



Fundamental aspects of gynaecology




— | | —

Note

Health care practice and knowledge are constantly changing and developing as new research and treatments, changes in procedures, drugs and equipment become available.

The author and publishers have, as far as is possible, taken care to confirm that the information complies with the latest standards of practice and legislation.

— | | —



Fundamental aspects of gynaecology

Sandra Johnson

Quay Books



Quay Books Division, MA Healthcare Ltd, St Jude's Church, Dulwich Road,
London SE24 0PB

British Library Cataloguing-in-Publication Data
A catalogue record is available for this book

© MA Healthcare Limited 2005

ISBN 1 85642 274 7

All rights reserved. No part of this publication may be reproduced, stored
in a retrieval system or transmitted in any form or by any means, electronic,
mechanical, photocopying, recording or otherwise, without prior permission
from the publishers

Printed in the UK by Ashford Colour Press Ltd, Gosport, Hampshire

Contents

<i>Foreword</i>	vii
<i>Acknowledgements</i>	xi
1 Fertility, infertility and unwanted fertility	1
2 Abortion	59
3 The menopause	77
4 Infections and infestations	115
5 Common gynaecological disorders	131
6 Hysterectomy	156
7 Stress urinary incontinence	171
<i>Conclusion</i>	181
<i>Index</i>	183



Foreword

The aim of this book is to present the reader with a current account of the more common gynaecological problems with which women can suffer and to offer nurses an insight into the medical, nursing, social and legal issues that surround many female reproductive tract anomalies.

Women and men have many anatomical and physiological commonalities and similar needs for the development of self concept, self esteem and self fulfilment. Many health needs correspond, in that both genders require a suitably balanced diet, safety and security in order to grow, and education to develop an ability to live effectively in an ever-advancing world.

The need to reproduce is an innate force common to all living organisms in order for the species to survive, but in all life forms this is sometimes undesirable due to genetic factors or hostile environmental conditions.

Some of these issues will be explored within the following chapters and, whilst answers to health problems cannot always be exact, it is anticipated that helpful information can be found here.

The book concentrates on gynaecological (science of women) issues, but certain aspects, particularly in relation to reproduction, necessarily involve paying attention to men's health.

An assumption is made that the reader has a reasonably good comprehension of the anatomy and physiology of the female reproductive tract and the influences upon it from pituitary and hypothalamic activity. However, there are numerous very readable texts that can be accessed in order to revise and become more familiar with the system,

Foreword

including Guyton and Hall (2000), Clancy and McVicar (2002) and Tortora and Grabowski (2003).

In selecting the aspects to be addressed, several factors were considered, for example epidemiological issues such as a general increase in the elderly population (see Chapter 7, which addresses stress urinary incontinence), the rise in sexual activity in adolescents (see Chapters 2 and 4, which discuss abortion and infections/infestations of the female reproductive tract), and women's desire to take more control over their own physiological processes (see Chapters 1 and 3, which include contemporaneous information relating to fertility and menopause).

In writing this book, it was recognised by the author that as the nursing profession is largely female dominated, many nurses, whether or not involved directly with gynaecological care, are likely to be approached by friends, family members, neighbours or women who feel that a nurse should be able to answer their personal questions and that this book would indeed offer the reader an insight into 'Fundamental Aspects' of gynaecology.

It is not a comprehensive account of all of the pathological conditions that can affect the female reproductive tract; rather, it is a useful resource book for both student and Registered nurses' reference when questions arise in relation to health education/promotion, women's decision-making with respect to treatments available and legal issues that may need to be addressed.

Dr Ricky Autar
RGN, RMN, Dip Nursing (Lond), Cert Ed, RNT, B.Hons, MSc, PhD
Principal Lecturer
Head of Adult Division
School of Nursing and Midwifery
De Montfort University
Leicester
UK

References

- Clancy, J and McVicar, A (2002) *Physiology and Anatomy*. Arnold, London
- Guyton, A C and Hall, J E (2000) *Structure and Function of the Body*. W B Saunders, Philadelphia
- Tortora, G J and Grabowski, S R (2003) *Principles of Anatomy and Physiology*. John Wiley, Massachusetts



Acknowledgements

I would like to thank my colleagues at De Montfort University for their help and encouragement with the completion of this book, especially John Fowler, who initiated the process, and Penny Tremayne, who continually rushed into my office, interrupting my thought processes with new ideas and enthusiasms – a lovely person to whom I owe a debt of gratitude.

I would also like to thank Dr Ricky Autar, with whom I have spent a great deal of my professional life at De Montfort University, and who has been very supportive throughout.

The most sustaining and patient person, who encouraged me to keep writing until the early hours of many mornings, therefore having to cook his own dinners and breakfasts – my husband – I cannot thank enough.

Sandra Johnson
Senior Lecturer in Nursing
De Montfort University
Leicester
UK



CHAPTER I

Fertility, infertility and unwanted fertility

Introduction

Fertility, conception, 'misconception', non-conception and contraception are words full of humour, joy, relief, dismay and devastation to many women and their partners, with families, friends, culture and religion all playing their part in affecting these emotions.

This chapter will address normal fertility and planning pregnancy, as well as some problems that may arise during a pregnancy. Some aspects of minor difficulties that couples wanting to have children might encounter, and how these may be overcome without resorting to medical intervention, will be presented and the problems of couples who appear unaccountably to be unable to reproduce together without medical intervention will be discussed.

The chapter will also offer guidance regarding the avoidance of pregnancy when couples feel that parenthood is inappropriate or unwanted.

It would be useful for the reader to have a definitive understanding of the following:

- ◇ Fertility
- ◇ Subfertility
- ◇ Infertility

Fundamental aspects of gynaecology

- ◇ Menstrual cycle
 - Pre-ovulatory stage
 - Ovulatory phase
 - Post-ovulatory stage
- ◇ Conception
- ◇ Contraception
- ◇ AID (vs. AIDS)
- ◇ IVF
- ◇ GIFT

These will all, however, be explained within the text.

Fertility

A couple is said to be 'fertile' if conception has been achieved within 12 months of unprotected sexual intercourse (Pollard 1994). Healthy pregnancies depend upon the pre-pregnancy health of both parents – the healthier the parents, the fewer problems are likely to be encountered by the neonate.

Normal pregnancy is achieved by a male having unprotected sexual intercourse with a female during the ovulatory phase of the menstrual cycle, which is usually 14 days in a 28-day cycle. Spermatozoa enter the cervical canal, travel through the uterine cavity and along the fallopian tubes, meeting with the ovum, usually at the ampulla (expanded section) of the tube. Normally only the fittest sperm are able to survive this rigorous journey, and therefore natural selection operates to maximise the health of the offspring.

Mature ova are released by alternate ovaries at the rate of one per month, so whilst several million sperms may be present in the average 5 ml of ejaculated seminal fluid, many will not survive the cervical/uterine/fallopian route, and of those that do, at least 50% will enter the tube that contains no ovum.

The fertilised ovum migrates down the fallopian tube to the uterus, whose endometrial lining has been prepared by oestrogen to receive it,

Fertility, infertility and unwanted fertility

and implants into this thickened tissue usually within seven days post-ovulation (Belfield 1999).

Once implantation has taken place the fertilised ovum (embryo) produces human chorionic gonadotrophin (hCG) which influences the ovary to maintain the corpus luteum. In the non-pregnant state, the corpus luteum produces progesterone in a large amount just after ovulation, but this gradually diminishes until menstruation occurs. In the pregnant state, however, the hCG enables the corpus luteum to continue progesterone production, which sustains the growing embryo during pregnancy.

Obviously a woman will produce many ovaduring reproductive life, the majority of which will not be fertilised, and some of those that are will not successfully implant into the endometrium or will develop growth failure and be reabsorbed in the early days, with the woman being unaware of a possible conception. Some may fail to develop properly and will be expelled and experienced as a heavy menstrual period. For these reasons, pregnancy legally 'begins' at implantation of the fertilised ovum into the endometrium (Belfield 1999).

Following a successful implantation and persistence of the corpus luteum, no menstruation occurs on the '28th' day of the cycle, and it does not reoccur until after the birth of the child. Ova are not released during pregnancy. Whilst menstrual absence following unprotected sexual intercourse is often indicative of pregnancy, there are many other reasons for amenorrhoea or delayed menstruation: illness, stress, antibiotic therapy, cortisone, shift work and excessive alcohol intake, for example (Chubb and Knight 1992).

The developing embryo has two membranes that cover and protect it. The outer is known as the chorion and the membrane closest to the embryo is the amnion. From the chorionic layer, finger-like projections develop (chorionic villi) which attach to the uterine wall and move nutrients from the maternal blood to the embryo. Later during pregnancy this immature blood supply system forms the placenta, which is the nutritional source for the remainder of the foetus's development.

The developing foetus is immersed in the amniotic sac surrounded by fluid (amniotic fluid) and connected to the placenta by the umbilical

Fundamental aspects of gynaecology

cord. The cord is a transport mechanism for the foetal receipt of nutrients and return of waste products from and to the mother. The placenta is also an endocrine gland that produces oestrogen, progesterone and hCG. The placenta takes over from the ovarian production of these hormones and increases blood levels in the mother to sustain the foetal development. The high levels of hCG circulating in the bloodstream following placenta formation lead to detectable levels of the hormone excreted in the urine – which forms the basis of pregnancy testing.

Many pregnancy self-testing kits are available over the counter from high street chemists, and whilst most are reliable, women should not have complete faith in them, as false negative and false positive results have been reported (Mack and Tucker 1996) which may raise or dash hopes unnecessarily. Blood test hCG levels of above 10 international units/litre (iu/l) and urine levels of above 25 iu/l are generally considered to be positive signs of pregnancy.

Maternal physiological changes during pregnancy

A woman's normal physiological processes need assistance to cope with the extra load of pregnancy. Because homeostatic regulation during this time is set at a new level, adaptive maternal changes of cardiovascular function and metabolism occur in order to support the growth and development of the growing foetus. The placenta, being an additional hormone source once developed, supplements essential neuro-endocrine and immunological systems. It exchanges heat, nutrients and waste products between mother and child, but also allows transmission of viruses that can cause death *in utero* or serious life-challenging situations for the neonate.

These viruses include the Human Immunodeficiency Virus (HIV), the organism responsible Acquired Immune Deficiency Syndrome (AIDS), which is potentially fatal, and the rubella virus, which causes 'German Measles' and can damage the foetal heart, lungs, eyes ears

Fertility, infertility and unwanted fertility

and brain. These conditions, along with others are always investigated via blood tests early in a pregnant mother's antenatal situation so that protective measures may be discussed.

The placenta cannot discriminate between a toxin and a nutrient and factors such as tobacco smoke will affect the transport of nutrients and oxygen, leaving the foetus at risk of starvation of these life essentials. Pol-lard (1994) discusses the trend in Western societies of a general lowering incidence of cigarette smoking population-wide, but an increase in smoking among younger women of childbearing age. Cigarette smoke contains numerous hazardous compounds that may cause harm to the developing foetus by inducing intra-uterine hypoxia and causing uterine vasoconstriction, which further decreases placental perfusion and oxygen availability. Currently there are about 13 million adults who smoke in the UK, some of whom are pregnant, but even if the latter do not smoke themselves, their offspring are at risk if the mother is exposed to passive smoking (Action on Smoking and Health 2001).

Soon after implantation (within about 28 days) the foetal heart and circulatory system becomes the first to function. The portion of the uterus that contains the chorionic villi, known as the decidua basalis, is the maternal part, and this and the foetal portion, or chorion frondosum, function concurrently as the placenta, promoting the effective exchange of nutrients and gases. Thus any placental trauma or growth retardation will affect foetal development (Ahmed *et al* 1992). The mother's cardiac output increases by about 40% – from 5 litres per minute to 7 litres per minute – which is achieved by an increased heart beat and increased stroke volume.

These, together with expanded blood cell and plasma volumes, provide an extra force to meet the heightened demand of tissues for nutrients during pregnancy. Vascular resistance is reduced, however, to prevent dangerous hypertension, and extra metabolic heat generated by the foetus is convected away from the mother by means of increased peripheral circulation of hands, arms and legs. Blood loss of, on average, 500 ml during vaginal delivery is countered by the expanded blood volume that occurs during pregnancy.

Fundamental aspects of gynaecology

Towards the end of pregnancy, respiratory efficiency is increased by about 30%, brought about by a rise in tidal volume, equalling approximately an extra 3 litres per minute (Clancy and McVicar 2002). The haemoglobin concentration of foetal blood is approximately 50% greater than the maternal status, which affords an increased amount of oxygen to be transported to the foetus. At delivery, foetal haemoglobin is about 17 g/dl, which is well above the usual adult concentration of 11–12 g/dl. However, due to haemolysis of damaged or worn out erythrocytes postnatally, the foetal haemoglobin reduces to the adult concentration within just a few weeks. Iron from these haemolysed cells is stored in the foetal liver to compensate for the fact that the milk-fed neonate receives a low iron diet of 1–2 mg/l, which is insufficient to sustain the neonatal need for haemopoiesis.

During pregnancy, the efficiency with which the mother's food intake is converted into usable energy will vary with individual eating habits, type, calorific content and the proportion of protein, fat and carbohydrate that the food contains, but additional energy requirements during pregnancy involve (Whyte and Donaldson 1999):

- ◇ increased food ingestion
- ◇ increased utilisation of maternal food stores
- ◇ increased absorption of energy
- ◇ decreased general energy output
- ◇ decreased resting metabolic rate

Parturition (approximately 40 weeks gestation)

Immediately before birth, endocrine activity between mother, foetus and placenta combines to stimulate and maintain parturition, or birth of the infant. Oestrogens, progesterone, relaxin, oxytocin, prostaglandins, catecholamines, cortisol and endorphins interact to produce uterine contractions, provide a degree of analgesia, maintain those myometrial contractions and ensure cervical widening to allow the foetal head to descend into the vagina.

The end result is the sequential maturing of an intercommunicating endocrine system between mother and foetus, which should normally result in the delivery of a healthy infant.

Lactation

Parturition triggers lactation. During pregnancy, growth and maturation of the lobules and alveoli of breast tissue proliferates under the influence of increased hormone levels, and by the third month of pregnancy there is a thick liquid secreted by the breast alveoli, stimulated by placental lactogen. However, true lactation (production and delivery of genuine breast milk) does not become possible until the third trimester.

During the first week after the baby is delivered, the breasts secrete a watery fluid – colostrum – which is rich in antibodies that are passed to the suckling infant to provide a degree of passive immunity during its early life. Soon after, the breasts secrete true breast milk that provides the neonate with all the nutrients required for normal growth and development. The volume of milk produced is influenced by the suckling action of the infant, the coordinated action of a number of hormones and the gradual progression of the infant to a solid diet. Prolactin is the main hormone, secreted by the pituitary gland, that controls breast milk production, but growth hormone, placental lactogen, and thyroid and adrenal corticoid hormones all have a specific part to play (Pollard 1994).

Due to the highly nutritive and immunological content of human maternal milk, breast feeding is to be encouraged, even if only for a short time. Nevertheless, milk volume and content deplete the mother's energy stores, and if for dietary or other reasons she has poor storage levels, breast feeding will deplete her nutritional reserves. This is particularly the case with calcium, as breast milk maintains a normal content of the mineral by drawing on the calcium reserves of the moth-

Fundamental aspects of gynaecology

er's bones and teeth, which may have implications for the development of osteoporosis in later life (Ben-Jonathan *et al* 1991).

Many maternally ingested drugs will pass into breast milk, as will pathogenic organisms, having a subsequent effect upon the suckling infant. It has become an ironic fact that women in underdeveloped countries who have been encouraged to breast feed their children to avoid expensive 'exploitative' dried milk powder products have seen their young die from AIDS as a result of HIV infection passing to them via maternal breast milk (Whittaker 2004).

Role of the nurse/midwife

The most effective measures in ensuring healthy pregnancy, childbirth and subsequent early neonatal growth and development lie in effective education of both parents.

A pre-pregnancy plan can be obtained from the Family Planning Information Service, 27–35 Mortimer Street, London, W1N 7RJ, local Family Planning clinics and general practitioner surgeries and health centres.

The knowledgeable nurse/midwife will be able to explain the problems posed by poor pre-pregnancy maternal nutrition – a low birth-weight baby that is slow to grow and late in achieving developmental milestones, which may disadvantage a child's future learning abilities.

The avoidance of noxious substances can be included in discussions of a general nature between the nurse's/midwife's family, friends and acquaintances. Providing the health care worker can explain the hazards associated with such issues as maternal exposure to rubella prior to conception, the effects of increasing age, a rapid succession of pregnancies and a high parity rate, women may well be encouraged to consider their pre-conceptual lifestyle and make adjustments accordingly.

There are also risks that apply to the offspring of both potential parents, though the paternal situation is less well documented. Moder-

Fertility, infertility and unwanted fertility

ate to heavy paternal alcohol intake and cigarette smoking can cause sperm count reduction and sperm damage that can result in serious foetal abnormality.

Few potential parents wish knowingly to adversely affect their child's pre- or post-natal development, but may not fully realise the potential effects of noxious substances, nor that if both parents indulge in the substance use (e.g. smoking tobacco), then the risk to the infant's well-being is doubled (Whyte and Donaldson 1999).

Education regarding reproduction, contraception, pregnancy and the financial and personal implications of becoming a parent may help to reduce or eliminate some potential cases of infant growth retardation, and nurses and midwives are well placed to inform prospective parents of these issues.

Babies born at weights of 2500 g or under frequently require expensive neonatal care and may need further health and social care due to related disabling conditions. Pollard (1994) asserts that it is of national interest to assist the young and the poor, as these two groups are at greatest risk of delivering low birth-weight babies. Effective contraception methods are discussed with adolescents by school nurses, but this has not led to a decrease in teenage pregnancies; in fact, the UK has the highest percentage of such births in Europe (Andrews 1999).

In 2000, there were 98,000 conceptions amongst teenage girls in England and Wales. Of these, 8000 were to girls under 16 years. From this number, 61% proceeded to maternity and 39% to abortion. The number of conceptions to girls under 14 years was 400, of which 160 continued to maternity. These figures, quoted by National Statistics (2003), are more than 40% higher than the country with the next highest rate – Portugal – with Italy, Sweden and Denmark's teenage pregnancies being less than a quarter of the rate in England and Wales.

There are numerous ethical and moral arguments surrounding the issues of giving or withholding expensive treatment to potentially, but unnecessarily, handicapped fetuses. Pollard (1994) states that, in her view:

Fundamental aspects of gynaecology

If a humane community judges that failure to provide life-preserving treatment to a needy new-born constitutes child neglect, then failure to make adequate preventive provisions to minimise the need for intervention at birth, likewise constitutes a failure in basic human rights. It is the children who are being punished by social neglect and ignorance.

Nurses and midwives, the majority being female, are frequently turned to by teenage girls for advice about pregnancy, abortion, contraception and social issues related to these topics, and must be in possession of contemporaneous facts and be able to offer empathic support during what, for many of these young people, will be a traumatic time, often resulting in long-term effects.

Fertility rates

Fertility patterns vary, and these variations inevitably influence family size and the age structure of the population generally. Following the two world wars during the 20th century, fertility rates peaked briefly and then again about 18–20 years later as the post-war babies reached sexual maturity and had their own children.

In the UK at the beginning of the 20th century there were about 115 live births per 1000 women in the reproductive range of 15–44 years, but this declined to an all-time low in 2000 of 55 live births per 1000 women of similar age. Although there is a high rate of teenage pregnancies, the general UK trend is towards later childbirth, with the average age of women at childbirth generally being 29.1 years (National Statistics 2003).

According to Womack (2003), who quotes from a focus group and survey research of 1500 adults, this is because:

Professional thirty-somethings want to enjoy the good life for longer.

The research suggested that many potential parents view children as:

mixed blessings with clear penalties, especially for women.

Fertility, infertility and unwanted fertility

Conducted by the Institute of Public Policy Research, the report concluded that Britain's current birth rate of 1.64 children per female is only slightly higher than the European average of 1.53, and even China, which has a 'one child only' policy, maintains a fertility rate of 1.83. In Britain, 1 in 5 women are childless at 40 years of age and 1 in 4 of the respondents in their late 30s did not have children. Many women in their early 30s were delaying motherhood for financial reasons, assuming that the decision to become pregnant in their late 30s would still be their own.

Given the effects of ageing on reproductive tissue, the growing trend towards childlessness may be linked to women postponing pregnancy and hence experiencing difficulty in conceiving.

Economists suggest a gloomy economic future for this country if the current downward fertility rate continues, with just two employees contributing towards the costs of every pensioner compared with seven in 1950 (Womack 2003).

Whilst most conceptions progress to a normal pregnancy and delivery, sadly there are many problems that can affect mother or foetus or both. Some are reversible, treatable or containable, but unhappily, some result in death of the foetus. Even today, when maternal death rates are considered to be very low, this is still a reality that nurses and midwives may encounter, and ectopic pregnancy is a potentially fatal condition for a pregnant woman.

Ectopic pregnancy

This is a relatively common condition which affects about 1 in 90 pregnancies and accounts for over 20,000 emergency hospital admissions annually (Royal College of Obstetricians and Gynaecologists (RCOG) 2002). Moreover, Tay (2000) reports that the increasing incidence of pelvic inflammatory disease and chlamydial infection appears to be responsible for the increasing number of ectopic pregnancies.

Fundamental aspects of gynaecology

Ascending sexually introduced pathogens cause inflammation of the fallopian tube lining, whose specialised ciliated epithelial cells are damaged and hence the fertilised ovum (embryo) is not effectively transported to the uterine cavity. It becomes embedded in the tubal wall and continues to grow as it would, had normal implantation in the endometrium taken place. The fallopian tube cannot continue to expand to accommodate the growing embryo and stretching of its wall causes bleeding (which is usually, but not always revealed per vagina) and abdominal pain.

If misdiagnosis occurs at this time – and the Ectopic Pregnancy Trust (2004) (<http://www.ectopic.org.uk/>) states that this is not uncommon – the tube can rupture, causing severe internal bleeding, rapidly induced shock and death. According to Abbott (2004), death from misdiagnosed ectopic pregnancy is

The third biggest killer of pregnant women in the UK after thromboembolism and hypertension.

On average, five such deaths amongst pregnant women occur annually, which is an avoidable tragedy. Jain (1988) asserts that an intrauterine pregnancy can be detected by transvaginal scanning from four weeks and according to Stabile (1996) a gestational sac is always seen when hCG levels rise above 30 iu/l.

It is therefore unacceptable that such deaths occur, and allegations of breach of medical duty could be avoided if standard guidelines issued by the RCOG (2002) were adhered to diligently.

Sites of ectopic pregnancy

From least to most common (Winston 1994; see Figure 1.1):

- ◇ Occasionally the ovum, having been released from the ovary, is not ensnared by the fimbriated end of the fallopian tube and may be fertilised within the pelvic cavity. There have been a few reported cases of successful pregnancies arising from pelvic fertilisation,

but these are more likely to fail to progress due to inability to implant into pelvic organs (Ankum 2000). Statistics are thus difficult to assess.

- ◇ The embryo may successfully traverse the tube only to become trapped in the interstitial section of the tube, i.e. the wall of the uterus where tube and uterus meet. There is slightly more room for embryonic growth at this site, and therefore the point of diagnosis and potential rupture would be later than if the implantation occurs in a narrower portion of the fallopian tube. Rosevear (2002) reports that approximately 2% of ectopic pregnancies arise at this position.
- ◇ A slightly more common site of ectopic pregnancy (5%) is at the fimbrial end of the tube, where again, as there is greater potential for embryonic expansion, symptoms suggesting an ectopic preg-

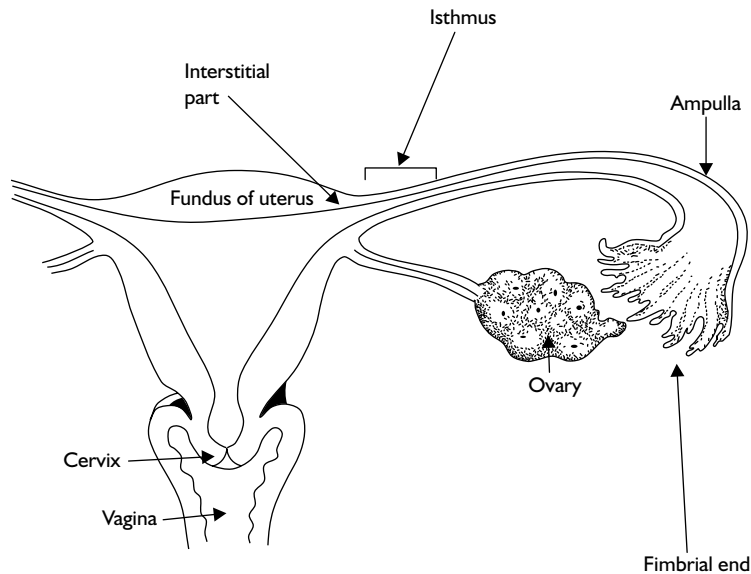


Figure 1.1: Sites of ectopic pregnancy.

Fundamental aspects of gynaecology

nancy may be a little later than would be expected were it sited in a narrower tubal section.

- ◇ The third most common site is at the isthmus – 12%.
- ◇ Most commonly, about 80% of all ectopic pregnancies arising in the ampulla.

Predisposing factors to ectopic pregnancy

Factors that may lead to ectopic pregnancy are (Stabile 1996):

- ◇ Trauma to the fallopian tubes that has caused narrowing or obstruction that impedes the progress of the embryo, to the degree that it begins to implant into the tubal wall.
- ◇ Use of an intrauterine contraceptive device (IUCD). These are designed to prevent implantation in the uterus, but may occasionally lead to early implantation in the tube.
- ◇ Previous pelvic inflammatory disease, which may leave adhesions that constrict the tube (e.g. appendicitis).
- ◇ Sexually transmitted disease, in particular chlamydia, which has increased by 103% in the five years from 1997–2002 to 82,206 reported cases (Hartley 2004), although gonorrhoea is also becoming more common following a decline in past decades.
- ◇ Previous ectopic pregnancy, which may be due to one of the above factors.
- ◇ A previous history of infertility – particularly where *in vitro* fertilisation (IVF) has been instituted. In some women, following embryo transfer to the uterus the embryo migrates into the tube and continues its growth *in situ*.
- ◇ Following a previous Caesarean section. Since the incidence of delivery by this method is rising, women should be informed of risks for future pregnancies.
- ◇ Increasing maternal age – ectopic pregnancies are more common in women over 35 years than in younger women.
- ◇ Smoking tobacco appears to be implicated in ectopic pregnancy.

Fertility, infertility and unwanted fertility

The signs and symptoms of ectopic pregnancy usually appear quite early after conception and the woman may not realise that she is pregnant, particularly if an IUCD has been inserted. Ectopic pregnancy is rare after the tenth week, so the symptoms that a woman suffers which may be suggestive of an ectopic pregnancy are more likely to be due to threatened or inevitable spontaneous abortion at that time (Winston 1994).

Once a woman begins to present with symptoms of an ectopic pregnancy, it is essential that she is investigated without delay to prevent unnecessary morbidity and potential death.

Common symptoms include:

- ◇ Abdominal pain, frequently unilateral but may be on the opposite side to the foetus (referred pain).
- ◇ Vaginal spotting or more heavy bleeding, although the blood is distinguishable from the normal menstrual flow by its darker colour and more watery consistency. Bleeding is not always apparent.
- ◇ Pain at the shoulder tip. This is 'referred' pain from internal bleeding, which irritates the phrenic nerve of the diaphragm and is referred along one of its several pathways to the thoracic apex.
- ◇ Possible dysuria/urgency of micturition and a feeling of increased pressure in the colon and rectum, inducing the bowel evacuation stimulus.

Acute symptoms are:

- ◇ Nausea, increased abdominal pain and rigidity
- ◇ Circulatory shock and collapse

Diagnosis, when undertaken early, is aimed at preserving fertility and reducing severe ill health. The foetus, unfortunately, cannot be rescued due to an interrupted blood supply. Diagnostic tests, if the woman is reasonably well, include an ultrasound scan and blood test for beta hCG levels to confirm pregnancy. If the blood test is positive, yet the scan shows no intrauterine contents, then it is likely that an ectopic pregnancy exists and needs to be further investigated to confirm or rule

Fundamental aspects of gynaecology

out its presence. Generally this involves further blood tests at 48-hour intervals, providing the woman remains sufficiently well. However, Tay (2000) argues that this method is unreliable and advocates laparoscopy to confirm diagnosis.

Early diagnosis offers the best chance of preserving fertility and may involve laparoscopy and suction removal of the embryo with minimal tubal damage. Alternatively, drug therapy, such as intramuscular methotrexate, or injected via laparoscopy and ultrasonography into the embryo, prevents its continued growth and the tissue is slowly absorbed into the woman's circulatory system. The RCOG (2002) recommends this approach in preference to laparotomy since the former aids a more rapid recovery for the woman, is more likely to preserve her future fertility and results in less morbidity.

According to Rosevear (2002) the success rate of 'expectant management', i.e. early diagnosis, methotrexate treatment and beta hCG blood level monitoring, is up to 70%. Alternative medical treatment to methotrexate involves prostaglandins or hyperosmolar glucose.

Surgical intervention for unruptured ectopic pregnancies is aimed at preservation of the fallopian tube and may be:

- ◇ Laparoscopic linear salpingotomy – the haemoperitoneum is accessible to the aspiration and suction/irrigation mechanism employed to evacuate the products of the ectopic pregnancy.
- ◇ Laparoscopic salpingectomy – indicated in approximately 10% of ectopic pregnancies. A small laparotomy incision may be necessary in order to perform the salpingectomy and removal of the pregnancy and manage any other coexisting gynaecological problem where possible. This method is usually necessary following ruptured ectopic pregnancy, where severe tubal damage and blood loss has occurred.

Role of the nurse

Nurses must understand the physiological and psychological distress that the patient is undergoing, and must provide support for her. Physi-

Fertility, infertility and unwanted fertility

cal care relates to the individual needs of the woman and will include fundamental issues such as monitoring of vital signs, personal hygiene, food and fluid intake, pain management, elimination and the need for the woman to rest and sleep in order to recover from the traumatic experience. The patient's partner must not be forgotten, as the situation is likely to be a shared misery.

Psychologically, the nurse must be supportive but must not offer hope for the sustainment of the pregnancy where there is none.

The laparotomy approach means greater discomfort and risks for the patient and a prolonged hospitalisation. The necessity of avoiding hospital-acquired infections and other complications cannot be overemphasised, as these may all add to an already distressing situation.

Brown (1999), found that patients are frequently unhappy with information given to them by health care workers, and since it is mandatory for nurses and midwives to (Nursing and Midwifery Council (NMC) 2002b)

...act always in a manner as to promote and safeguard the interests of patients...

one aspect of a nurse's/midwife's role in this situation is to explain the signs and symptoms of a suspected ectopic pregnancy and its potential effects on future health and fertility, and also to alert the pregnant woman to the possibility of a ruptured ectopic pregnancy and its possible consequences.

According to Yao and Tulandi (1997), overall rates for subsequent uterine pregnancy after salpingotomy are about 50%, with about 12% of women having a further ectopic pregnancy. Following total or partial salpingectomy, they reported 38% of women conceiving an intrauterine pregnancy from a sample of 3584 patients, with just below 10% of these having a recurrent ectopic pregnancy.

Yao and Tulandi (1997) reported that with a history of two ectopic pregnancies, about 66% of future pregnancies will be ectopic, but up to 20% of those so affected will have subsequent uterine pregnancies.

Conclusion

For many women, the proof of their womanhood is to produce healthy babies at a time that is right for them and their partners, to raise those children in a responsible manner and to help them avoid or manage the many dangers and difficulties that life will inevitably pose.

For some parents, their own pre-pregnancy lifestyles can have negative effects on the developing foetus, sometimes through ignorance of the potential effects or, possibly, because addictive lifestyle habits are difficult to move away or completely abstain from.

Pregnancies are, for the majority of women, generally happy and uneventful with the outcome being the delivery of a healthy full-term baby (Winston 1994). However, there are a number of problems that can arise, and whilst most of these can be surmounted by modern medical, nursing and midwifery interventions, some will unfortunately result in unviable pregnancies.

One common problem, occurring in about 9% of pregnancies is that of the potentially life-threatening condition of ectopic pregnancy.

If this problem is diagnosed and treated early, future fertility problems can be minimised. However, the loss of a conception, together with emergency surgery, such as is required in a ruptured ectopic pregnancy, can have a hugely distressing impact upon a woman's psychological health and personal relationships, and may also decrease her future fertility by more than 50%.

Herman (1997) discusses the post-traumatic stress disorder symptoms of women who have suffered such personal losses, including nightmares, over-vigilance and depression. There is often a feeling of being 'tricked' and/or 'robbed' of a very special situation (Sizoo 2002).

As Abbott (2004) asserts:

Deaths from ectopic pregnancies should not still be occurring.

and calls for all health professionals to be aware of the problem, its signs, symptoms and potentialities. She also argues that health care

workers should educate women and their partners, and be able to direct them to help sources such as the Ectopic Pregnancy Trust.

Infertility

This section addresses a variety of aspects relating to infertility, including definitions and statistical trends of fertility and infertility. It will also discuss some of the personal doubts and anxieties felt by infertile or subfertile couples and factors that predispose to these states. Investigations into the causes of infertility and possible options regarding treatment will also be addressed. Useful contact points for couples seeking guidance, advice or general information will be included.

Infertility in the UK is relatively common. Winston (1994) states that

At least 1 in 10 couples have a problem trying to conceive.

However, Rosevear (2002) argues that infertility rises with age, with 1 in 7 couples between 30 and 34 years old reporting difficulties, rising to 1 in 5 from 35 years to 40 and 1 in 4 for people over the age of 40 years.

Infertility is described (Te Velde *et al* 2000) as

The inability of a couple to conceive after twelve months of regular, unprotected sexual intercourse.

Many couples take several months to conceive, and about 17 in 20 do so within 12 months of trying, which increases to 19 in 20 after two years.

Of couples who discontinue contraception in order to conceive, only half will conceive within three months, but after two years of attempting to conceive about 95% of couples will have achieved their aim.

Winston's (1994) figures indicate that about 50% of all infertility is of female origin, 30% is male and in 20% of cases both male and female partners appear to contribute to the infertile state.

Fundamental aspects of gynaecology

Infertility may be primary, where no conception has ever occurred before between the couple, or secondary, where a previous pregnancy has occurred but the couple is now experiencing difficulty with a subsequent conception. Infertility is becoming more common amongst couples who delay their family, and about 1 in 6 will seek assistance for their problems from their GP.

Greenhall and Vessey (1990) indicated that 3% of all women aged 25–44 years were involuntarily childless and 6% of women who had conceived were unable to have as many children that they would have liked. Collins *et al* (1995) found that up to 25% of all women who were attempting to conceive had an episode of subfertility and more than two spontaneous abortions or stillbirths during their reproductive lives.

In order to optimise the chances of conception, pre-conceptual preparation is helpful:

- ◇ Both partners should cease smoking as smoking adversely affects fertility (Hughes and Brennan 1996). It also increases the risk of spontaneous abortion and can cause foetal growth retardation.
- ◇ Women who are attempting conception should limit alcohol intake to 1 or 2 units per week (HEA 1996).
- ◇ Obesity should be managed, and Body Mass Index (BMI) – weight (kg)/height (m²) – should be maintained within the normal range of 18.5 to 24.9. Under or overweight females may have an irregularity of ovulation that affects conception (Garrow 1991).
- ◇ Males should also limit their alcohol intake and, since hyperthermia can affect spermatogenesis, men should avoid wearing tight underwear and trousers (Mieusset and Bujan 1995).
- ◇ Folic acid 0.4 mg may be taken as a daily supplement and for the first three months of pregnancy to help prevent neural tube deficits.

Psychological aspects

Some couples who have difficulty in conceiving wait several years before seeking medical help, and when they do that first consultation can