Prevalence

Pelvic organ prolapse is a very common problem with a prevalence of 41–50 per cent of women over the age of 40 years. There is a lifetime risk of 7 per cent of having an operation for prolapse and a lifetime risk of 11 per cent of having an operation for incontinence or prolapse. The annual incidence of surgery for POP is within the range of 15–49 cases per 10 000 women years, and it is likely to double in the next 30 years.

Grading

Three degrees of prolapse are described and the lowest or most dependent portion of the prolapse is assessed while the patient is straining:

- 1st: descent within the vagina
- 2nd: descent to the introitus
- 3rd: descent outside the introitus.

In the case of uterovaginal prolapse, the most dependent portion of the prolapse is the cervix, and careful examination can differentiate uterovaginal descent from a long cervix. Third-degree uterine prolapse is termed ‘procidentia’ and is usually accompanied by cystourethrocele and rectocele.
The connective tissue, levator ani and intact nerve supply are vital for the maintenance of position of the pelvic structures, and are influenced by pregnancy, childbirth and ageing. Whether congenital or acquired, connective tissue defects appear to be important in the aetiology of prolapse and urinary stress incontinence.

**Congenital**

Two per cent of symptomatic prolapse occurs in nulliparous women, implying that there may be a congenital weakness of connective tissue. In addition, genital prolapse is rare in Afro-Caribbean women, suggesting that genetic differences exist.

**Childbirth and raised intra-abdominal pressure**

The single major factor leading to the development of genital prolapse appears to be vaginal delivery. Studies
Pelvic organ prolapse

of the levator ani and fascia have shown evidence of nerve and mechanical damage in women with prolapse, compared to those without, occurring as a result of vaginal delivery.

Parity is associated with increasing prolapse. The World Health Organization (WHO) Population Report (1984) suggested that prolapse was up to seven times more common in women who had more than seven children compared to those who had one. Prolapse occurring during pregnancy is rare, but is thought to be mediated by the effects of progesterone and relaxin. In addition, the increase in intra-abdominal pressure will put an added strain on the pelvic floor and a raised intra-abdominal pressure outside pregnancy (e.g. chronic cough or constipation) is also a risk factor.

Ageing

The process of ageing can result in loss of collagen and weakness of fascia and connective tissue. These effects are noted particularly during the post-menopause as a consequence of oestrogen deficiency.

Postoperative

Poor attention to vaginal vault support at the time of hysterectomy leads to vault prolapse in approximately 1 per cent of cases. Mechanical displacement as a result of gynaecological surgery, such as colposuspension, may lead to the development of a rectocele or enterocele.

Clinical features

History

Women usually present with non-specific symptoms. Specific symptoms may help to determine the type of prolapse. Aetiological factors should be enquired about.

Abdominal examination should be performed to exclude organomegaly or abdominopelvic mass.

Symptoms

- **Non-specific**: lump, local discomfort, backache, bleeding/infection if ulcerated, dyspareunia or areaprea. Rarely, in extremely severe cystourethrocele, uterovaginal or vault prolapse, renal failure may occur as a result of ureteric kinking.
- **Specific**:  
  - cystourethrocele – urinary frequency and urgency, voiding difficulty, urinary tract infection, stress incontinence;  
  - rectocele: incomplete bowel emptying, digitation, splinting, passive anal incontinence.

Vaginal examination

Prolapse may be obvious when examining the patient in the dorsal position if it protrudes beyond the introitus; ulceration and/or atrophy may be apparent.

Understanding the pathophysiology

There are three components that are responsible for supporting the position of the uterus and vagina:

- ligaments and fascia, by suspension from the pelvic side walls;  
- levator ani muscles, by constricting and thereby maintaining organ position;  
- posterior angulation of the vagina, which is enhanced by rises in abdominal pressure causing closure of the ‘flap valve’.

Damage to any of these mechanisms will contribute to prolapse.

Endopelvic fascia is derived from the paramesonephric ducts and is histologically distinct from the fascia investing the pelvic musculature, although attachments exist between the two.

It is a continuous sheet that attaches laterally to the arcus tendineus fascia pelvis and levator ani muscles and extends from the symphysis pubis to the ischial spines. This network of tissue lies immediately beneath the peritoneum, surrounds the viscera and fills the space between the peritoneum above and the levators below; in parts it thickens to form ligaments, e.g. the uterosacral–cardinal complex. This complex is probably the most important component of the support. The segment of fascia that supports the bladder and lies between the bladder and vagina is known as the pubocervical fascia, and that which prevents anterior rectal protrusion and lies between the rectum and posterior vagina is termed the rectovaginal fascia.

(The levator muscles are described in Chapter 1, The gynaecological history and examination.)
Vaginal pelvic examination should be performed and pelvic mass excluded.

The anterior and posterior vaginal walls and cervical descent should be assessed with the patient straining in the left lateral position, using a Sims speculum. Combined rectal and vaginal digital examination can be an aid to differentiate rectocele from enterocele (Figure 17.2).

**Differential diagnosis**

- Anterior wall prolapse: congenital or inclusion dermoid vaginal cyst, urethral diverticulum.
- Uterovaginal prolapse: large uterine polyp.

**Treatment**

The choice of treatment depends on the patient’s wishes, level of fitness and desire to preserve coital function.

Prior to specific treatment, attempts should be made to correct obesity, chronic cough or constipation. If the prolapse is ulcerated, a 7-day course of topical oestrogen should be administered.

**Prevention**

Shortening the second stage of delivery and reducing traumatic delivery may result in fewer women developing a prolapse. The benefits of episiotomy and hormone replacement therapy at the menopause have not been substantiated.
Medical

If a woman is found to have uterovaginal prolapse on examination but has no symptoms, then it would be inappropriate to offer any surgical treatment and either observation or conservative therapy would be best. If symptoms are mild, then pelvic floor physiotherapy is offered but there are no randomized controlled trials examining the effectiveness of physiotherapy on prolapse. Silicon rubber-based ring pessaries are the most popular form of conservative therapy. They are inserted into the vagina in much the same way as a contraceptive diaphragm and need replacement at annual intervals (Figure 17.4). Shelf pessaries are rarely used but may be useful in women who cannot retain a ring pessary. The use of pessaries can be complicated by vaginal ulceration and infection. The vagina should therefore be carefully inspected at the time of replacement. There are a whole range of newer pessaries that are undergoing evaluation and these may be more comfortable for the patient (Figure 17.5).

Indications for pessary treatment are:

- patient’s wish;
- as a therapeutic test;
- childbearing not complete;
- medically unfit;
- during and after pregnancy (awaiting involution);
- while awaiting surgery.

Figure 17.3  
MRI proctogram demonstrating rectocele.

Figure 17.4  (a) Ring pessary and (b) shelf pessary.

Figure 17.5  New range of pessaries.
Surgery

The aim of surgical repair is to restore anatomy and function. There are vaginal and abdominal operations designed to correct prolapse, and choice often depends on a woman’s desire to preserve coital function (Figure 17.6).

Cystourethrocele

Anterior repair (colporrhaphy) is the most commonly performed surgical procedure but should be avoided if there is concurrent stress incontinence. An anterior vaginal wall incision is made and the fascial defect allowing the bladder to herniate through is identified and closed. With the bladder position restored, any redundant vaginal epithelium is excised and the incision closed.

Rectocele

Posterior repair (colporrhaphy) is the most commonly performed procedure. A posterior vaginal wall incision is made and the fascial defect allowing the rectum to herniate through is identified and closed. With the rectal position restored, any redundant vaginal epithelium is excised and the incision closed.

Enterocoele

The surgical principles are similar to those of anterior and posterior repair, but the peritoneal sac containing the small bowel should be excised. In addition, the pouch of Douglas is closed by approximating the peritoneum and/or the uterosacral ligaments.

Figure 17.6  Treatment of prolapse.
Uterovaginal prolapse

Uterine preserving surgery

Uterine preserving surgery is used largely when a woman still wants to have further children and therefore the uterus has to be preserved. Occasionally, a woman wishes to preserve her uterus and then may choose this option:

- **Hysterosacropexy:** This may be performed by an open route or a laparoscopic route and a mesh is attached to the isthmus of the cervix and the uterus is suspended by attaching the other part of the mesh to the anterior longitudinal ligament on the sacrum.

- **The Manchester repair:** This involves accessing the uterus vaginally amputating the cervix and using the uterosacral cardinal ligament complex to support the uterus. The operation is rarely used now because of problems with complications to the cervix resulting in either cervical stenosis or cervical incompetence and a risk of miscarriage.

- **Le Fort colpocleisis:** This operation is used in very frail patients who are unfit for major surgery and are not sexually active. It involves partial closure of the vagina while preserving the uterus.

- **‘Total mesh’ procedure using an introducer device (Figure 17.7):** There is a range of mesh using devices that have been designed not only for anterior and posterior vaginal prolapse but suggest they may be useful in uterovaginal prolapse and can preserve the uterus. The data for this is scarce.

Procedures involving hysterectomy

These procedures involve removal of the uterus:

- **Vaginal hysterectomy:** This is one of the oldest major operations with references dating from the time of Hypocrates in the fifth century BC. The operation involves making an incision around the cervix and entering the peritoneal cavity from the vaginal side ligating all the major blood vessels and delivering the uterus through the vagina and suturing the vault of the vagina. Obviously, there is lack of support of the vault and to try and improve support, the standard procedure is to shorten the stretched uterosacral cardinal ligament complex and then resuture into the vault of the vagina. Some authors have used variations of this to try and attach the vault even higher in the vagina with a higher uterosacral ligament fixation. A number of modifications have been suggested to try and improve the support of the vagina. Some surgeons use laparoscopically assisted techniques to perform a vaginal hysterectomy if there is abdominal pathology, but this is not usual for prolapse.

- **Total abdominal hysterectomy and sacrocolpopexy:** This involves complete removal of the uterus through an abdominal incision, followed by repair of the vault of the vagina and then attaching a mesh to the vault of the vagina and suspending it to the anterior longitudinal ligament on the sacrum. Opening the vagina at the time of inserting a mesh greatly increases the risk of vaginal erosion and therefore this procedure is not commonly practised.

- **Subtotal abdominal hysterectomy and sacrocervicopexy:** This operation is becoming more popular. It involves either an abdominal or laparoscopic approach. Most surgeons use the abdominal route. A subtotal hysterectomy is performed leaving the cervix intact. This means the vagina is not entered and there is no vaginal scarring. The cervix is then used as an attachment point for the mesh where there is negligible chance of erosion and the mesh is suspended to the anterior longitudinal ligament on the sacrum.

If there is concomitant anterior prolapse at the time of vaginal hysterectomy an anterior repair may be performed. If there is concomitant anterior prolapse at the time of an abdominal procedure a paravaginal repair can be performed, again avoiding the need for an incision in the vagina.
Vault prolapse

Sacrocolpopexy (Figure 17.8) is similar to sacrohysteropexy but the inverted vaginal vault is attached to the sacrum using a mesh and the pouch of Douglas is closed. Sacrospinous ligament fixation is a vaginal procedure in which the vault is sutured to one or other sacrospinous ligament.

Key Points

- A prolapse is a protrusion of an organ or structure beyond its normal confines; prolapses are extremely common in multiparous women.
- Damage to the major supports of the vagina, i.e. ligaments, fascia and levator ani muscles, leads to prolapse.
- Childbirth injury is the major aetiological factor.
- Most women with prolapse present with non-specific symptoms, such as a lump and backache.
- Women with cystourethrocele often have urinary symptoms.
- Women with rectocele often have bowel symptoms.
- Diagnosis is made by clinical examination.
- Surgery is the mainstay of treatment.

Figure 17.8 Sacrocolpopexy.
CASE HISTORY

Mrs PS is a 48-year-old married, sexually active Caucasian, weighing 89 kg. She is a non-smoker and works as a nursing assistant in a nursing home. She suffers from asthma and uses salbutamol and Becloforte inhalers.

She presents with an eight-month history of ‘feeling a lump down below’ and backache. The lump is bigger when she has been on her feet all day. She also complains of poor urinary stream and a feeling of incomplete emptying of her bladder. She admits to no urinary incontinence or bowel symptoms. She had a total abdominal hysterectomy three years previously for menorrhagia.

Mrs PS has two children, aged 22 and 24 years. Both were delivered vaginally; the heaviest at birth weighed 3.8 kg.

Discussion

What is the most likely diagnosis?

Anterior vaginal wall prolapse is the most likely diagnosis in view of her urinary symptoms. However, vault prolapse and rectocele can also cause obstructive urinary symptoms.

What risk factors does she have for the development of prolapse?

- Vaginal delivery of a large infant can cause damage to pelvic nerves, endopelvic fascia and levator ani, which can result in prolapse.
- She is overweight and this will increase the effect of abdominal pressure on the pelvic floor.
- She has a chronic cough and her job involves heavy lifting. Both these factors increase abdominal pressure.

Additional reading