomy is indicated rather than leave the patient to bleed and die of ectopic.

I must also add that some cases of ectopic pregnancy are so clinically obvious, the signs are so typical that there is no need for ultrasound scan or laparoscopy. These occur in patients with

ruptured ectopic pregnancy.

The patients usually present with amenorrhoea, sudden collapse. Abdominal pain and paracentesis abdominis would yield blood --- which does not clot. Urgent laparotomy should be done immediately to save the life of the patient.

Fimbrial ectopics are not as rapidly fatal as cornual ones, that was why this patient went on a benign course.

I have personally observed that the closer the ectopic gestational site is to the cornual end of the Fallopian tube, the more severe the symptoms, i.e. hypotension, collapse and shock. The closer it is to the fimbrial end, the more benign the course of deterioration, blood pressure may be stable, dizziness may be absent, the pain may be very vague. This type of patient is very difficult to convince that operation is inevitable.

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## Ketamine Anaesthesia in O&G Private Practice

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### Basic Pharmacology

Ketamine solutions that are sold commercially contain two isomers  $S_{(+)}$  Ketamine and  $R_{(-)}$  Ketamine.

These isomers have marked differences in their neuro pharmacological properties. Experimental trials in young volunteers indicated that the  $S_{(+)}$  Ketamine was three to five times more potent than the  $R_{(-)}$  isomer. They both produce cardiovascular stimulation to similar degrees and also psychomimetic activity.

On the central nervous system, ketamine is said to produce dissociated anaesthesia, the thalamo-neocortical pathways are depressed while the limbic system is stimulated. Selective sensory deprivation which occurs during ketamine anaesthesia had been accounted for as being due to reduced glucose metabolism, in the somatosensory and auditory systems. Its analgesic effect is mediated through the opiate receptor-system.

Ketamine produces various manifestations of psychomimetic activity. This usually occurs during emergence from ketamine anaesthesia. These manifestations include changes in mood state, extra corporeal experiences, floating sensations and even frank delirium.

Since there is loss of cutaneous and musculoskeletal sensations, there is reduced sensation for gravity and so patient feels as if "floating in space". All these changes are very short lived and no evidence as regards long-term changes in personality.

Benzodiazepines appear to be the most effective in attenuating the psychic actions. Diazepam has been very useful in reducing the incidence of dreams and to eliminate post operative illusions.

Lorazepam has also been reported to be most effective in preventing the emergence sequelae.

### **Use of Ketamine in Obstetrical and Gynaecological Anesthesia and Analgesia**

I have used Ketamine anesthesia for all my emergency Caesarean sections for the past fourteen (14) years, 5,744 Caesarean sections. I have found it very useful and easy to administer by all categories of medical and nursing staff. To teach a member of staff on how to give ketamine, it only involves using a 2ml or 5ml syringe, draw part of the fluid from the infusion bottle already set up as drip and pushing in a bolus dose of  $\frac{1}{2}$ ml or 1ml at a time. Ketamine is then drawn up to replace the fluid and so the drug is ready to be given in bolus intermittently.

Earlier on, in my practice I used to give 1cc of ketamine to start Caesarean section.

The interval between the injection and delivery of the baby is very crucial — if this interval is long — the Apgar Score of the baby may be low at one minute, although the baby recovers very rapidly.

Later on, I discovered that  $\frac{1}{2}$ ml of ketamine is quite enough to give when starting an operation. This resulted in delivery of babies with better Apgar Scores, but induction-delivery interval must be less than five minutes.

Immediately the baby is delivered, 10mg diazepam is administered intravenously and the operation is carried on smoothly giving bolus of  $\frac{1}{2}$ ml or 1ml ketamine depending on the neuro-muscular excitability of the patient. Also the blood pressure is monitored almost every 5-10 minutes and recorded. It is our observation that the higher the blood pressure the higher the dosage of ketamine required for sedation.

When lower doses of ketamine were used to produce obstetrical anesthesia and diazepam was added, majority of these patients experience a pleasant dreamlike state.

Even though ketamine is always at easy reach, epidural, spinal and general anesthesia have been used during elective major operations and even if patients can afford the cost of general anesthesia, this is provided as the case may be.

Ketamine had been a very useful tool in this hospital. We have not witnessed any mortality directly resulting from the administration of ketamine, although mortalities have occurred as a

result of severe hypovolaemia, abruptio placentae, uncontrollable haemorrhage from primary PPH. and uterine atony.

The efficacy of ketamine lies on the fact that the blood pressure and cerebral blood flow are preserved better following administration of ketamine. The respiratory centre is also not significantly depressed. The arterial blood pressure of the neonates are not significantly depressed after ketamine had been administered to the mother for anaesthesia.

Continuous infusion of ketamine for anaesthesia have been described and this method is expected to achieve a basal continuous concentration of the drug in the brain with minimal fluctuations. This technique involves the knowledge of pharmacokinetics of ketamine infusion which is better handled by experts in that field i.e. anaesthesiologists. Repeated bolus injections have been found safe, there is minimal risk of overload, patient is almost partially recovered before another dose is given, the respiratory rate, tidal volume and level of oxygenation are not too adversely affected. The patient signifies when another dose is required!

Recovery after the operation is almost complete and total immediately after surgery, even while patient is still on the operating table — no need to keep patient in intensive care unit (I.C.U.).

The safety margin of ketamine is very wide. Even though the usual dose for intermittent bolus injection is 1cc, 5cc of ketamine given inadvertently still would not spell demise, but as a safety precaution in this unit, ketamine is always drawn into 2ml syringes, so that there is no possibility of shooting dangerously high bolus overload that may be deleterious to the patient.

Ketamine is the only drug given intravenously that can function as sole anesthetic agent because of its unique sedative, amnestic, analgesic and anesthetic properties. It is water soluble, stable in solution and painless and does not cause irritation following parenteral administration.

### **Aspiration During Anaesthesia (Mendelson Syndrome)**

Chemical pneumonitis from inhalation of gastric contents has been a common cause of obstetric death in Great Britain (Crawford, 1972). The mortality from this has been traceable to two factors (a) solid food particles or bolus of food could block the tracheo-bronchial tree and lead to suffocation (b) the acidity

of the gastric contents in an empty stomach could result in chemical pneumonitis. In Christus Hospital, patients in labour are not allowed to take solid bolus food. In Ibadan and environs, these include, *eba*, *amala*, and *iyán*, i.e. cassava, plantain, and yam flour respectively. This category of foods are heavy and can even easily provoke unnecessary vomiting.

The patient is also not allowed to go hungry, so pap is recommended, with sugar and milk in moderate quantities during labour. This calorie is needed particularly during second stage.

In situation where patient has to be taken to theatre, this prophylactic dietary regime has made it unnecessary to pass nasogastric tube to aspirate the stomach contents, a procedure that could be extremely uncomfortable and resentful to patients.

This procedure however may be compulsory in cases of general anaesthesia with accompanying paralysis of muscles and abolition of tracheo-oesophageal reflexes. Invariably, most of our Caesarean sections are emergency, a lot of precious time is saved by the use of ketamine and diazepam, and in this regime, the tracheo-oesophageal reflexes are not abolished completely.

It has not been found necessary to pass nasogastric tube to aspirate stomach contents, and no swallowing of mist magnesium trisilicate to neutralise gastric acidity.

### CASE PRESENTATION

<i>Date:</i>	<i>30-1-93</i>	<i>Hosp. No. Z-047</i>
<i>Name:</i>	<i>Mrs. A.J.</i>	
<i>Age:</i>	<i>93 years</i>	
<i>Para:</i>	<i>7<sup>+0</sup> 5 alive</i>	
<i>LC:</i>	<i>1959.</i>	

*Mrs. A. J. was brought by her son. She complained of something coming out of her vagina. The mass usually comes out when patient stands erect, and then goes back when in lying down position. There is usually some associated slight watery discharge. No associated long-standing cough and all deliveries were normal.*

*On examination, the woman was elderly, pulse 90/min.  
Respiratory rate was 26/minute Blood Pressure 150/100.  
Vaginal examination revealed a 3rd degree utero-vaginal  
prolapse with slight ulceration at the tip of the cervix.*

31-7-93

**Operation Note:**

*Anesthesia: iv diazepam 5mg stat*

*iv bolus ketamine 1/2cc at a time*

*Operation: vaginal hysterectomy,*

*anterior colporrhaphy,*

*Posterior colpoperineorrhaphy.*

**Commentary**

This case was presented to illustrate that bolus repeated ketamine infusion can be used as the sole anesthetic agent even at very old age. The rush involved in giving ketamine apparently was not beyond what the old woman could bear.

Earlier on in the clinic, I was giving 1cc bolus as repeatedly as the patients reacts to surgery. But I found later that reducing the dosage to half was as effective and the side effects like salivation and emergence reactions were very minimal.

Giving diazepam 5mg intravenous, also half dose was also very effective in making the anesthesia very smooth, especially in this elderly woman.

**General Anaesthesia in Private Practice**

General anaesthesia would be the most ideal for all surgical cases but there are special infrastructural constraints that make this facility unattainable in all cases.

The telephone that has been installed in the hospital has not functioned for the past eight years. This makes it difficult to call anesthetist by phone. The number of operations carried out does not make it economically prudent to employ a full time anesthetist, in fact no cold or elective surgical cases are done before 3.00 p.m.

Many of the patients that are being operated are brought in emergency, almost without any cash in hand, so the cheapest approach that guarantees safety and survival of the patient is

usually embarked upon. Occasionally the anaesthetic gases may be exhausted and fresh supply could take some time to obtain. For this reasons, full general anaesthesia are reserved for cold, booked or elective procedures and also for some emergencies whereby ketamine would be inappropriate.

It is not too difficult financially to set up a small general anaesthetic unit. This contains a small portable gas flow "Boyle's machine" with flow gauge for nitrous oxide and oxygen and another compartment for halothane (see Fig. 18.1).

The oxygen and nitrous oxide are supplied in cylinders. At any time during operation, a full oxygen cylinder is in reserve before any operation starts.

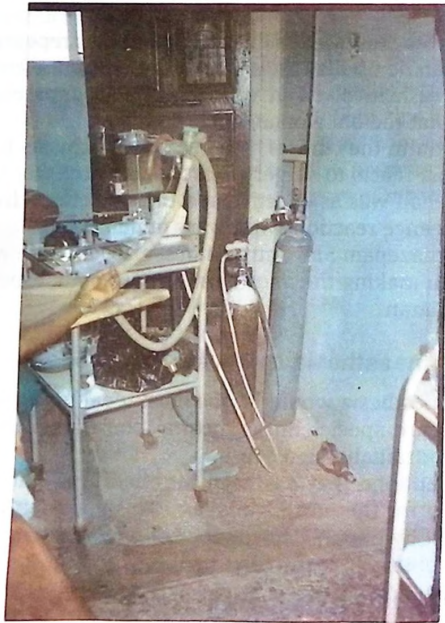


Fig. 18.1: The basic components of general anaesthetic unit, i.e. halothane vapouriser, connection tubes, oxygen and nitrous oxide cylinders.



**Fig. 18.2:** The general anaesthetic unit is in use. The patient is already under general anaesthesia (G.A.).

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## Ultrasound in Private Practice

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To me, no instrument has been more relevant or technically more useful in the practice of obstetrics and gynaecology in private hospitals than ultrasound machine.

Before September 1983, I had been reading extensively about ultrasound and it has always dawned on me that my future practice will benefit from ultrasound. I studied hard on this topic for every examination, but unfortunately it never came out as one of the questions.

I arrived in Aberdeen Royal Infirmary on 23rd September, 1983 for hospital attachment. The three main programmes on my work schedule apart from specialized registrar's job in obstetrics and gynaecology were oncology, ultrasonography and laparoscopy under the combined consultancy of Professor Arnold Klopper and Dr. W.T. Fullerton.

I joined the infertility team of Prof. Arnold Klopper, especially in the monitoring of follicular growth and since the ultrasound machine was in the room adjacent to labour room in the maternity, every resident had free access to the machine especially in emergency obstetric problems.

Towards the end of my one-year attachment, I was thinking deeply of how I could build on the foundation of knowledge I had acquired and how it could be made relevant to my country, Nigeria.

In Britain, sickle cell was an area whereby a lot of breakthrough has been reported, particularly in the area of chorion-villus biopsy, and prenatal diagnosis.

After submitting my thesis on tumour-markers, my consultants arranged orientation courses for me at King's College and subsequently Queen Charlotte's Hospital, London on Ultrasound

and chorion-villus biopsy, under Prof. Charles Rodeck.

Then I came back to Nigeria and subsequently to private practice.

I count myself uniquely fortunate because it was immediately I started the practice that the value of the Naira started to depreciate from 1 dollar = 1 naira, it has now come down to 1 dollar = 100 naira.

Economically, it has become more and more difficult to travel abroad and for those who ultimately go abroad, the zeal to import their acquired medical technology has waned and dwindled in such a precipitous downturn to the extent that the idea of coming back home created intimidating fear of the unknown.

In my training programme at the University College Hospital, I was the first candidate to complete the fellowship programmes of both the National Post Graduate Medical College and West Africa College of Surgeons in Obstetrics and Gynaecology and at the record time of five years and two weeks.

Very soon after, I embarked on my arduous but fulfilling mission of saving lives in private practice.

I was immediately confronted with some social problems which were not hitherto anticipated.

The first is that being a relatively new technology, there was widespread resistance against ultrasound even among the elites.

The public enlightenment is particularly more difficult because in whatever way one tries to explain, concordance implies more money accruing to one's practice, so the commercial undertone seemed to prejudice all the numerous advantages. The educated and enlightened group are not left out in this scepticism. A senior gynaecologist argued with me that it was too early to declare that there are no teratogenic effects, until the babies born from such pregnancies have lived up to fifty years or more!

My reply was that we should not allow the fear of uncertainty about tomorrow to rob us from the benefits and advantages of today.

Lack of maintenance engineers is a thorny characteristic of third world practice. Not many people have been trained in the technology of maintenance. There was a time I had to travel to London only to clean the dust that has accumulated in the machine due to dry and dusty tropical atmosphere! With the continued devaluation of the local currency, it was becoming more and more difficult to afford the price of new machines. The

market was later flooded with refurbished ones, some resulting in woeful disappointment.

In the course of introducing the machine to clients, many terms have been borrowed from other commercial ventures obviously to discourage and frustrate the owners of the ultrasound. It is however very salutary and exhilarating to know that today the general populace has now known the use of ultrasound and even without referral many come on their own for scan and take the result back to their doctors.

What I am going to write here is not a research or authoritative text on ultrasound, but simple and elementary facts which are to prevent other doctors in my shoes from committing some of the errors which I have committed as a beginner in times past. It is quite obvious that many doctors will aspire to own an ultrasound machine without having to travel overseas. They may be faced with maintenance problem and with the economic problems in the health sector, the need for replacement could be a scary reality if the machine breaks down. But no matter the obstacles, an ultrasound machine will be an asset to any doctor either directly by having one in his/her practice or linking up with one who can give quick or twenty four hour service in case of emergencies.

## **BASIC PHYSICS**

The word 'Ultrasound' actually comes from longitudinal waves of sound whose frequency is so high that ordinary human ear cannot pick it. The audible sound waves range from 20–20,000 Hz range while the ultrasound waves range from 1–30 MHz.

The sound waves are propagated from molecule to molecule either through air, bone or metals, but not through vacuum.

Air is a very poor conductor of sound. So in order to ensure that the sound waves produced by the transducer get to the tissue, ultrasound gel or mineral oil must be placed between the transducer and the patient. Attenuation of sound energy is also reduced by this. The transducer contains small crystals which vibrate or oscillate when pulsed electrical energy is sent into it. Sound energy is emitted out — a process called transduction.

When the sound energy gets to an interphase, it is partly reflected back, and partly continues in the new medium. The reflected sound wave impinges on the crystal which oscillates and send out electrical signal. The electrical voltage generated is

comparable to the strength of the returning echo. Acoustic impedance is the term used to describe the resistance of different tissues to propagation of sound wave. The greater the difference in density between two structures, the stronger the returning echo.

With the knowledge of the velocity of sound in different tissues, by measuring the time elapsed between the production of the pulse sent to the body and the returning echo it is possible to measure the range of reflecting structures in the body. The size of an echo is related to the differential acoustic density and elasticity at the tissue interphase, the size and geometry of the boundary also being taken into consideration.

There are different ways of visually displaying the returning echoes. If accurate measurement of distance between two structures are required A-MODE display is required. Other modes of display include the M mode and gray scale.

### **Components of Ultrasound Equipment**

The ultrasound equipments vary widely in shapes and sizes, however progressively over the years the machines are getting more complex but getting relatively smaller in size. Because of the nature of our environment all the machines I have purchased have been portable ones.

One of the models is Fucuda Denshi UF-3500 from Fuji Electronic Co. Ltd. Japan.

If the motion of structure such as the fetal heart is to be visualized the M-MODE is employed. For a cross-Sectional Visualization the 'B' mode is used. Each of those modes is displayed on an oscilloscope screen for visualisation and documentation.

The scanning motion made with the probe may be a linear sweep if the axis of the probe is maintained normal to the surface or a sector scan where the position of the probe face is maintained in one position on the skin, but the direction of the sound beam is swept across the tissues. Mitsubishi SDL 32 is very useful and very durable. I currently have two sector machines from Ausonics in United States of America, two Schimadzu, one Fucuda from Japan, and one Aloka 210.

The following are basic components of these machines:

1. Transducer
2. Monitor

3. Control Panel
4. Freeze Frame
5. Calipers

(See Fig. 19.1)

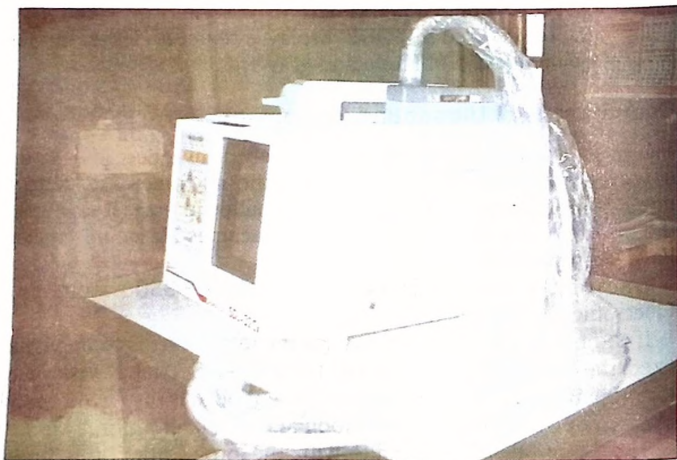


Fig. 19.1. This portable and compact Shmadzu SDL 32 contains all the basic units, i.e. transducer, monitor, control panel, freeze frame and calipers. The probe is linear array transducer.



Fig. 19.2: This is another portable compact machine — ALOKA 210 — from Corometrics Medical Systems Inc. Connecticut, USA.

## Transducer

I have been used to the linear and sector transducers. These happen to be cheaper and more acceptable to the patients. I did not introduce the vaginal probe at all because many patients are very cautious about what is inserted into their private part, particularly in these days of AIDS. I have no previous experience of vaginal probes either.

The transducer/probe is the most delicate part of the instrument. When holding the probe — do not hold any other thing. Concentrate on the probe. It could easily be damaged when it is dropped. The left to right display of information on the monitor screen is permanently related to the transducer, one side of the transducer relates to one side of the probe.

Conventionally, the bladder should be on the right side of the monitor. In desperate need to make the cost affordable to patients instead of giving hard copies, diagrams were drawn to illustrate the report without strictly adhering to this convention.



Fig. 19.3: The probe in this machine is sector.  
This machine is serviced regularly by Universal Medical Systems, Inc., Adams Street, Bedford Hills, New York, USA.

Although this did not obscure the anatomical detail, I had to devise simpler diagrams that the layman can comprehend.

But of course where the patient can afford the hard copy or when it is particularly necessary for continued management of the patient, the hard copy is given according to the convention i.e. with bladder on the right of the screen.

One of the greatest difficulties one encounters in ultrasound unit is the supply of ultrasound gel. Various vegetable oils have been tried but I did not want to take any risk since the coupling agents may ruin the transducer if not recommended. I have only been using recommended ultrasound gel or liquid paraffin.

## **The Monitor**

The monitor is the screen or display unit. Earlier monitoring units, are made in such a way that Polaroid camera can be used to make permanent records. i.e. hard copy. But nowadays, electronic gadgets are available to use without polaroid camera.

## **The Control Panel**

The control panel of many machines are integrated with the body of the machine. The amount of energy which is sent to the patient is called gain control. Some machines have the alphanumeric keyboard attached to the body of the machine (see Fig. 19.3).

## **The Freeze Frame**

This facility enables the image to be stable for measurements and for taking a hard copy. It may be on the probe on the control panel or as a foot switch.

## **Calipers**

The Calipers are used to measure distance on the screen. Some calipers can be used to measure abdominal circumference and area can be calculated.

It must be emphasized that measurements by ultrasound should not erase or replace the clinical acumen of the doctor. For this reason various parameters of measurement should be taken before a result is arrived at. For example if the biparietal diameter of a fetus is said to be 8.1 cm and by palpation clinically, the fundal height is 36 weeks, it will be ludicrous to send out such report as gestational age of 32 weeks without cross-checking with other parameters.

If other parameters still confirm 32 weeks then rational explanation may be proffered in explaining the discrepancies. I have had a scan machine before, long time ago, the longitudinal dimensions correlated with standard tables and transverse dimensions did not. The gestational age by BPD was always at variance with the gestational age from femur length. I had to take it back to the company from where it was purchased, and this error was corrected easily. I have not had any problem with the machine ever since.



**Fig. 19.4:** Scanning process in session. The machine is placed in such a position that both the doctor and the patient can see the screen simultaneously.

### **Recording Systems**

At the beginning of the practice I had polaroid camera attached to the screen. However, when the patient could not afford the cost, I limited the use of the polaroid camera to only selected cases. I did documentation by write-ups and diagrams. Some of the diagrams tried to copy what the semblance was on the screen, while some were purely anatomical reproduction of the discovered pathology.

However, echodocumentation is now made easier by a new machine. It is an electronic device that prints on special paper format and comes out spontaneously by just pressing a knob.

## **The Patient**

All patients coming for scan are recorded in the ultrasound register. They are instructed not to go and pass urine until they have completed their scan.

Patients for gall bladder scans are to come without taking breakfast. Patients who are coming for follicular growth measurement are usually encouraged to take plenty of water and wait until the bladder is full to capacity. No patient is forced to remove her clothings.

Our couches are about as high as the normal gynaecological examination couch (see Fig. 19.4). The patient is positioned supine, but if it is necessary, for example in the examination of the kidneys the patient may be tilted from side to side. In abdominal scan, the pant is moved down to expose the upper inch of the area covered by the pubic hairs and the upper dress is moved upwards to get to the xiphisternum.

The gel or liquid paraffin is then applied and when all the preparation is complete, the probe is applied and scanning is commenced. When all the measurements have been taken the picture is explained to the patient as simply as possible. The abdomen or scanned area is then cleaned with the terry towel.

The patient is asked to sit down while the report is being written and if there are any points to be clarified, the patient is still available for questioning.

After this, the report is sealed in an envelope and sent to the referring physician or health worker.

## **Should Ultrasound be used Routinely in Pregnancy?**

When I started the clinic, it was widely believed that only complicated cases should be referred for ultrasound by the doctor or by the gynaecologist. I personally picked up flaws in this notion because the underlying reasoning was purely commercial, not medical. It is better in this environment and particularly for our women to have routine scan which would detect some gross pathology and take precautionary measures before disaster occurs.

If a patient is discovered to have got Type IV Placenta Praevia, the patient may be better counselled to remain in hospital for bed rest until 37 weeks when elective Caesarean section can be done. Without ultrasound, the patient may suddenly start pouring blood

after going to toilet at about 2.00 a.m. Some scan centres do not open at night and those that open may be far away. There may be no transport immediately to take her to the nearest hospital and no telephone to contact any hospital with ambulance service.

The situation becomes helpless. All these problems could have been averted if only the patient has been able to do a scan for just roughly three dollars! With this scenario, definitely before this patient gets to the hospital she might have collapsed. The doctor there at the casualty and emergency unit has no idea about the proper dating, causes of bleeding and whether fetus is still alive or dead. He is compelled to go to theatre without an accurate idea of what to expect i.e. placenta location, live baby etc.

I believe to forestall circumstances like this, routine ultrasound scan should be encouraged for all pregnant women at least once, ideally twice, first at 18 to 20 weeks and second at 34-36 weeks. In view of the economic situation, it is necessary to do a scan at booking to confirm gestational age, calculate EDD and have preliminary idea of the placental location. I championed this course and almost every pregnant woman now realises the benefits of ultrasound as regards fetal well-being.

One of the articles that I came across in the United States during one of my visits to the library was the *Journal of Family Practice*, Vol. 29, No. 6, 1989, page 657-659. Benefits of routine scan were extensively discussed. I circulated this article among the elite class and that seemed to put 'paid' to their negative attitude.

This article even went further to prove that in the overall, it is economically cheaper to have routine scan done than to start treating complications that might occur as a result of lack of it.

## **THE PLACENTA**

The substance of the placenta assumes a homogenous appearance in early pregnancy. The thickness of the placenta varies with gestational age, but rarely exceeds 50mm in the normal fetus. Enlarged placentae are usually associated with Rhesus Isoimmunisation, diabetes mellitus or congenital abnormalities.

### **Placental Location**

Compared with radiology or other methods of placental localisation, ultrasound has been found to be tremendously advantageous in pregnancy.

It is clinically non-invasive and can be done anytime during pregnancy without any risk of teratogenicity.

In early pregnancy, the chorion frondosum will appear to completely surround the chorionic cavity — circumferential placenta.

At times the placenta may appear to lie on both anterior and posterior surfaces of the uterine cavity and then may be mistaken for succenturiate lobe. The connection may be detected by the side of the uterine wall.

If there is no continuity of the placental tissue on both sides a vessel connecting the two lobes of placenta maybe detected and if it passes through the lower segment — may lead to vasa praevia.

## **PLACENTAL GRADING**

The textural characteristics of the developing placenta have been described by Grannum and Associates.

It has been observed that the maturation of the placenta does not occur at the same rate or to the same degree in all pregnancies.

Maternal diseases such as hypertension, rhesus isoimmunization, diabetes mellitus or sickle cell disease could affect the maturation process.

Three parameters are used in evaluating the maturity of placenta:

- (a) the basal plate
- (b) the placental substances
- (c) the chorionic plate.

The following grading classification has been followed.

### **Grade 0**

This represents the earliest grade. The chorionic plate is smooth and well defined, the placental tissue is homogenous and the basal plate is regular. No echogenic opacities.

### **Grade 1**

There is undulation (indentation) of the chorionic plate with spotlike densities dispersed throughout the placental tissue (calcium deposits). There is a regular layer of basal plate (Fig. 19.5).



Fig. 19.5: This is normal anterior placenta. There is a subchorionic venous lake. The placenta has uniform echogenicity. There is thickening of the basement membrane. This is Grade 1 maturity.

## **Grade 2**

Indentations of the chorionic plate with linear comma like densities extending from the chorionic plate into the placental substance, but not reaching the basal plate. Some linear echogenic densities are noted along the basal plate (Fig. 19.6).

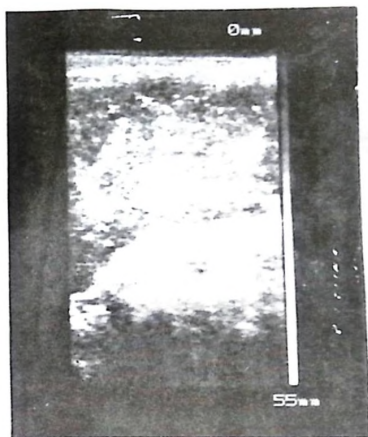


Fig. 19.6: Hyperechoic foci represent localised areas of calcification in the placenta. Placenta is Grade 2 maturity.

### Grade 3

The placenta septae have calcium deposits which surround the placental lobes (cotyledons). This results in complete circles of calcium. Some echo free spaces may be found at the center with highly echogenic basal echoes. These may produce acoustic shadowing. Premature aging of the placenta (a grade 3 placenta occurring before 34 weeks) may indicate placental insufficiency associated with preeclampsia and intrauterine growth retardation.



Fig. 19.7: The calcification in the placental tissue is more extensive with ring like hyperechoic structures around placental cotyledons. Vacuolation is visible in one of the cotyledons. The gestational age by date was 43 weeks. These are features of postmaturity.

Immature placentae are present in gestational diabetes and Rh incompatibility.

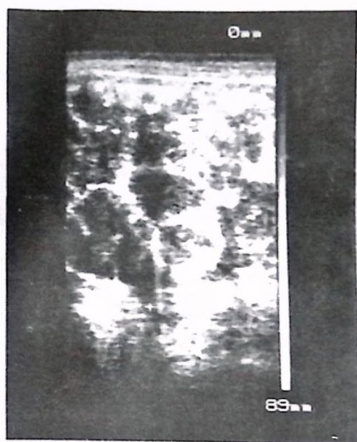


Fig. 19.8: There is calcification of the placental cotyledons and localised areas of central necrosis with vacuolation (Grade 3).

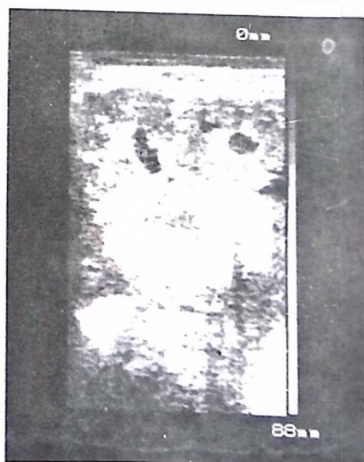


Fig. 19.9: Placenta Grade 3  
The cotyledons show central areas of necrosis.

### Miscellaneous

The following "hard copies" illustrate the typical appearance of some clinical conditions:

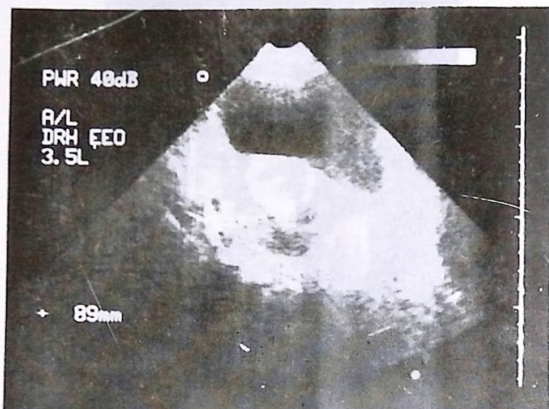


Fig. 19.10: Normal uterus of a nulliparous patient, the longitudinal dimension is 8.9cm.

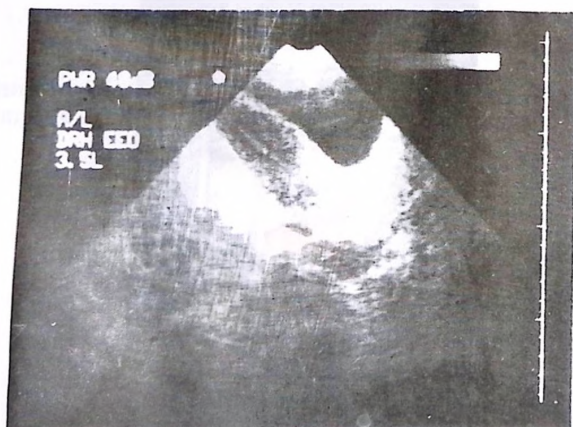


Fig. 19.11: Normal uterus of a nulliparous patient with picture showing the cavity line characteristic of an empty uterus.



Fig. 19.12: Fetal hydrocoele  
There was also fetal ascites. It was a case of rhesus iso-immunisation.

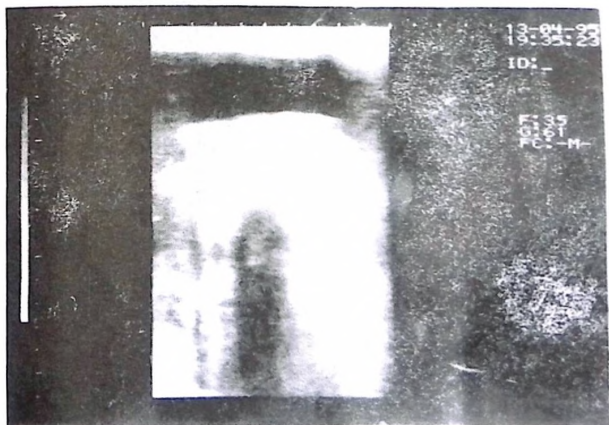


Fig. 19.13: Anencephaly



Fig. 19.14: Fetal dilated loops of bowel  
This is associated with intestinal atresia.

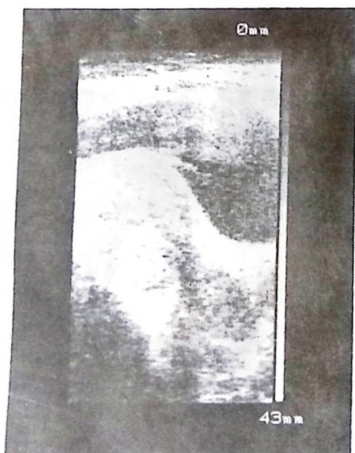


Fig. 19.15: Normal uterus  
This illustrates proliferative endometrium. This patient presented with irregular bleeding, she has been on hormonal contraceptives.



Fig. 19.16: Slightly bulky uterus, longitudinal — 7.9cm, AP 5.6cm  
The irregular echogenic intensity is indicative of myometrium riddled with fibroid seedlings.



Fig. 19.17: Normal uterus  
AP — 4.5 cm

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## Economy and Health: Prospect of the National Health Insurance Scheme

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*(Extracts from the address delivered by Elder Dr. Kayode Obembe, Chairman Nigerian Medical Association, Oyo State Branch, at the Scientific Health Workshop Year 2000, organised by Nigerian Medical Students Association at Ladoke Akintola University Medical School, Osogbo on Friday 26th May, 2000.)*

### CASE PRESENTATION

*Mrs. M.A. is a 25 years old primip who presented at Zion Building, Christus Specialists' Hospital at 6.50 a.m. on 3rd May, 2000. Hospital No. Z-1719. She had been in labour for 3 days at a private local maternity home.*

*On examination, the height of fundus was compatible with 38 week-cyesis. Ultrasound scan showed viable embryo. BPD 9.1cm, Femur Length 7.2, overriding skull bones, profound oligohydramnios. Heart beat of fetus was 110 cycles per minute. Vaginal examination showed fully dilated cervix, presenting part at station 0-2cm caput+++ . The vulva was oedematous. Impression was prolonged obstructed labour with fetal distress.*

<i>Plan:</i>	<i>Emergency Caesarean Section</i>
<i>Bill:</i>	<i>Surgery: ₦5,000</i>
<i>Theatre use:</i>	<i>₦5,000</i>
<i>Admission and drugs:</i>	<i>₦5,000</i>
<i>Registration:</i>	<i>₦400</i>

Ultrasound:	₦300
Total	₦15,700
	= 150 Dollars approximately.

**Deposit:** *The patient had no money to pay, but signed to pay the bill within the next 48 hours.*

**Operation:** *Emergency Caesarean Section — live mother, live baby, and to have continuous catheter drainage for 14 days. Up till the time of typing this script — 19th post-operative day, patient is still unable to pay up her bill. The situation becomes agonising to the patient, relatives, and to the doctor.*

## **Discussion**

In the first instance, it is poverty that pushed the patient to a low priced maternity home. This now resulted in complications that necessitated surgical intervention and heavier bill, and so the vicious cycle of poverty, ignorance and disease continues to be perpetuated.

If this patient had taken a health insurance, she could have had access to efficient health care promptly and the problems might have been solved at a cheaper rate. What does Health Insurance mean in practical terms?

## **Definition**

The Health Insurance Scheme can be described simply as a social security in the health sector which guarantees the provision of health care services to needy patients promptly on the payment of token contributions at regular intervals (premium). Towards the achievement of this goal, the Federal Government of Nigeria promulgated Decree Number 35 of 1999 which has set up the National Health Insurance Scheme as a corporate body. The objective of the decree is to improve the health care of all Nigerians and make adequate health care affordable and accessible to all Nigerians.

## **Status of Nations Health**

One of the best parameters for assessing the quality of health care delivery in any country is to determine the number of women

dying as a result of childbirth. This is termed the maternal mortality rate, i.e. number of women dying as a result of complications from child birth per 100,000 deliveries. In developed countries of the world, i.e. United States of America, Britain, Sweden, the figure ranges from 12-23 per 100,000 deliveries.

In developing countries, particularly in Africa, the figures are outrageously high. Table 1: serves to illustrate this fact. The overall mortality figures in Africa is 640/100,000 deliveries.

TABLE 1  
MATERNAL MORTALITY IN AFRICA

REGIONS OF AFRICA	MATERNAL MORTALITY RATE
Northern Africa	500/100,000
Western Africa	700/100,000
Eastern Africa	660/100,000
Central Africa	690/100,000
South Africa	570/100,000
Overall	640/100,000

In developing countries like Nigeria, the general health status of the mother is poor and this reflects in their maternal mortality figures:

i.e. Tunisia	1000/100,000
Ghana	1400/100,000
Nigeria	1500/100,000
Gambia	2000/100,000
Sierra Leone	at war.

These figures go to show that for every woman that dies of childbirth in Britain, 100 would die in Nigeria! This same conclusion will be drawn if one were to consider perinatal and infant mortality rates in these countries. This makes it imperative for health planners in Nigeria to look critically at the situation and try to prescribe the remedy.

## **Methods of Health Care Financing**

There have been two compartments of Health Care delivery systems in Nigeria — Government/Private hospitals. Private hospitals are run entirely on fee for service basis: no subsidy or subvention from any Government. In fact they are regarded as sources of revenue for Government in terms of taxation, compulsory registration of business premises, payment for adverts and tenement rates. All these burden of payment have to be shifted on patients — the sick patient who is at a stage of lowest capacity level of productivity.

The other compartment consists of health institutions that are run by the Government. The three cadres of Government — Local, State, and Federal all run their health institutions. The amount of money allocated for health care delivery has never been tailored to meet the demands of the populace, but the desires of politicians in power. In the language of Nigerian political history, the word politicians should now be categorised as either military/civilian. While some civilian politicians make efforts at improving health care status, military politicians were pumping money into defence. Although, World Health Organisation (WHO) recommended that at least 5% of Gross Domestic Product (GDP) should be allocated to health and whereas developed Countries allocated 10-15% of their GDP to health, Nigeria was operating in the range of 1½ to 2% in the past decade.

An attempt at merging the private fee paying system, with Government subsidised health institution led to the emergency of 'Revolving Fund Scheme' The aim of this Scheme is to recycle all internally generated funds for the use of the hospital and keep government subventions for salaries and capital projects. In hospitals where this scheme has been operative, there has been claims of improvement in basic infrastructure, improved availability of medical consumables, better care for indigent patients, and improved facility for resident staff.

The conclusion from this is that there has not been a coherent national health policy that embraces all health institutions, both Government and private, and which satisfy the health need of the populace.

## **The National Health Insurance Scheme**

The NHIS would reduce the excessive dependence and pressure

on government, which means the system is self sustaining, more reliable and independent of political whims and caprices. It will also ensure adequate participation of private health institutions and appropriate utilisation of health facilities in the country.

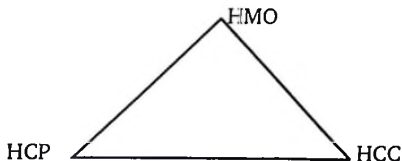
The objectives of the scheme have been duly highlighted in the "Handbook: National Health Insurance Scheme (NHIS)" These are:

- (a) To ensure that every Nigerian has access to good health care services
- (b) To protect families from the financial hardship of huge medical bills.
- (c) To limit the rise in the cost of health care services.
- (d) To limit the rise in the cost of health care among different income groups.
- (e) To maintain high standards of health care delivery services within the Scheme.
- (f) To ensure efficiency in health care services.
- (g) To improve and harness private sector participation in the provision of health care services.
- (h) To ensure equitable distribution of health facilities within the Federation.
- (i) To ensure appropriate patronage of all levels of health care.
- (j) To ensure the availability of funds to the health sector for improved services.

The scope of coverage is all embracing i.e employees of both private and public sectors, self employed people, vulnerable groups and several rural dwellers.

### **Actors in the Scheme**

For easy comprehension, I can describe the actors of the scheme as occupying the three angles of a triangle.



HMO	—	Health Maintenance Organisations
HCP	—	Health Care Providers
HCC	—	Health Care Consumers (contributors)

The HCC are to make small but regular contributions to the HMO. When they are sick, they obtain treatment from HCP. The bill will be settled by the HMO'S. The HMO'S are properly insured with NHIS approved insurance companies.

### **Strategy for successful Implementation**

Before the scheme can take off, every Nigerian must have a National Insurance Number (N.I. Number). This is variously called Personal Identification Number (PIN) or Social Security Number. This would ensure that a contributor can receive treatment at any location in the country provided he/she is up to date in payment of specified premium and subscriptions. The total amount for which the citizen is insured will be available in the computer at anytime. This of course presupposes that Nigeria has working infrastructural facilities like electricity. If a patient has road traffic accident, and shows his/her NI Number, but no electricity to check the computer to verify his/her status, then the system is doomed to fail.

All employers of labour must be compelled to pay certain amount of money on behalf of their employees, in order to guarantee their productivity. The government should come to the aid of the vulnerable group like the unemployed, the aged, the disabled, the destitute, the retarded, and the retirees. Their contributions should be paid by the Government.

Steps should be taken to ensure that the HCP charge fees that are commensurate with the services rendered. At present, the fees charged for various ailments vary widely. For example, for Caesarean Section operation, the fee charged ranges from 10 to 100 thousands of Naira, depending on which part of the country the operation is done. So if a civil servant is insured all his life for ₦100,000, and the wife falls to the hand of HCP that gulps the ₦100,000, then the man and his family would have exhausted their insurance coverage for life. Low charges should not compromise quality all the same there must be a price monitoring unit to ensure equity, probity and social justice. All students must be insured by the government, they should be categorised as a vulnerable group.

The HCP must maintain high quality services in order to justify their patronage by the HMO'S and HCC.

### **In Summary**

As at today, health care determinants like maternal mortality rate indicate that Nigeria runs one of the worst health care delivery systems in the world. The various methods of health care financing through the Government or privately owned hospitals have not yielded the desired effect. The National Health Insurance Scheme, by its present design holds a promise for the future. However, in order to make it succeed, certain infrastructural facilities have to be put in place and steps taken to curtail all anticipated abuses to the barest minimum. This Scheme seems to be the only hope of the common man toward gaining access to adequate health care in Nigeria of tomorrow.

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## About the Author



Dr. Lawrence Kayode Obembe was born on 7th June, 1949 at Ayedun in Ekiti State. He had his elementary education at the Methodist School of same town, secondary education at Christ's School, Ado-Ekiti and tertiary education at the University of Ibadan from where he obtained Bachelor of Medical Sciences in Physiology, 1974, Bachelor of Medicine and Bachelor of Surgery, 1977.

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In the Nigerian Medical Association (NMA) Oyo State, he served at various times as Treasurer, Chairman Bye Laws, Asset Sharing, General Conference Committees. He is the current Chairman of the State Branch.

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Dr. Kayode Obembe is a member of many International Learned Medical Societies, including the International Society of Ultrasound in Obstetrics and Gynaecology with headquarters in London, U.K., International Society of Laparoendoscopic Surgeons (SLS) with headquarters in Miami, Florida, and American Institute of Ultrasound in Medicine (AIUM) with headquarters in Laurel, Maryland both in United States of America.

He is an Elder and Chairman of Council, English Service, Christ Apostolic Church, Agbala Itura, Ibadan.

He is happily married and blessed with children.



## COMMENTS ABOUT THE BOOK

"This book has lucidly combined the Obstetric and Gynaecological experiences in tertiary, secondary and primary private practice. The professionalism demonstrated by the author in the challenging environment of private practice is unique. I strongly recommend the book to medical students, resident doctors and practising doctors who no doubt will appreciate the numerous cases illustrated and the role of new technologies of Ultrasound and Laparoscopy in contemporary practice".

**Professor Abiodun Ilesanmi**, Head, Department of Obstetrics & Gynaecology,  
UCH/College of Medicine, University of Ibadan and Secretary, Faculty of  
Obstetrics and Gynaecology, National Postgraduate Medical College of Nigeria.

"Dr. Obembe deserves high commendation for finding time in his very busy single handed practice to document his experience in our specialty particularly in his three areas of interest. The textbook is therefore going to be a valuable addition to locally produced texts in Medicine and is highly recommended not only to private medical practitioners who invariably practise some Obstetrics and Gynaecology as well as specialist Obstetricians and Gynaecologists. I am sure it will also be a good export from this country to both developing and developed countries".

**Professor Oladele Akinla**, FRCS, FICSE, FRCOG, FRCOG.  
Former Head, Department of Obstetrics and Gynaecology,  
Lagos University Teaching Hospital (LUTH)

"I am confident that the book will be extremely useful to practising Obstetricians and Gynaecologists, postgraduate trainees and undergraduates in the African region and in other developing economies".

**Professor L.N. Ajabor**, President of Society of Obstetrics and Gynaecology  
Of Nigeria (SOGON)

"This book will therefore help to reduce maternal and perinatal morbidity and mortality in our practice as the employment of the techniques advocated in this book will help to avoid delay in the management of these patients as may be occasioned by the referring of these patients to another hospital or the delay in treating them, while waiting for anaesthetist.

In fact any doctor who is training to be an obstetrician and gynaecologist should be exposed to the type of practice where diagnosis is made early by either Ultrasound or Laparoscope and surgical treatment under ketamine anaesthesia is possible.

This book which is based on the author's experience in private medical practice is a worthy contribution to the practice of Obstetrics and Gynaecology in the tropics and developing countries. The achievement in publishing this book is more praise-worthy when one realises that the author had his under graduate and post graduate training in the sub-region. "A periodic refresher courses outside the region".

**Professor Vincent E. Aimakhu**, FAS, FRCOG  
Former Vice President  
International Federation of Gynaecology & Obstetrics (F.I.G.O.)

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