BMJ Best Practice

Uterine prolapse

Straight to the point of care

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Summary

Uterine prolapse is caused by the loss of anatomical support for the uterus.

Late-stage prolapse usually presents as a palpable protruding cervix with vaginal tissue, which is often noticed by the patient.

Symptoms include sensation of vaginal bulging, pelvic pressure, urinary frequency or incontinence, incomplete bladder emptying, defecatory dysfunction, and dyspareunia.

Diagnosis is made by vaginal examination during resting and straining.

Conservative management encompasses observation, physiotherapy, and use of pessaries.

Surgical intervention is by either a vaginal or an abdominal approach.

Vaginal bleeding, abnormal discharge, dyspareunia, urinary retention, and pelvic pain are possible complications of therapy.

Definition

Uterine prolapse is caused by the loss of anatomical support for the uterus, typically around the apex of the vagina. The anterior and/or posterior vaginal wall may also be involved.

Uterine prolapse is one of the conditions encompassed by the term pelvic organ prolapse (POP), and the names may be used synonymously. POP describes cystocele (bladder prolapse), rectocele (prolapse of the rectum or large bowel), and enterocele (prolapse of the small bowel); all of these are often associated with prolapse of the uterus.

THEORY

Epidemiology

Pelvic organ prolapse (POP) is common in the US. An epidemiological evaluation of a large healthcare population suggests that American women have an 11.1% risk of POP and urinary incontinence surgery by the age of 80, with nearly 30% undergoing more than one procedure.[1] In the Women's Health Initiative, 41% of women aged 50 to 79 years had POP, including cystocele (34%), rectocele (19%), and uterine prolapse (14%).[2] In another cross sectional study, 2.9% of women reported POP.[3] The incidence of cases in which the prolapse reaches the hymen varies from 2% to 48%, and the incidence of cases in which it reaches beyond the hymen varies from 2% to 4%.[1] Over the next 30 years, it is projected that the number of women wiith pelvic floor disorders will increase substantially, because of the changing population demographics in the US.[4]

In the UK, the Oxford Family Planning Association Study of 17,032 women between the ages of 25 and 39 years revealed that the incidence of patients admitted to hospital with prolapse was 2.04 per 1000 person-years of risk.[5]

Only 10% to 20% of women will seek help for their problem.[6]

Aetiology

The aetiology of uterine prolapse is not totally understood. Vaginal childbirth is one of the most frequent risk factors associated with prolapse. Investigators suggest that this is because of damage to the pudendal nerve, connective tissue, and muscle structure during delivery.[7] [8] Advancing age, obesity, previous surgery for prolapse, genetic factors, white ancestry, connective tissue disorders, and increased intra-abdominal pressure (e.g., chronic obstructive airway disease, chronic constipation with excessive straining, heavy lifting, and hard physical activity) are also known to be risk factors.

Genetic or familial predispositions are not yet well understood. A higher risk of prolapse has been noted in women with a mother or sister reporting prolapse.[9] In one study, the T variant of the laminin subunit gamma 1 (LAMC1) gene was 5 times more common among probands with pelvic organ prolapse (POP) than in the general population.[10] This variant affects the binding site for nuclear factor, interleukin 3-regulated (NFIL3), a transcription factor that was verified to be co-expressed in vaginal tissue. Hence, polymorphism in this area may increase the susceptibility to early onset POP.[10]

Although menopause is often cited as a risk factor for POP, researchers have failed to find an association with oestrogen status.[2] [5] [6][7][11] Nulliparous women can also develop the condition: after hysterectomy, for example.[12]

Pathophysiology

Uterine prolapse is predominantly a disorder of parous women, in whom there is damage to the musculature, ligaments, and nerves.

Pelvic floor muscles are contracted at rest and act to close the genital hiatus and provide a stable platform for the pelvic viscera. Levator ani tone is essential for maintaining the pelvic organs in place. Decline of normal levator ani tone by direct muscle trauma or a denervation injury may occur during vaginal delivery. This results in an open urogenital hiatus and changes to the horizontal orientation of the levator plate, which causes a prolapse.[8] In a case control study, magnetic resonance imaging demonstrated that women with

prolapse were more likely to have anatomical defects in the levator ani. Consequently, in these women the levator ani generated less vaginal closure force during maximal contraction.[13] [14]

The endopelvic fascia is the connective tissue network that envelops all organs of the pelvis and connects them loosely to the supportive musculature and bones of the pelvis. Pelvic floor dysfunction can cause prolapse, which specifically can involve the anterior, posterior, and apical vagina and the uterus. Disruption or stretching of these connective tissue attachments happens during vaginal delivery or hysterectomy (by any route), as a consequence of chronic straining, or as part of normal ageing.[13] Patients with prolapse may have altered collagen metabolism, and this can lead to prolapse.[13] [15] [16] Women with joint hypermobility and collagen-associated disorders (e.g., Ehlers-Danlos syndrome or Marfan syndrome) have a higher prevalence of pelvic organ prolapse.[15] [16] [17][18]

As the anterior vagina loses support, the bladder and urethral support is lost, potentially affecting the continence mechanism. Urinary incontinence may result from changes in the vaginal support.[19] Urethral hypermobility can be easily diagnosed by clinical observation when asking the patient to strain. In advanced uterovaginal prolapse stages, the urethra is mechanically kinked and may obstruct the urine flow.

Case history

Case history #1

A 58-year-old white woman with a history of two vaginal deliveries presents with pelvic heaviness and sensation of something protruding from the vagina. Symptoms worsen after prolonged physical exertion such as lifting or standing. On occasion, she can feel and see something bulging from the vaginal opening. Increasingly, she is experiencing difficulties in emptying her bladder, and she needs to reduce the bulge with her fingers in order to empty her bladder. She does not have urinary leakage of any type, including leakage during physical exercise. The patient is a heavy smoker with a history of COPD and obesity, with a body mass index of 34 kg/m^2. A stage III uterovaginal prolapse with involvement of apex and anterior wall is diagnosed on physical examination.

Case history #2

A 50-year-old white woman with a history of vaginal delivery is referred to a gynaecologist by her general practitioner due to mild uterovaginal prolapse seen during a routine pelvic examination for cervical screening. The patient is sexually active and entirely asymptomatic. On physical examination the gynaecologist confirms stage II uterovaginal prolapse.

Other presentations

Symptomatic uterovaginal prolapse typically presents with concomitant disorders, including urinary symptoms (stress and/or urge incontinence), defecatory dysfunction, and sexual symptoms (dyspareunia). Symptoms of prolapse may be non-specific, with the feeling of something protruding from the vagina. Disordered defecation is a non-specific sign of the loss of posterior wall support, sometimes requiring digitally assisted defecation. On rare occasions, a woman may present with a large, asymptomatic uterovaginal prolapse. These patients commonly develop significant adaptive behaviours,

avoiding situations that emphasise their symptoms. Women who have previously undergone hysterectomy may present with vaginal vault prolapse, with identical symptoms and signs.

Approach

Uterine prolapse is diagnosed by clinical examination and staged according to the extent of downwards displacement of the most affected vaginal area.[24]

Clinical history

Key risk factors for prolapse include previous vaginal delivery, advancing age, obesity, previous surgery for prolapse, family history of prolapse, white ancestry, connective tissue disorders, and increased intra-abdominal pressure (e.g., chronic obstructive airway disease, chronic constipation with excessive straining, heavy lifting, and hard physical activity).

The most specific symptom of pelvic organ prolapse (POP) is the patient's report of seeing or feeling the vagina or cervix protrude through the vaginal opening, which also correlates with severity.[20] The patient frequently describes a sensation of bulging, fullness, or heaviness in the pelvic area. The heaviness is often described as a dragging discomfort or pressure in the lower abdomen or pelvis. In certain cases, voiding or storage dysfunction accompanies pelvic discomfort, presenting with urinary retention or urinary incontinence, respectively.[19] Women progressively become more symptomatic after prolonged standing or physical exertion. Defecatory dysfunction and sexual dysfunction (dyspareunia) may co-exist. These concomitant disorders are probably not directly related to POP, although they share similar risk factors, and may persist after otherwise successful anatomical repair.

Apical prolapse POPQ stage III

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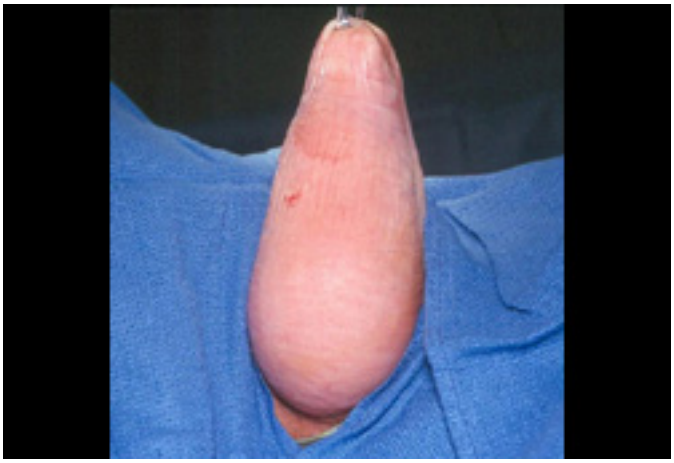

Total uterovaginal prolapse (procidentia) POPQ stage IV

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Physical examination

Any woman with gynaecological complaints related to POP symptoms should undergo pelvic examination.[25]

Physical examination should be performed with the patient resting and straining in both supine and standing positions.

Pelvic floor muscle tone should be assessed.

Complete gynaecological examination, including bimanual examination, is needed for estimating uterus size and cervical length.

Vaginal mass is palpated on digital examination.

A vaginal speculum is used to view the cervix and vaginal vault, while the patient is performing a valsalva manoeuvre. The fixed blade of the disassembled speculum is placed to support the posterior vaginal wall for evaluation of an apical or anterior prolapse. Whereas, the anterior vaginal wall is supported for evaluation of a posterior prolapse.

Apical prolapse POPQ stage III

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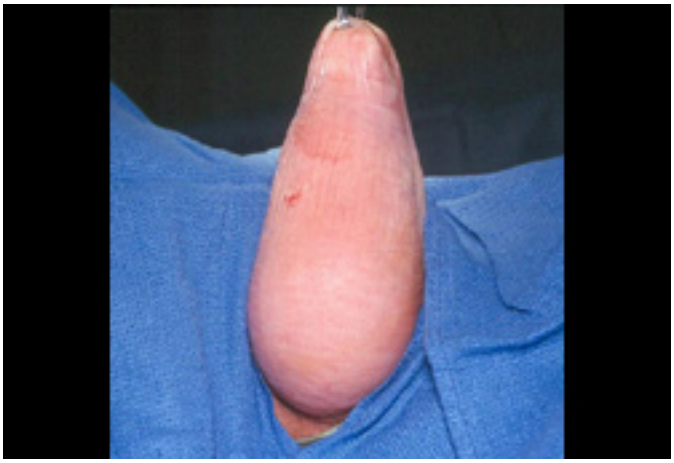

Total uterovaginal prolapse (procidentia) POPQ stage IV

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A systematic pelvic organ prolapse quantification (POP-Q) examination defines the extent of the prolapse and establishes the segments of the vagina that are affected (anterior, posterior, or apical).[22] See Criteria .

Investigations

Women with advanced (stage 3 or 4) prolapse often have voiding difficulties, which may result in urinary retention, recurrent urinary tract infection, and, in rare cases, damage to the renal parenchyma.[22] Lower urinary tract function should be assessed by evaluation of urine loss and type (stress or urgency urinary incontinence) and adequacy of bladder emptying.[22]

If the prolapse is beyond the hymen or the patient has concomitant incontinence, assessment of the post-void residual urine volume is important, particularly if surgical intervention is planned. Post-void residual urine volume may indicate voiding dysfunction, which may progress to complete retention following surgical intervention.[19][22][26] Before consenting patients for vaginal surgery to repair POP, an assessment for occult stress urinary incontinence is indicated, by performing a cough stress test or urodynamic testing after reduction of the prolapsed uterus by pessary or swab.[19] Urinalysis is also recommended as part of the initial assessment of patients with low urinary tract symptoms, as infection is known to exacerbate incontinence symptoms.[27] [28] [29]

History and exam

Key diagnostic factors

presence of risk factors (common)

- Key risk factors include vaginal delivery, advancing age, obesity, previous surgery for prolapse, genetic factors, white ancestry, and connective tissue disorders.

vaginal protrusion/bulge (common)

- The patient can see and feel the vagina or the cervix bulging from the vaginal opening, which also correlates with severity.[20]

Apical prolapse POPQ stage III

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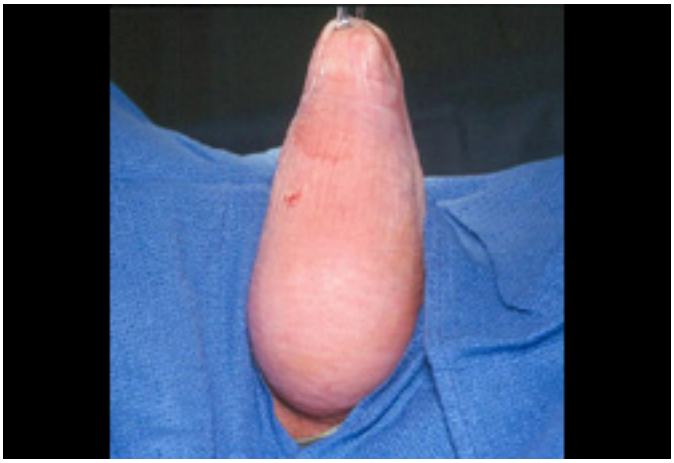

Total uterovaginal prolapse (procidentia) POPQ stage IV

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sensation of vaginal pressure (common)

- Pressure (e.g., the sensation of bulging, fullness, or heaviness) can be felt in the vaginal area.

Other diagnostic factors

urinary incontinence (common)

- As the anterior vagina loses support, the bladder and urethral support is lost, potentially affecting the continence mechanism. Symptoms of stress urinary incontinence often co-exist with stage 1 and 2 prolapse.[19] [22] [30] [31]

defecatory dysfunction (common)

- Defecatory dysfunction is a non-specific sign of the loss of posterior wall support. Protrusion of the rectum (posterior vaginal wall) into the vagina may result in obstructed defecation and difficulty with the mechanics of faecal evacuation, sometimes requiring digital reduction of the posterior vaginal wall to facilitate bowel movements.

pelvic pain (uncommon)

- An uncomfortable sensation during sexual intercourse (dyspareunia) is mainly associated with advanced-stage pelvic organ prolapse. It is also associated with trauma to the vaginal wall, if the prolapse protrudes from the opening of the vagina.

voiding dysfunction (uncommon)

- Voiding dysfunction occurs with stage 3 or 4 pelvic organ prolapse, if there is descent of the anterior vagina, compressing the bladder infrastructure, or kinking of the urethra, requiring positional changes.[19] [22]
- Voiding dysfunction as a result of prolapse is more pronounced after long periods of standing.

sexual dysfunction (uncommon)

- Changes in the vagina are associated with pain during sexual intercourse (dyspareunia) and a lack of satisfaction or orgasm.

Risk factors

Strong

vaginal delivery

- A Swedish study found that the prevalence of genital prolapse was higher in parous women (44%) than in non-parous women (5.8%).[20] Every additional delivery up to five births increases the risk of worsening prolapse by 10% to 20%.[2]
- It is believed that childbirth causes damage to the pudendal nerves, fascia, and structures that essentially support the pelvic organs.[7] [8]

advancing age

- Advancing age is an associated risk for pelvic organ prolapse (POP) because of changes in elasticity of connective tissue and muscle strength that occur during the ageing process.[7]

obesity

- Obesity is an independent risk factor for POP.[2] Obesity probably incites or exacerbates prolapse through increased intra-abdominal pressure.

previous surgery for prolapse

- Recurrent POP is common. Nearly 30% of women undergo more than one procedure for prolapse.[21]

genetic factors

- It is estimated that women with POP are more likely to have family members with the same condition than women without POP. A higher risk of prolapse has been noted in women with a mother or sister reporting prolapse.[9] In one study, the T variant of the laminin subunit gamma 1 (LAMC1) gene was five times more common among probands with POP than in the general population.[10] This variant affects the binding site for nuclear factor, interleukin 3-regulated (NFIL3), a transcription factor that is co-expressed in vaginal tissue. Hence polymorphism in this area may increase the susceptibility to early onset POP.[10]

white ancestry

- Although racial differences are under-studied, it seems that white women have the highest risk for pelvic organ prolapse.[2] [11]

connective tissue disorders

- Women with joint hypermobility and collagen-associated disorders (e.g., Ehlers-Danlos syndrome and Marfan syndrome) have a higher prevalence of POP.[15] [16] [17] [18]

Weak

increased intra-abdominal pressure

- It is hypothesised that an increase in intra-abdominal pressure (e.g., obesity, chronic obstructive airway disease, chronic constipation with excessive straining, heavy lifting, and hard physical activity) can lead to POP.[22] The pathophysiology is probably ischaemic damage to the neural and muscular structures that are responsible for supporting the pelvic organs.[7] [8] [23]

Investigations

1st test to order

Test	Result
assessment of post-void residual urine (PVR) volume • Women with advanced prolapse often have voiding difficulties, which may result in urinary retention, recurrent urinary tract infection, and, in rare cases, damage to the renal parenchyma.[22] Investigation is accomplished with a sterile transurethral catheter or bladder ultrasound.[27]	**elevated urine retention PVR volume**
urinalysis • Women with advanced pelvic organ prolapse and voiding dysfunction are at higher risk for urinary tract infections (symptomatic or asymptomatic), and urinalysis may indicate this in many cases.[28] [29] As infection is known to exacerbate incontinence symptoms, detection and treatment of infection is a critical element of the evaluation.[27] Gross haematuria or persistent microhaematuria warrant evaluation for neoplastic processes in the urinary tract.	**normal, unless concomitant urinary tract infection is present**

Other tests to consider

Test	Result
urodynamics • Urodynamic testing is used in clinical care for two main reasons. In women without symptoms of stress incontinence, urodynamic testing, with reduction of the prolapse by pessary or swab, has been used to guide the recommendation for concomitant anti-incontinence procedures at the time of pelvic organ prolapse repair.[19] For women with symptoms of stress incontinence, urodynamic testing has been used to select the optimal anti-incontinence procedure, although there are no clear evidence-based recommendations for the superiority of any specific continence procedure in stress-incontinent women undergoing prolapse repair.[27]	**distinguishes stress incontinence and/or detrusor overactive incontinence**

Differentials

Condition	Differentiating signs / symptoms	Differentiating tests
Cervical elongation	• Physical examination is essential for differentiation. • Women with pelvic organ prolapse (POP) demonstrate greater descent of the cervix and the vaginal wall when straining. • Women with isolated cervical elongation may experience protrusion of the cervix without descent of the vaginal walls.	• Vaginal speculum and bimanual examination are the most reliable tests for differentiating between POP and cervical elongation.
Vaginal cyst	• Often asymptomatic, vaginal cysts can be superficial or deep. The patient may report a soft lump in the vaginal wall or protrusion of a lump from the vagina. Superficial dyspareunia or difficulty inserting tampons may be experienced.	• Diagnosis is usually clinical. However, vaginal ultrasound and MRI are useful to identify the content of the cyst and its topographical relation with adjacent anatomical structures.
Gynaecological cancer	• Symptoms of pelvic pain and mass are common. Pelvic examination may reveal cervical, uterine, or pelvic mass. Digital rectal examination may detect rectal carcinoma.	• CT scan and, if needed, cystoscopy with cytology and biopsy can differentiate between POP and these cancers.

Criteria

Pelvic organ prolapse quantification (POP-Q) examination[32] [33] [34]

The POP-Q examination measures nine points on the vagina and perineum relative to the hymen: six internal points and three external points. Stages are based on the maximal extent of prolapse relative to the hymen, in one or more compartments:

- Stage 0: no prolapse
- Stage I: the most distal prolapse is >1 cm above the level of the hymen
- Stage II: the most distal prolapse is between 1 cm above and 1 cm below the hymen (i.e., at the hymen)
- Stage III: the most distal prolapse is >1 cm below the hymen but no further than 2 cm less than the total vaginal length.

Apical prolapse POPQ stage III
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- Stage IV: represents procidentia/total prolapse.

Total uterovaginal prolapse (procidentia) POPQ stage IV
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Baden–Walker halfway scoring system[35]

In the Baden–Walker system, the vagina is divided into six areas: two anterior, two superior, and two posterior. Each area of the vagina is assigned a grade from 0 to 4, according to the degree of descent relative to the hymen when the patient is straining maximally:

- Grade 0: normal position for each respective site
- Grade 1: descent halfway to the hymen
- Grade 2: descent to the hymen
- Grade 3: descent halfway past the hymen
- Grade 4: maximum possible descent for each site.

The Baden–Walker system is no longer commonly used because it is imprecise and not reproducible.

Approach

Pelvic organ prolapse (POP) is, as a rule, not an emergency, unless it has caused acute urinary retention. In this case, an indwelling Foley catheter should be placed until the prolapse can be addressed. Treatment options should be discussed with the patient and the intervention strategy should be tailored to take into account the patient's symptoms, pelvic floor anatomy, findings of further investigations if indicated, and the patient's preference.[28] All patients should be offered conservative (non-surgical) management options; surgical treatment can be offered to women with symptomatic POP who have not responded to or declined non-surgical approaches.[22] [36]

Asymptomatic patients

Asymptomatic patients, or women who have a few minor symptoms but sufficient bladder emptying and normal renal function, may report little or no inconvenience as a result of the disorder. Observation or watchful waiting is appropriate for these women, with education to ensure they understand the possible relationship between prolapse and voiding or defecatory dysfunction.[22]

Pelvic floor muscle (PFM) training can be offered, despite the lack of quality data supporting its use to prevent progression.[37] [38] Cumulative data show PFM training has a significant effect of on POP stage and PFM morphology.[37] Several studies have demonstrated that PFM training for prolapse is effective in improving prolapse symptoms.[37] [39] [40] Supervised and more intensive training is more effective than unsupervised training. More high-quality randomised controlled trials are needed to further evaluate the effect of PFM strengthening on POP.[37][38] [41]

Conservative management in symptomatic patients

Mechanical supports, such as vaginal pessaries, are used to restore the prolapsed organs to their normal position and, thereby, relieve symptoms.[36][42] A wide range of pessaries are available for prolapse treatment. Pessaries are held in place by the pelvic floor musculature; they are made of medical-grade silicone. This treatment can be offered to women with symptomatic POP who decline surgery, are poor surgical candidates because of medical comorbidities, plan further pregnancies in the future, or need temporary relief of pregnancy-related prolapse or incontinence.

Fitting is by trial and error and affected by clinician experience, whether the woman wants to be sexually active, and which type of pessary is retained, comfortable, and enables the woman to pass urine with the pessary in place. Regular follow-up and adherence to pessary care instructions are important. Pessaries have high satisfaction rates and low complication rates.[42]

If vaginal erosion develops in a woman with a pessary, the pessary should be removed and vaginal oestrogen cream applied until the erosion is healed. Resolution may occur without local oestrogen therapy. The pessary can then be replaced, although a different pessary could be considered.[22]

Surgery

Surgery is indicated if troublesome symptoms persist despite conservative management.[28] Treatment goals must focus on restoration of urinary, defecatory, and sexual function. The surgical approach can be reconstructive versus obliterative, abdominal versus vaginal, or open versus minimally invasive. The type of surgery should be individualised, according to the surgeon's expertise and patient's preferences, lifestyle, concomitant disease, and age. Several other factors must also be considered when counselling patients about the choice of surgical treatment:

- Durability
- Recovery time
- Immediate and delayed postoperative complications
- Reoperation rate
- Concurrent stress urinary incontinence
- Risk of foreign body: erosions, wound granulation, and dyspareunia may occur after vaginal prolapse repair with graft materials; the incidence of these complications varies widely across studies[43]
- Desire for future fertility or vaginal intercourse. Most experts prefer to defer POP surgery until childbearing is complete; in the US, the uterus is removed during almost all primary POP procedures.

Perioperative behavioural therapy may be performed, although it does not affect surgical outcomes.[44] Other interventions, such as bowel preparation and ureteral stent insertion, have not been shown to reduce operative complications.[45]

Reconstructive versus obliterative surgery

- Reconstructive procedures to restore the prolapsed uterus and normal anatomy (e.g., sacrocolpopexy, sacrohysteropexy, uterosacral ligament suspension, sacrospinous ligament fixation, and colporrhaphy) are offered to all symptomatic patients and are recommended for those who would like to maintain sexual activity, because obliterative procedures (e.g., colpocleisis or colpectomy) narrow or partially close the vaginal space.
- Simple hysterectomy, without reconstruction of the support abnormalities in the vaginal apex, is insufficient for symptom resolution. Vaginal apex suspension should be performed at the same time as hysterectomy, to reduce the risk of recurrent prolapse.[22]
- Sacrospinous ligament fixation procedures, including sacrospinous hysteropexy, and uterosacral ligament suspension, with or without hysterectomy, have the same advantages for treatment of vaginal apical prolapse.[22] [46] [47] [48] Native tissue repair is performed vaginally. If minimising adverse events or reoperation is the priority, a vaginal approach with native tissue repair is recommended.[49]
- Sacrocolpopexy, to treat vaginal vault prolapse, can be performed through an open abdominal or minimally invasive laparoscopic approach, with or without robotic assistance.[50] [51] [52]
- Robot-assisted sacrocolpopexy shows a cure rate ranging from 84% to 100%; surgery-related outcomes improve with increased experience.[52] One trial that assessed the cost-effectiveness and rehospitalisation (within 6 weeks) of laparoscopic sacrocolpopexy compared with robotic sacrocolpopexy found similar outcomes and complication rates in both groups.[53]
- Sacrocolpopexy may be performed with a synthetic mesh or a biological graft.
- Sacrohysteropexy (abdominal or laparoscopic), with synthetic mesh, is an alternative treatment for women who do not wish to have hysterectomy.
- Concomitant anterior and/or posterior vaginal surgery (for example, with colporrhaphy) should not be routinely considered but based on anatomical defects after repair of the apex.[54] [55]
- Obliterative surgery, such as partial (Le Fort) colpocleisis and total colpectomy, can be offered to patients who are at high risk of complications (e.g., those with severe systemic disease or older patients who are not sexually active and prefer to avoid more aggressive surgery) and/or do not wish to maintain vaginal patency. A review of colpocleisis reported a success rate of almost 100%.[56]

Complications

- Possible complications of POP surgery include intra-operative haemorrhage, bladder injury, rectal or small bowel injury, and severe gluteal pain radiating down the posterior leg due to sciatic nerve entrapment.
- Presacral bleeding, although uncommon, is the most concerning intra-operative complication associated with both laparoscopic and open types of sacrocolpopexy and can have life-threatening consequences. Complications associated with open sacrocolpopexy include cystotomy (3.1%), enterotomy (1.6%), incisional problems (4.6%), ileus (3.6%), thromboembolic event (3.3%), and transfusion (4.4%).[57] [58] [59]
- Currently, there are no available US Food and Drug Administration (FDA)-approved transvaginal mesh products for the treatment of POP. The FDA has received thousands of reports of complications involving the use of mesh for transvaginal repair of POP, including infection, bleeding, pelvic pain, pain during intercourse, organ perforation, and urinary problems from mesh eroding into the surrounding tissues. In 2019, the FDA called for withdrawal of vaginal mesh for POP repair from practice and ordered manufacturers of all remaining transvaginal mesh kits for repair of POP to stop selling and distributing their products in the US immediately.[60] The UK National Institute for Health and Care Excellence no longer recommends vaginal mesh for POP repair.[28] [61]
- Ureteral injury is the most often reported complication following uterosacral ligament suspension and was more common compared with sacrospinous fixation.[59]
- Approximately 40% of women with apical or anterior prolapse who do not have incontinence develop postoperative urinary incontinence and further treatment may be needed.[19] [28]

Concomitant incontinence surgery

- Up to 80% of women with POP have co-existing urinary incontinence.[19] [62] If symptoms are bothersome, POP and stress urinary incontinence can be treated concurrently to reduce persistent or worsening stress incontinence after prolapse surgery.[22] The route of access for prolapse repair determines the type of continence procedure.[19] [63]
- Patients with POP who do not have stress urinary incontinence should be informed that the risk of de novo stress urinary incontinence is higher if a continence procedure is not performed but the risk of adverse effects is increased with an additional procedure.[19] Both Burch colposuspension concurrent with abdominal sacrocolpopexy and retropubic mid-urethral sling concurrent with vaginal surgery for POP repair reduce the risk of postoperative stress urinary incontinence in women without preoperative incontinence.[63] [64] [65] In most available studies, data is insufficient to state whether a concomitant continence procedure effects the rates of recurrent POP, need for further surgery, or postoperative overactive bladder.[63] The UK National Institute for Health and Care Excellence does not recommend surgery to prevent incontinence in women having surgery for prolapse who do not have incontinence.[28]

Treatment algorithm overview

Please note that formulations/routes and doses may differ between drug names and brands, drug formularies, or locations. Treatment recommendations are specific to patient groups: see disclaimer

Ongoing (summary)		
asymptomatic		
	1st	**observation ± pelvic floor muscle rehabilitation**
symptomatic		
	1st	**pessary**
	2nd	**reconstructive surgery or native tissue repair**
	adjunct	**anterior/posterior vaginal repair**
	adjunct	**Burch urethropexy or mid-urethral sling**
	3rd	**colpocleisis**
	adjunct	**Burch urethropexy or mid-urethral sling**

Treatment algorithm

Please note that formulations/routes and doses may differ between drug names and brands, drug formularies, or locations. Treatment recommendations are specific to patient groups: see disclaimer

Ongoing

asymptomatic

1st **observation ± pelvic floor muscle rehabilitation**

» Asymptomatic patients, or women who have few minor symptoms but sufficient bladder emptying and normal renal function, may report little or no inconvenience as a result of the disorder. Observation or watchful waiting is appropriate for these women, with education to ensure they understand the possible relationship between prolapse and voiding or defecatory dysfunction.[22]

» Pelvic floor muscle (PFM) training can be offered, despite the lack of quality data supporting its use to prevent progression.[37] [38] Several studies have demonstrated that PFM training for prolapse is effective in improving prolapse symptoms.[37] [39] [40]

symptomatic

1st **pessary**

» Mechanical supports, such as pessaries, are used to restore the prolapsed organs to their normal position and, thereby, relieve symptoms.[36] [37] [42]

» Fitting is by trial and error and affected by clinician experience, whether the woman wants to be sexually active, and which type of pessary is retained, comfortable, and enables the woman to pass urine with the pessary in place. Regular follow-up and adherence to pessary care instructions are important.

» Pessaries have high satisfaction and low complication rates.[42]

» If vaginal erosion develops in a woman with a pessary, the pessary should be removed and vaginal oestrogen cream applied until the erosion is healed. Resolution may occur without local oestrogen therapy. The pessary can then be replaced, although a different pessary could be considered.[22]

2nd **reconstructive surgery or native tissue repair**

Ongoing

» Reconstructive surgery is often performed with concomitant hysterectomy, if the uterus is present.

» Sacrospinous ligament fixation procedures, including sacrospinous hysteropexy, and uterosacral ligament suspension, with or without hysterectomy, have the same advantages for treatment of vaginal apical prolapse.[22] [46] [47] [48]

» Sacrospinous ligament suspension is generally done unilaterally. The vagina must be long enough to reach the sacrospinous ligament without a suture bridge.

» Ureteral injury is the most reported complication following uterosacral suspension.

» The uterosacral ligaments are used to resuspend the vaginal apex in uterosacral ligament suspension.

» If minimising adverse events or reoperation is the priority, a vaginal approach with native tissue repair is recommended.[49]

» Sacrocolpopexy, to treat vaginal vault prolapse, can be performed through an open abdominal or minimally invasive laparoscopic approach, with or without robotic sacrocolpopexy.[50] [51] [52] Sacrocolpopexy may be performed with a synthetic mesh or a biological graft.

» Sacrohysteropexy (abdominal or laparoscopic), with synthetic mesh, is an alternative treatment for women who do not wish to have hysterectomy.

» Currently, there are no available US Food and Drug Administration (FDA)-approved transvaginal mesh products for the treatment of pelvic organ prolapse (POP). The FDA has received thousands of reports of complications involving the use of mesh for transvaginal repair of POP, including infection, bleeding, pelvic pain, pain during intercourse, organ perforation, and urinary problems from mesh eroding into the surrounding tissues. In 2019, the FDA called for withdrawal of vaginal mesh for POP repair from practice and ordered manufacturers of all remaining transvaginal mesh kits for repair of POP to stop selling and distributing their products in the US immediately.[60] The UK National Institute for Health and Care Excellence no longer recommends vaginal mesh for POP repair.[28] [61]

Ongoing

adjunct **anterior/posterior vaginal repair**

Treatment recommended for SOME patients in selected patient group

» These procedures are used to repair prolapse that is not secondary to primary apical support loss. Concomitant anterior/posterior vaginal repair (for example, with colporrhaphy) should not be routinely considered but based on anatomical defects after repair of the apex.[54] [55]

adjunct **Burch urethropexy or mid-urethral sling**

Treatment recommended for SOME patients in selected patient group

» Up to 80% of women with pelvic organ prolapse (POP) have co-existing urinary incontinence.[19] [62] If symptoms are bothersome, POP and stress urinary incontinence (SUI) can be treated concurrently to reduce persistent or worsening stress incontinence after prolapse surgery.[22] The route of access for prolapse repair determines the type of continence procedure.[19] [63]

» Patients with POP who do not have SUI should be informed that the risk of de novo SUI is higher when SUI procedure is not performed but the risk of adverse effects is increased with an additional procedure.[19] Both Burch colposuspension concurrent with abdominal sacrocolpopexy and retropubic mid-urethral sling concurrent with vaginal surgery for POP repair reduce the risk of postoperative SUI in women without preoperative incontinence.[63] [64] [65] The UK National Institute for Health and Care Excellence does not recommend surgery to prevent incontinence in women having surgery for prolapse who do not have incontinence.[28]

3rd **colpocleisis**

» Obliterative surgery, such as partial (Le Fort) colpocleisis or total colpocleisis, corrects pelvic organ prolapse by moving pelvic viscera back into the pelvis and closing off the vaginal canal either partially or totally.

» This surgery can be offered to patients who are at high risk of complications (e.g., those with severe systemic disease or older patients who are not sexually active and prefer to avoid more aggressive surgery) and/or do not wish to maintain vaginal patency. One review of colpocleisis reported a success rate of almost 100%.[56]

Ongoing

adjunct **Burch urethropexy or mid-urethral sling**

Treatment recommended for SOME patients in selected patient group

» Up to 80% of women with pelvic organ prolapse (POP) have co-existing urinary incontinence.[19] [62] If symptoms are bothersome, POP and stress urinary incontinence (SUI) can be treated concurrently to reduce persistent or worsening stress incontinence after prolapse surgery.[22] The route of access for prolapse repair determines the type of continence procedure.[19] [63]

» Patients with POP who do not have SUI should be informed that the risk of de novo SUI is higher when SUI procedure is not performed but the risk of adverse effects is increased with an additional procedure.[19] Both Burch colposuspension concurrent with abdominal sacrocolpopexy and retropubic mid-urethral sling concurrent with vaginal surgery for POP repair reduce the risk of postoperative SUI in women without preoperative incontinence.[63] [64] [65] The UK National Institute for Health and Care Excellence does not recommend surgery to prevent incontinence in women having surgery for prolapse who do not have incontinence.[28]

Patient discussions

There is no evidence that any specific post-surgical activity restrictions reduce the risk of recurrence. Nonetheless, some physicians restrict patients from heavy lifting (4.5 kg or 10 lb), and from vaginal intercourse for 6 weeks following surgery.

Monitoring

Monitoring

Intermittent evaluation of patients who are asymptomatic, or have a few minor symptoms but sufficient bladder emptying and normal renal function, and are undergoing physiotherapy (pelvic floor muscle training) or expectant management should occur approximately every 3 to 6 months, to assess the efficacy of treatment and whether a pessary is required.

Patients who are being observed or monitored, rather than actively treated, should return for a follow-up visit at regular intervals, typically 6 to 12 months.

Commonly, patients treated with a pessary are asked to come for a follow-up visit for evaluation of their symptoms. The physician should evaluate the patient for prolapse symptoms, as well as vaginal symptoms (e.g., pain, vaginal discharge, odour, or bleeding). Regular follow-up and adherence to pessary care instructions are important.

The recovery time from surgical treatment varies, depending on the type of surgery. Women should be offered a postoperative review 6 months after surgery, to evaluate the objective and subjective outcomes, and the adverse events, following surgery. The review should include a vaginal examination and, if mesh was used during the surgical procedure, check for mesh exposure. Women should be referred if they have recurrent prolapse symptoms or complications from surgical treatment.

FOLLOW UP

Complications

Complications	Timeframe	Likelihood
dyspareunia after posterior repair	**short term**	**high**
A report comparing 2 techniques of posterior wall defect repair demonstrated that 17% of women had dyspareunia following posterior repair.[77]		
post-repair urinary incontinence	**short term**	**medium**
Lower urinary tract symptoms, including urinary incontinence, may occur following a prolapse repair surgery.[19] [65]		
faecal incontinence after posterior repair	**short term**	**low**
Constipation and faecal incontinence have also been reported as a possible complication of posterior repair.[77]		
vaginal erosion	**long term**	**high**
Neglected prolapsed uterus or vagina may be ulcerated, with tissue erosion. Erosion results from ischaemic changes and mechanical friction of the exposed area. Surgical treatment is recommended.[75] [76]		
urinary retention	**long term**	**low**
Rarely, neglected prolapse can lead to renal failure. Patients with urinary retention may develop hydronephrosis, which consequently damages the renal parenchyma. Immediate reduction of the prolapse is preferable by surgery and intraurethral catheterisation.		
post-repair recurrent prolapse	**variable**	**medium**
Nearly 30% of women undergoing one pelvic organ prolapse (POP) procedure have at least one more POP.[21] The risk factors for recurrent POP are unknown.		

Prognosis

The risk of pelvic organ prolapse (POP) recurrence after surgical reconstruction is not uncommon. Up to 30% of women undergoing one POP procedure have at least one more procedure, although recent studies suggest a lower recurrence rate (near 10% of patients requiring reoperation).[21] [66] Women with a more severe prolapse are more likely to have a recurrence.[67] [68] Among patients with stage 2 POP, recurrence rates following uterosacral ligament suspension and sacrocolpopexy are comparable.[68] Among women with higher stage apical prolapses, abdominal sacrocolpopexy is the most durable surgical repair procedure; the anatomical success rate ranges from 76% to 100%.[22] [55] [57][68] [69] [70] [71][72] Vaginal procedures may have a relatively lower success rate. The 5-year success rates of vaginal uterosacral procedures range from 87% to 89%.[73] [74] There is no evidence that any specific post-surgical activity restrictions reduce the risk of recurrence. Nonetheless, some physicians restrict patients from heavy lifting (4.5 kg or 10 lb), and from vaginal intercourse for 6 weeks following surgery.

Diagnostic guidelines

United Kingdom

Urinary incontinence and pelvic organ prolapse in women: management (https://www.nice.org.uk/guidance/ng123)

Published by: National Institute for Health and Care Excellence **Last published:** 2019

Europe

Non-neurogenic female LUTS (https://uroweb.org/guidelines/non-neurogenic-female-luts)

Published by: European Association of Urology **Last published:** 2023

North America

ACR appropriateness criteria: pelvic floor dysfunction in females (https://www.acr.org/Clinical-Resources/ACR-Appropriateness-Criteria)

Published by: American College of Radiology **Last published:** 2021

Pelvic organ prolapse (https://www.acog.org/Clinical-Guidance-and-Publications/Practice-Guidelines-and-Reports-Search)

Published by: American College of Obstetricians and Gynecologists; American Urogynecologic Society **Last published:** 2019 (reaffirmed 2024)

Indications for pelvic examination (https://pubmed.ncbi.nlm.nih.gov/31331610)

Published by: Society of Obstetricians and Gynaecologists of Canada **Last published:** 2019

Urinary incontinence in women (https://www.acog.org/Clinical-Guidance-and-Publications/Practice-Guidelines-and-Reports-Search)

Published by: American College of Obstetricians and Gynecologists **Last published:** 2015 (reaffirmed 2022)

Treatment guidelines

United Kingdom

Urinary incontinence and pelvic organ prolapse in women: management (https://www.nice.org.uk/guidance/NG123)

Published by: National Institute for Health and Care Excellence **Last published:** 2019

Transvaginal mesh repair of anterior or posterior vaginal wall prolapse (https://www.nice.org.uk/guidance/ipg599)

Published by: National Institute for Health and Care Excellence **Last published:** 2017

Post-hysterectomy vaginal vault prolapse (green-top guideline 46) (https://www.rcog.org.uk/en/guidelines-research-services/guidelines)

Published by: Royal College of Obstetricians and Gynaecologists **Last published:** 2015

North America

AAGL practice report: practice guidelines on the prevention of apical prolapse at the time of benign hysterectomy (https://pubmed.ncbi.nlm.nih.gov/24769448)

Published by: American Association of Gynecologic Laparoscopists **Last published:** 2023

Pelvic organ prolapse (https://www.acog.org/Clinical-Guidance-and-Publications/Practice-Guidelines-and-Reports-Search)

Published by: American College of Obstetricians and Gynecologists **Last published:** 2019 (reaffirmed 2024)

Urinary incontinence in women (https://www.acog.org/Clinical-Guidance-and-Publications/Practice-Guidelines-and-Reports-Search)

Published by: American College of Obstetricians and Gynecologists **Last published:** 2015 (reaffirmed 2022)

Key articles

- American College of Obstetricians and Gynecologists. Practice bulletin no. 214: pelvic organ prolapse. Nov 2019 [internet publication]. Full text (https://www.acog.org/clinical/clinical-guidance/practice-bulletin/articles/2019/11/pelvic-organ-prolapse)
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- National Institute for Health and Care Excellence. Urinary incontinence and pelvic organ prolapse in women: management. Jun 2019 [internet publication]. Full text (https://www.nice.org.uk/guidance/ng123)
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Images

Figure 1: Apical prolapse POPQ stage III

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Figure 2: Total uterovaginal prolapse (procidentia) POPQ stage IV

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This approach is in line with the guidance of the International Bureau of Weights and Measures Service.

Figure 1 – BMJ Best Practice Numeral Style

5-digit numerals: 10,000

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numerals < 1: 0.25

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