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SECTION A

Introduction, Surgical Anatomy, Pre-operative Diagnosis and Patient Management, Imaging, Learning the Skills, Postoperative Care

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Women's Health Needs in a Globally Changing Society

Marcus E. Setchell

Introduction

The scope and role, as well as the techniques, of gynaecological surgery have changed radically since the previous edition of this book in 2001, and much of it beyond recognition since the first edition in 1954. More importantly, the increased educational opportunities for women all over the world have widened their options to become included in all aspects of professional and working life, in addition to, or in place of, their more traditional roles as wives, mothers, child raisers and home providers.

Women's healthcare formerly consisted largely of pregnancy and labour care, and treatment for major health and lifethreatening gynaecological disorders. It now extends to all stages of life from pre-conception to old age. No longer is gynaecology predominantly a surgical speciality; it involves many disciplines including doctors from allied specialities, nurses, midwives and physiotherapists, all contributing their important, differing skills to provide complete healthcare for women at different stages of their lives. Prevention and screening, counselling, diagnostic tests, medical treatments and minimally invasive surgical and radiological procedures are all crucial components, in addition to both new and established gynaecological surgical procedures. Priorities and the patterns of care required in different parts of the world vary widely. Cultural and religious differences may greatly influence the kind of healthcare that is appropriate in some communities and not in others.

Along with their midwifery colleagues and general practitioners, obstetricians have a major part to play in women's healthcare from pre-conception through early embryonic and fetal life, up to and beyond the birth of a baby. Gynaecologists' services may be required in childhood and adolescence, through to the reproductive years, where there may be considerable health needs in relation to contraception, infertility and early pregnancy failure. Young and middle-aged women may develop menstrual problems and disorders, as well as cancers and pelvic floor problems. Many of these gynaecological problems are particularly prevalent in the peri-menopausal years, and many women will need care and advice in a normal physiological menopause. The post-menopausal years see a different spectrum of disorders requiring specialist gynaecological care. Some of these problems may occur into advanced old age, completing the lifespan provision of care that is required.

Healthcare Requirements and the Life Cycle

PRE-CONCEPTION AND PRE-NATAL

It is a sad fact that in many parts of the world the female embryo/fetus is at greater risk in utero than the male, as a result of pregnancy termination on grounds of gender. Whilst this is illegal in many countries, in others there is a brisk trade in early detection of gender by ultrasound or chromosomal testing, followed by termination if early pregnancy diagnosis has revealed that an unfavoured gender is present.

Advances in in vitro fertilisation (IVF) and pre-implantation genetic diagnosis now allow gender determination at a four-cell embryo stage; the desired gender embryo can be selected and implanted, and the remaining ones disposed of. Whilst this may be repugnant to some, in those societies where a woman will be pressurised into very high parity in order to achieve the desired sex, there may be a place for this to protect the health of the woman and prevent a potentially very large family, which the parents neither want nor can afford.

Fetal medicine specialists may diagnose clinical conditions in utero, with particular implications for women, such as Turner's syndrome (45 XO) and triple X condition (47 XXX) chromosomal disorders, as well as structural abnormalities. Some developmental and anatomical abnormalities diagnosed in utero will require specialised interventional procedures prior to birth, or consideration of the need for pregnancy termination.

INFANCY AND CHILDHOOD

Apart from the obvious responsibilities of the obstetrician at instrumental deliveries and Caesarean section, and to deal with emergency complications at delivery and in the early neonatal period, not uncommonly an additional gynaecological surgeon is required to assist in the control of serious post-partum haemorrhage, and/or uterine rupture and other genital tract trauma. Exceptionally, a paediatric gynaecologist may be needed in the early neonatal period in cases of indeterminate gender or other lower genital tract anomalies. In childhood, the gynaecologist may be required to deal with minor vaginal infections, and help with the diagnosis and removal of foreign bodies placed in the vagina. Sadly, there has been an increasing

need for gynaecologists with paediatric experience to examine and counsel girls who may have been victims of sexual abuse. Less often, they may need to deal with the physical trauma that has been inflicted, as well as the psychological aftermath.

PUBERTY AND ADOLESCENCE

Puberty occurs earlier in girls than in boys. Geographical variations in the age of onset may be more related to environmental conditions and diet than ethnic characteristics. The puberty growth spurt occurs at a younger age in females than in males, and growth continues throughout adolescence to womanhood. Age of onset of menstruation is quite variable, but anywhere between the ages of 10 and 16 years is normal. In the absence of other clinical symptoms or signs, it is not usually appropriate to investigate primary amenorrhoea before the age of 16, unless there is absent development of secondary sexual characteristics. Precocious menarche does require investigation by a paediatric endocrinologist and/or gynaecologist, and any vaginal bleeding in infancy must be taken seriously to determine whether there has been any local trauma or possibly one of the rare varieties of genital malignancy. Throughout the world there are wide variations in what is considered to be the appropriate age for a young woman to commence intercourse, and differences exist in the legal age for marriage.

In many western countries, there has been a notable decrease in the age of first intercourse, and with it an increase in the incidence of both teenage pregnancy and sexually transmitted diseases in teenagers. Consequently, much attention has been given to sex education in adolescence and childhood, requiring judicious and sensitive advice on contraception and the prevention of transmission of sexually transmitted diseases. More recently, the advent of human papilloma virus (HPV) vaccines has opened up a whole new vaccination programme for young girls to reduce the incidence of HPV infection and the potential risk of development of pre-malignant and malignant change in the vulnerable transformation zone of the cervix.

The high incidence of termination of pregnancy in teenage girls remains a cause for concern. Conversely the availability of termination provides a preferable alternative for some to the educational and social problems that so often ensue when very young girls become mothers.

Dysmenorrhoea and menorrhagia occurring in adolescence are other problems requiring expert care from either general practitioner or gynaecologist. Weight-related amenorrhoea appears to be an increasing problem, requiring multidisciplinary care over a long period. Obesity in the young is recognised to have many adverse health effects, and may be a factor in the frequent occurrence of polycystic ovary syndrome.

In some communities, ritual mutilation of the female genitalia (female circumcision) is still practised and this is now a matter of serious worldwide concern. In many countries, performance of these procedures is illegal, whilst in others the strength of ancient custom rules, and the practice continues whether or not it is legal. The procedure varies from minimal

labial trimming to full Pharaonic circumcision and infibulation. It is widely agreed that it is unethical for a medical practitioner to be involved in such a procedure, even though its performance under clinical conditions and anaesthesia can be considered 'more humane'. Rather more controversial is the ethical position of a gynaecologist asked to recreate a woman's anatomy to its circumcised state after childbirth or a gynaecological procedure. Fortunately, education and the spread of women's groups that oppose the practice and support women in refusing to comply are slowly reducing this inhumane assault.

ADULTHOOD

The twentieth century saw women in the western world fight and win many battles for equality, education and democratic rights, such that we now take for granted that women's opportunities, expectations and achievements are equal to or exceed those of men. However, many modern women find themselves caught in the dilemma between the drive and desire to procreate within a relatively short biological time frame, and the expectation of themselves and from others to maintain their position in the workplace and society. Although in some countries, women's place in society has advanced very little over centuries, in others there is a rapid catch up.

A growing number of women quite reasonably choose to delay pregnancy until well into the third decade, with considerable consequences. Apart from needing prolonged contraception, fertility will be gradually declining, and there is the opportunity for gynaecological problems (such as endometriosis and fibroids) to develop. Pregnancy risk factors (such as miscarriage, chromosomal defects and pre-eclampsia) increase, and general health risks (such as obesity, hypertension, smoking, etc.) have longer to develop.

Gynaecologists and healthcare planners must take into account the effect this has on healthcare needs of women and adapt services accordingly.

Fortunately, many developments in Gynaecology that have taken place in recent years, such as diagnostic tools that provide more accurate and earlier diagnosis, minimally invasive treatments, greater understanding of infertility, and assisted conception help to counteract some of the potential problems created by modern life.

Changing Attitudes to Gynaecological Surgery

Gynaecologists must expect and welcome that adult women attending a Gynaecology clinic today are more aware of their aspirations and expectations in relation to treatment and outcome, and expect to be fully informed about choices available to them. Conditions for which they attend may include quality of life disorders such as menorrhagia and dysmenorrhoea, or pre-menstrual symptoms. At the other end of the spectrum, some of them will have malignant or pre-malignant conditions. Whatever the nature of their gynaecological problem, in this age group, they are likely to be concerned about any likely consequences on their reproductive potential.

Women have always regarded femininity as a visual image. Thus, the impact of disfiguring procedures or events has always been severe; extreme in the case of the face or breasts, but, to a lesser extent has also involved the vulva. Now, however, to a much greater extent, women focus upon the integrity of their internal organs. In some cultures, continued menstruation is an important outward sign of femininity so that even abnormal menstruation may be preferred to hysterectomy. In others, menstruation holds no such social significance and its cessation may actually be welcomed. To some, the 'womb' may become the object of blame for a perception that life is less than perfect, or even a result of a psychosexual aberration. The sympathetic gynaecologist needs to be alert to the full potential range of attitudes which can colour an individual's approach to serious, trivial or even imagined problems of the upper genital tract.

A very significant attitudinal change has been towards the gonads. Males have always been fiercely protective of their gonads as a visible part of the image of masculinity. In women, however, gonadal ablation has in the past been treated in a very cavalier fashion. Even the terms 'uterine appendages' or 'adnexa' tend to trivialise structures which may be removed during the operation of hysterectomy at the whim of the surgeon, particularly if it is known that future reproduction is not desired. Many women now are as protective of their internal gonads as are males of theirs.

The preservation of all aspects of 'femininity', which is sexual function, menstruation, fertility and hormonal function, are of fundamental importance whether medical or surgical gynaecological care is being given. The issue becomes more complex in the presence of benign ovarian pathology, such as ovarian endometriosis, which may not have been suspected prior to surgery. The clinical circumstances surrounding advice for ovarian removal or conservation are discussed in Chapter 10. Whereas unilateral or partial oophorectomy may be a reasonable *ad hoc* response to an unexpected finding of ovarian pathology; it must be apparent that total removal of all functional ovarian tissue cannot, under any circumstances, be regarded as a mere encore to some other pelvic procedure. It is a serious step which should be the subject of explanation, discussion and documented consent.

Many women will have just as strong feelings about the integrity of the uterus, even if they have no further desire for pregnancy. Hysterectomy is rightly perceived as the last resort, when more conservative treatments have been tried and failed. If there is any possibility that a planned conservative operation (e.g. myomectomy or widespread endometriosis) could necessitate hysterectomy, prior explanation and consent are essential. Giving information about a remote risk of damage to the uterus in such operations as pregnancy termination or uterine ablation should be given in a different and less alarming form.

By the same token, a woman's perception of her external genitalia and the role of the clitoris should be acknowledged; clitoral sparing procedures may sometimes be included in partial vulval resections for conditions short of invasive malignancy.

Infertility and Assisted Conception

If pregnancy has been delayed, whether because of career, late partnership or economic reasons, once a couple want to start a family, it becomes a matter of urgency. The old management of waiting for two years before initiating investigation is inappropriate in a woman in her late thirties.

Developments in assisted conception have rendered tubal surgery almost obsolete. Whilst these advances benefit many, they come with considerable cost. Governments and those commissioning healthcare have to make difficult decisions in deciding priorities for healthcare spending, and inevitably such decisions vary in different parts of the world. Pressure groups perceive access to expensive infertility treatments as a right, and when there are regional differences in provision and free access within the same country, this is seen as an unacceptable inequity.

As the techniques of assisted reproduction have widened beyond the bounds of basic treatment for the infertile, difficult ethical issues have arisen which need to be thoroughly explored. The use of ovum donation in post-menopausal women well into their fifties and above is just one of the controversial aspects which arouse heated debate. Cryopreservation of oocytes (egg freezing) which was originally seen as a treatment to help a small group of young women whose ovarian function was going to be destroyed by cancer treatment is now seen as something that many young women will consider in their twenties and early thirties, if they have yet to find their ideal partner. It is necessary to have a legal framework, within which there is sufficient flexibility to allow reasonable future developments and yet ensure that morally and ethically unacceptable procedures are prevented.

Parity

Changing social custom in relation to partnerships and marriage as well as career aspirations of women have led to delay in elective childbearing, which tends to be clustered in the late twenties and early thirties over a relatively short time span. This means that there is a 'time window' during which gynaecological pathology may arise before ambitions of childbearing have been realised. The problems of teenage and unwanted pregnancy, however, remain and are reflected in an increased demand for pregnancy termination (see Chapter 9) including the more difficult terminations in the mid trimester.

Most European countries have seen a striking reduction in family size, and many are no longer maintaining their population numbers. There are a number of contributory factors, including later age of first pregnancy, increased use of contraception and sterilisation, and an increase in the incidence of sub-fertility. In today's over-populated world, good provision of contraception globally is of profound importance to prevent poverty and improve the health of women and children.

In many westernised communities, grand multiparity is rare. Grand multiparity brings with it its own risks in pregnancy, as well as a tendency to certain gynaecological conditions. The urogenital hiatus is divaricated with concomitant pelvic floor relaxation, which often leads to uterine descent, which in turn may progress to vaginal extroversion with uterine procidentia (see Chapter 14). Moreover, peri-menopausal menorrhagia is common in women of higher parity due to myohyperplasia of the uterine muscle (at one time referred to as chronic sub-involution). The combined effect of multiple childbearing and excessive menstruation makes anaemia highly prevalent in this group. In many communities, grand multiparity is a reflection of poor socio-economic status with a high infant mortality and a perceived need to produce a large family. In such cases, the woman approaching the menopause will show signs of physical and psychological 'wear and tear' out of proportion to her age. Where grand multiparity is of cultural origin in a relatively affluent society, this effect may not be seen, although the anaemia from menstrual dysfunction may well still be a problem.

MENOPAUSE

The menopause is a critical landmark in a woman's life and the average age is now around 50. Those with an early menarche tend to have a delayed menopause and this may possibly be a risk factor for endometrial and ovarian cancer. Women with fibroids also tend to have a delayed menopause.

The menopause is a subject of a great deal of myth and misunderstanding. Women themselves, and all healthcare professionals who deal with them, should have a clear appreciation of what may be classed as a normal menopause, namely either abrupt cessation of menstruation or progressively diminishing flow, or a progressively lengthening interval between otherwise normal menstrual episodes. The practice of labelling aberrations of menstruation during the climacteric as 'merely the change' is dangerous misinformation. Although the majority of such aberrations may have a non-sinister cause, failure to make a timely diagnosis of malignancy may ultimately prove fatal.

The menopause is but one incident within the climacteric—the correct term for the time of life when ovarian function effectively ceases. The climacteric extends over a number of years and may be characterised by episodes of vasomotor instability, but there are hormone-related changes in a number of other body systems. Together with emotional changes, engendered by the clear demonstration of the end of the reproductive era, there are also likely to be social as well as somatic effects. The changes in the breasts and external genitalia are obvious but there is a tendency to ascribe all the contemporaneous changes of ageing to the climacteric (including the skin changes found equally in the ageing male!).

To many, the menopause is an unwelcome reminder of the passage of time and the entry into a new phase of life. It is particularly resented if it is accompanied by severe menopausal symptoms of night sweats and hot flushes, along with fatigue and a reduction in energy. These symptoms may interfere with work and pleasure, added to which there may be a

reduction in libido. Little wonder that depression is a common occurrence at this stage of life, and that many women seek relief from these symptoms, either with naturopathic treatments or hormone replacement. Whilst some women will gain some relief from herbal and dietary remedies, oestrogen replacement is the only treatment which has been shown to relieve symptoms in controlled trials. However the waive of publications in the late 1990s and early part of the twenty-first century pointing out significant (if small) risks to health with prolonged usage of hormone replacement therapy (HRT), discouraged many women from using this effective treatment. More recent evidence has shifted opinion towards accepting that used for periods of 2–5 years, HRT is a beneficial and safe way to ameliorate the appreciable distress of the menopause.

POST-MENOPAUSAL YEARS AND THE EFFECTS OF AGEING

The climacteric and hormonal changes of course contribute to the process of ageing, although the latter continues well after the hormonal changes have settled to a steady state.

Urinary Function

In the female, the lower urinary tract is supplied with oestrogen receptors and in common with other areas, shows climacteric as well as ageing effects. Over time, there is a reduction in turgidity and elasticity of the proximal urethra and bladder neck, leading to a measure of urethral sphincter incompetence (see Chapter 13) for which, under appropriate circumstances, HRT may offer some benefit, and pelvic floor physiotherapy often results in dramatic improvement. Bladder detrusor overactivity, however, increases with age in both sexes. The impact on continence in the female is correspondingly greater, and the inconvenience and embarrassment of frequency and urgency is not likely to be tolerated in today's society which has an expectation of health and activity into the seventh and eighth decade. These problems may be compounded naturally by the effects of pelvic relaxation.

Pelvic Floor Relaxation

The aetiology of uterovaginal prolapse and pelvic floor laxity is multi-factorial. Nulliparous uterine prolapse does occur, usually in older women during the climacteric, but primacy in aetiology must go to childbirth injury (see Chapter 14). The effects of childbirth damage may not be felt for some decades and the precipitating factor may be a structural change in collagen, associated with ageing and with the hormonal changes of the climacteric.

The role of constipation and chronic straining at stool as a causation factor is under-appreciated. So many women relate the onset of constipation to pregnancy that this factor tends to be ignored. Insufficient emphasis has been placed upon the importance of re-establishing a normal bowel habit after childbirth. The penalty for this neglect may be felt many years

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later. Chronic straining not only imposes recurring mechanical damage to the pelvic support, but also may induce a traction neuropathy and in extreme cases both rectal prolapse and incontinence. This distressing symptom may not be primarily a gynaecological problem, but the gynaecological component is regrettably all too frequently 'conveniently overlooked'.

Coitus: Dyspareunia/Apareunia

No assumptions about age and continuation of sexual activity are justified. Women today feel much more able to discuss this openly and so should gynaecologists and general practitioners, but with tact and sensitivity. No surgical intervention likely to impair this should be undertaken without appropriate and sympathetic prior discussion (see Chapter 14).

Ageing and the climacteric, however, may induce changes which provoke dyspareunia or even apareunia. Shrinkage may affect not only the vestibule but the vagina. Atrophy of the epithelium leads to thinning, fragility and soreness, producing painful fissuring of the fourchette and navicular fossa which splits each time that intercourse is attempted, aggravated by the deficiency in lubrication. These changes can be readily reversed by the use of local vaginal oestrogen for a 2 week course, and healthy vaginal skin maintained with use once or twice weekly. It should be remembered that dyspareunia is not invariably age related and it can occur in women of all ages. Lichen sclerosus et atrophicus may cause severe dyspareunia, culminating in the classical appearance of 'keel shaped' vulva with absence of the labia minora. Conversely, severe vulval pain and tenderness (vulvodynia) may be associated with minimal atrophic changes (vulvar vestibulitis) (see Chapter 7).

Osteoporosis

Perhaps the most important metabolic change associated with the climacteric is osteoporosis. Although osteoporosis does occur in males, the sex ratio is heavily biased against women. Bone density studies show that in susceptible individuals, bone loss can begin before any other symptoms of the climacteric are present, and family history in this context is important.² Both public and professional awareness of the condition is relatively recent including appreciation of the risk to life and health, not just from a propensity to limb fractures, but from collapse of the spine with serious compromise of function of intrathoracic and intra-abdominal organs. As screening for osteoporosis becomes more readily available, it is often appropriate for the gynaecologist to initiate this, especially in the context of a Menopause Clinic. Although treatment is predominantly with calcium, vitamin D and bisphosphonates, oestrogen therapy does still have a place and gynaecologists should have sufficient knowledge to discuss these matters.

Locomotor and Skeletal Changes

In older women, the effects of osteoporosis detailed above may be added to the effects of age-related joint changes. Restricted mobility of the hips may severely limit surgical access, but the importance of lack of mobility goes well beyond this, aggravating especially the effects of impairment of physiological functions and continence.

Other Endocrinopathy

Thyrotoxicosis without other signs is an occasional source of confusion for cardiac problems. Of direct relevance to gynaecological practice, however, is the insidious onset of hypothyroidism, which may present with dysfunctional uterine bleeding. Not only would other attempts at hormonal manipulation with gestational steroids be inappropriate, but so also would surgery, which, together with anaesthesia, in the presence of uncorrected hypothyroidism is potentially dangerous.

Type 2 diabetes needs to be borne in mind. On occasion, diabetes presents to the gynaecologist with a florid but typical vulvitis. The association of glucose intolerance with obesity is relevant. The concomitant enhancement of peripheral aromatisation of oestrogen precursors steroids is a risk factor for endometrial carcinoma.

Gynaecological Cancers

The post-menopausal years include the age group with the highest incidence of carcinomas of the endometrium, ovary and vulva. Most non-gynaecological cancers are also age related, so it behoves the gynaecologist to have a high index of suspicion when dealing with patients at this stage of life, and to enquire about weight loss, abdominal symptoms and bowel function.

Assessment of the patient's physical and mental state of health will be of great importance in selecting treatment appropriate for her. Many older patients are remarkably robust today and their views must be taken into consideration just as for younger women. For example, an 85-year-old patient asked to delay her operation for carcinoma of the endometrium until the tennis season was over as she had some important matches to play; she went on to have four more good seasons postoperatively.

Changing Role of Gynaecologists

Historically, the first successful abdominal operation was 'ovariotomy' or removal of an ovarian cyst³ and gynaecological surgery historically developed a long tradition of genital tract ablation. Surgery is only one element of the therapeutics of women's health problems and non-surgical treatments of many conditions, such as endometriosis, fibroids, infertility and dysfunctional uterine bleeding play an increasingly important part. These non-surgical treatments include drugs, physiotherapy, radiological interventions, and involve many other specialists, including radiotherapists, oncologists and endocrinologists (Table 1.1).