Gynaecology, Obstetries and the Neonata

S.J. Steele

Gynaecology, Obstetrics and the Neonate

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Physiological Principles in Medicine

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General preface to series

Student textbooks of medicine seek to present the subject of human diseases and their treatment in a manner that is not only informative, but interesting and readily assimilable. It is important, in a field where knowledge advances rapidly, that principles are emphasized rather than details, so that what is contained in the book remains valid for as long as possible.

These considerations favour an approach which concentrates on each disease as a disturbance of normal structure and function. Rational therapy follows logically from a knowledge of the disturbance, and it is in this field where some of the most rapid advances in Medicine have occurred.

A disturbance of normal structure without any disturbance of function may not be important to the patient except for cosmetic or psychological reasons. Therefore, it is disturbances in function that should be stressed. Preclinical students should aim at a comprehensive understanding of physiological principles so that when they arrive on the wards they will be able to appreciate the significance of disordered function in disease. Clinical students must be presented with descriptions of disease which stress the disturbances in normal physiological functions that are responsible for the symptoms and signs which they find in their patients. All students must be made aware of the growing points in physiology which, even though not immediately applicable to the practice of Medicine, will almost certainly become so during the course of their professional lives.

In this Series, the major physiological systems are each covered by a pair of books, one preclinical and the other clinical, in which the authors have attempted to meet the requirements discussed above. A particular feature is the provision of numerous cross-references between the two members of a pair of books to facilitate the blending of basic science and clinical expertise that is the goal of this Series. This coordination, which is initiated at the planning stage and continues throughout the writing of each pair of books, is achieved by frequent discussions between the preclinical and clinical authors concerned and between them and the editors of the Series.

RNH KBS
MH JTF

Preface

Gynaecology, Obstetrics and the Neonate is intended to meet the need of medical and other students, and doctors preparing for diplomas in obstetrics and gynaecology. It is hoped also that students who have become familiar with its contents, will find it useful for reference once they have qualified. Detailed descriptions of practical procedures, notably normal delivery, are not included since every student should have ample opportunity to see, learn and practice these techniques during the part of their course devoted to obstetrics and gynaecology. In contrast to other disciplines most patients are not ill and students should adjust their attitudes and treatment appropriately as well as acquiring the necessary skills.

In gynaecology the problems range from carcinoma to sexual difficulties, and preventative aspects include screening for malignant disease and contraception. Obstetrics involves the conditions which threaten the mother's life, technical difficulties sometimes associated with delivery, and the possible disasters of the birth of an abnormal baby or perinatal death. In no area of medicine is it more important to be able to listen to the patient, to be sensitive to her need for help and probable embarrassment and to conduct examinations with appropriate privacy and gentleness. As a gynaecologist one meets patients of all ages and the specialty comprises a blend of medicine, endocrinology, surgery and psychology. I hope that readers of this book will find their clinical work as fascinating and rewarding as I have. The doctor who uses common sense in applying basic knowledge of obstetrics and gynaecology is usually safe and with this in mind I have presented much of the material in relation to problems, but the onus is on the doctor to identify these correctly.

It is sad that Dick Hardy did not live to see this volume published and I must record my appreciation of his early encouragement. I am also particularly grateful to Alan Findlay and Cliff Roberton, my paediatric co-author, with whom it has been a pleasure to work. I must also record my gratitude to John Guillebaud for advice on Chapter 15, Judy Adams for the ultrasound pictures, Paul Price for support and patience and to Pratibha Kothari and Jeannie Sloman for invaluable secretarial assistance.

London, 1984 S.J. Steele

Contents of Findlay, Reproduction and the Fetus

While reading this book you will find it helpful to refer to the companion volume *Reproduction and the Fetus* by Alan L.R. Findlay.

1 The development of reproductive function: Sexual differentation; Puberty; Further reading

2 The control of reproductive function: External environment; The neurobiology of the control of reproductive function; Further reading

3 Female reproduction: Introduction; Anatomy of female reproduction; The menstrual cycle; The menopause; Further reading

4 Male reproduction: The anatomy of male reproductive organs; The adult testes; Further reading

5 Coming together: Reproductive behaviour; Transport and development of spermatozoa in the female tract; Fertilization; Early development of the embryo; Further reading

6 Pregnancy: The placenta; The physiology of the pregnant mother; Immunological considerations in pregnancy and thereafter; Further reading

7 The fetus and neonate: Introduction; Growth; The circulation; The lungs; Bilirubin metabolism; Other liver functions; Kidney function; The fetal fluids; Fetal and neonatal endocrinology; Lipid metabolism; Brown adipose tissue: its role in neonatal thermoregulation; Carbohydrate metabolism; The central nervous system; Further reading

8 Parturition: Introduction; Normal parturition; Maternal physiology during labour; Fetal physiology during labour; Changes in tissues; Control of uterine activity; The timing of parturition; Summary

9 Lactation and maternal behaviour: Lactation; Maternal behaviour; Further reading

10 The hormones of reproduction: Introduction; Androgens; Follicle stimulating hormone (FSH); Gonadotrophin-releasing hormone (GnRH); Human chorionic gonadotrophin (hCG); Human placental lactogen (hPL); Inhibin; Luteinizing hormone; Müllerian inhibiting hormone; Oestrogens; Oxytocin; Progestagens; Prolactin (PRL); Prolactin release inhibiting hormone; Prostaglandins (PGs); Relaxin; Further reading

Contents

1

Normal pregnancy

Diagnosis

The commonest reason for suspecting pregnancy is the failure to menstruate at the expected time.* This prompts many women to seek medical advice or obtain a pregnancy test though other symptoms may, by their presence or absence, make the diagnosis more or less likely. Anyone who has been pregnant before will be likely to recognize the symptoms. Women who do not wish to be pregnant may not seek advice, ignoring the possibility of pregnancy. Those with irregular cycles, and any who suffer bleeding early in pregnancy may not recognize the possibility and so may present at a more advanced stage of pregnancy than others.

In addition to amenorrhoea (absence of periods) the symptoms of early pregnancy are:

1. Discomfort and enlargement of breasts.
2. Frequency of micturition (diurnal and nocturnal).
3. Gastro-intestinal symptoms: altered appetite (quantity and preferences), nausea and vomiting, abdominal discomfort, constipation.
4. Tiredness and some change in mood.

These symptoms are all common but they do not occur in every pregnancy and when they do they vary greatly in degree. If a patient seeks advice as to whether she is pregnant many doctors first do a pregnancy test. In fact, the history will often indicate whether pregnancy is likely and this should be complemented by examination. The signs of pregnancy are:

1. Breast changes. Increased vascularity, obvious enlargement and tenderness occur first; pigmentation of the areola and enlargement of Montgomery's tubercles follow, with the production of colostrum which may be expressed by the fifth month (some secretion is normal in women previously pregnant and this test should only be attempted gently — rough or vigorous attempts can be very painful).
2. Enlargement of the uterus; the most important sign, detectable often by an experienced obstetrician at 6 weeks. After 12 weeks the uterus is usually palpable above the pubis.

*For relevant physiology see Findlay *Reproduction and the Fetus*, Chapter 6.

3. Softening of the uterus which is variable and may make it difficult to feel or easily mistaken for a cyst.

4. Increased vascularity of the cervix and vagina leads in some cases to a blue appearance (compared with the normal pink) and increased secretion and warmth.

Pregnancy tests

These are based on the detection of (human) Chorionic Gonadotrophin (hCG) in urine by immunological means. They are best used on early morning specimens of urine which are positive approximately 3 weeks after conception (5 weeks after the start of the last period when the cycle is regular). However, there is some variation in the reliability of the tests and in most women's menstrual cycles, so that it is often best to seek a test 40 or more days after the first day of the last period if the cycle is approximately 28 days and regular. Women with cycles of 35 days or more will need to wait longer if a pregnancy test is to be of value. In advanced pregnancy, because hCG levels start to fall after 12 weeks, these tests may be falsely negative, particularly in the second half of pregnancy, and this is one good reason why patients should be examined before having a pregnancy test. High levels of LH can produce a false positive test.

Assays of the β subunit of chorionic gonadotrophin are now available in some places and these can detect pregnancy before the period is missed. Another useful aid to the diagnosis of early pregnancy is ultrasound, which can detect the gestation sac and then the embryo. This is a very positive method since there can be no doubt once the embryo has been seen and this is normally possible at 6–7 weeks.

Once it is established that the woman is pregnant she should discuss with her doctor where she is going to have the baby and what arrangements need to be made. She or her doctor can then arrange for her to be seen at the appropriate antenatal clinic reasonably soon. It is desirable that patients be seen in the first trimester because this facilitates the early identification of possible problems and accurate dating of the pregnancy, while ensuring support for the woman if she suffers any complications. Those women with medical disorders, previous subfertility or obstetric complications or social problems particularly need early advice. Any who wish to have a termination should be counselled or referred for this within a short interval.

Antenatal care

This may be given by general practitioners, specialist obstetricians or both (shared care). Midwives are specially trained in obstetrics and can undertake much of the antenatal and postnatal care, as well as normal labour and delivery. Others such as health visitors, physiotherapists and social workers can also contribute.

A crucial decision is where the woman is to have her baby. She is entitled to ask for delivery where she wishes, subject to there being vacancies, but it is the duty of the doctors and midwives to advise her so that she makes a sensible

decision. The facilities available in different units vary as do attitudes and these plus previous experience, if any, in particular hospitals, the distance from home, the local reputation of a unit as well as professional advice contribute to the final decision. If there is an above average risk of a complication the doctor has a duty to press the woman strongly to go to a unit with full facilities. General practitioner units are designed to cope only with straightforward labours and deliveries, if problems arise or seem likely during pregnancy or labour the patient is normally transferred to a consultant unit. Close liaison between general practitioners and the staff of hospital consultant units facilitates this and in case of doubt the consultant can be asked for his opinion.

There is at present pressure for women to have greater opportunities to deliver at home; this represents a swing of the pendulum since the time some years ago, when a significant number of babies were delivered at home and there was strong demand for everyone to be able to have their babies in hospital. It represents also some dissatisfaction with the conveyor belt attitudes and regimes, and poor communication in some units. There are some emergencies and complications which can occur unexpectedly in labour or delivery; inevitably therefore delivery at home must be more hazardous than in hospital and for this reason most obstetricians advise against home delivery. At the same time the preference of many women for confinement in homely surroundings with husband and perhaps children present is understandable and laudable. As a result of this demand some less clinical delivery (birthing) rooms are being provided. There is considerable choice in the arrangements for hospital confinement ranging from a 10 days stay after delivery, to a 48 hour stay or return home within a few hours of delivery (called the domino system), these of course being elastic so that the stay can be lengthened or treatment altered if necessary. Another desire among women is for continuity of care and for familiar staff, particularly midwives, to look after them at delivery.

Many women are frightened of hospitals and the professionals involved in obstetric care, and there is a need to improve their confidence by better education and communication, as well as by more sympathetic and considerate treatment. There are physiological grounds for believing that the confident relaxed mother will have a better labour than one who is apprehensive.

Objectives of antenatal care:

To enable the woman to have her baby as safely, normally and happily as possible.

To ensure that the baby is born alive and as healthy as possible.

To identify any medical disorder particularly if it is likely to affect pregnancy

To educate a woman to keep as fit as possible during the pregnancy and after it.

To prepare for the stress and discomfort of labour and for the subsequent care of her infant.

To support her in such a way that she can cope with the anxieties and problems of pregnancy, as well as her other responsibilities.

This may involve the husband and other children, since the husband can contribute to the welfare and relaxation of his wife, while he and his children may suffer if the wife has to spend extra time in hospital or if anything goes amiss. Pregnancy and labour can end in disaster be it maternal death, stillbirth or the delivery of an abnormal child; though rare, it is important to remember this even though better health and good obstetric care render it a relatively small risk (see Chapter 8).

The booking clinic

Ideally the woman should attend this clinic when she is 8–12 weeks pregnant. A history is taken, a general and obstetric examination performed, investigations, treatment and future care organized, and the relevant forms or certificates filled in. The opportunity should be taken to give the patient as much information as soon as possible, to put her at her ease, and to give her confidence in herself and the professionals.

History

This comprises

1. General medical history.
2. Family history (with particular attention to diabetes and diseases which may be inherited).
3. Previous obstetric history, including details of the present health of the children.
4. The first day of the last menstrual period (check whether it was a normal period).
5. The usual menstrual cycle (including any variation).
6. Details of any drugs taken shortly before, or after conception (including the contraceptive pill).
7. The average consumption of alcohol and cigarettes.
8. The time taken to conceive and details of any investigation or treatment for infertility.
9. A social history.

Examination

The height, weight and blood pressure are recorded. A general medical examination with particular reference to the cardio-vascular system, respiratory system, the abdomen (scars of operations omitted from the history may be seen) and varicose veins is performed. Any other examination indicated by the history must, of course be carried out.

The breasts are inspected to anticipate any feeding problems, for example due to inverted or small nipples, and palpated as a screening procedure to exclude any tumour.

The abdomen is palpated to determine the height of the fundus and the size, shape and consistency of the uterus if it is palpable. When patients book late the fetal size, lie, presenting part, position and attitude (for defintion see p. 16) may be felt and the fetal heart heard or fetal movements felt.