Genital Prolapse

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Learning Objectives

- Definition
- Anatomical support
- Types
- :Etiology

  Predisposing factor

  Precipitating factor
- Clinical Presentation
- D.D
- Investigations
- Complications
- Treatment

Genital(utero-vaginal)prolapse is extremely common, with an estimated 11% of women undergoing at least one operation for this condition.

Definition:

A prolapse is a protrusion of an organ or structure beyond its normal position.

Prevalence: It is estimated that prolapse affects 12-30 %of multiparous and 2 % of nulliparous women..

' Anatomical Support:

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 (e.g. uterosacral and transverse cervical ligaments).

• **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'.

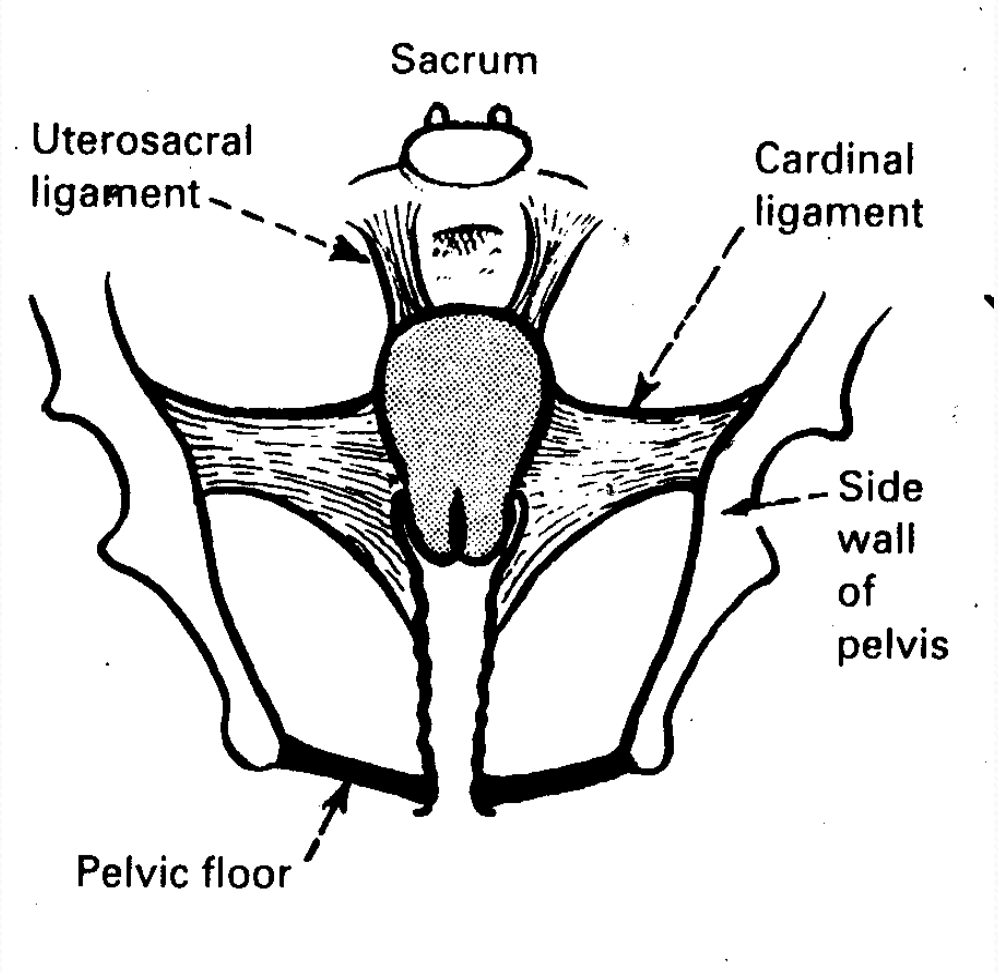
Damage to any of these mechanisms will contribute to prolapse.

The axes of pelvic support

Three support axes

- Upper vertical axis (cardinal-uterosacral ligament complex)
- Horizontal axis leads to lateral and paravaginal supports
  - Two platforms pubocervical fascia and rectovaginal septum
- Lower vertical axis supports the lower third of the vagina, urethra and anal canal

Supports of the uterus



DeLancey's three levels of vaginal support

- Apical suspension
  - Upper paracolpium suspends apex to pelvic walls and sacrum
  - Damage results in prolapse of vaginal vault & uterine descend
- Midvaginal lateral attachment
  - Vaginal attachment to arcus tendineus fascia and levator ani muscle fascia
  - Pubocervical and rectovaginal fasciae support bladder and anterior rectum
  - Avulsion results in cystocele or rectocele
- Distal perineal fusion
  - Fusion of vagina to perineal membrane, body and levators
  - Damage results in deficient perineal body or urethrocele

Boat in dock analogy

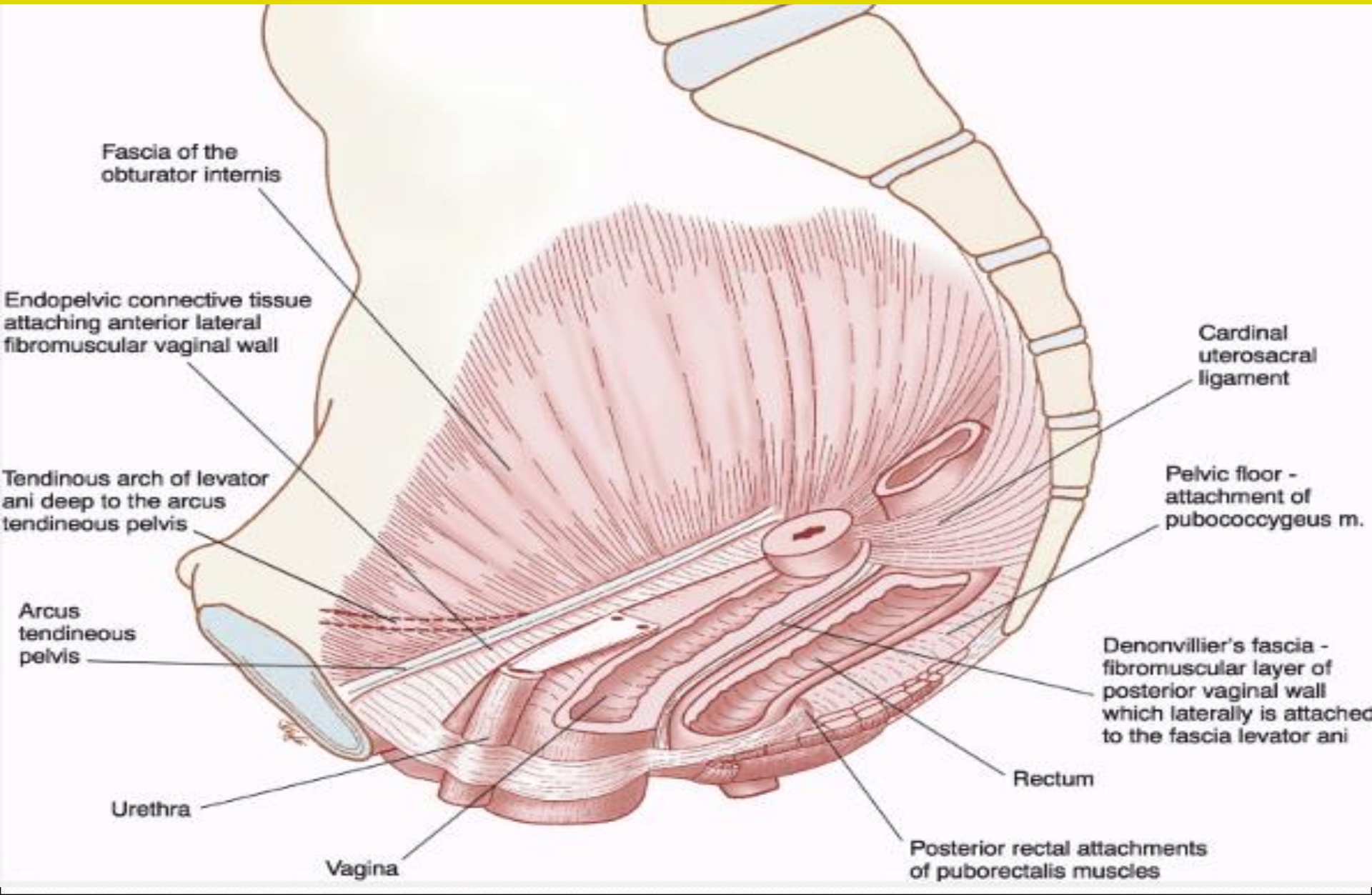
- Boat- pelvic organs
- Water- levator muscles
- Moorings- Endopelvic fascial ligaments

Problem is with the water or moorings or both

Result is sinking of the boat

Really the boat itself is fine

A saggital view of the female pelvis with bladder and uterus removed (ureters, trigone, and cervix intact) illustrating anterior and posterior vaginal fibromuscular planes, their endopelvic fascial attachments, and a functional pelvic floor.



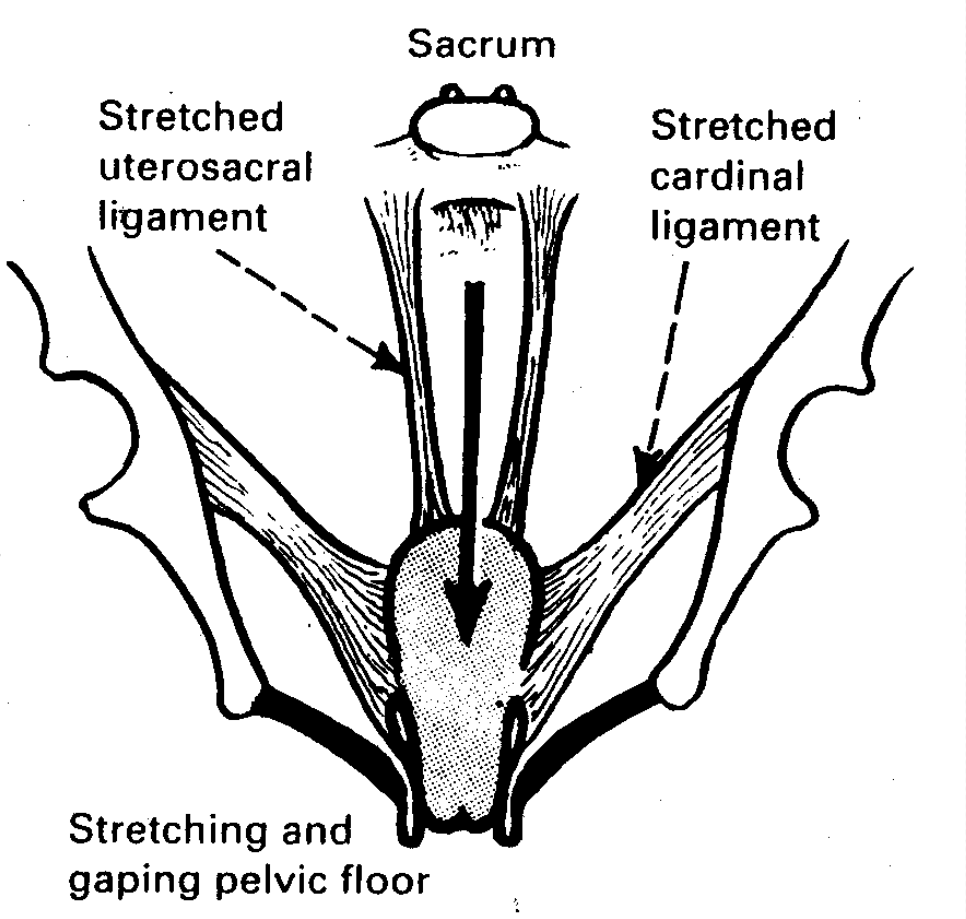
Pathophysiology

-Attenuation of pelvic support structures

→ tears or breaks

→ neuromuscular dysfunction

→ both


Sacrum
Stretched uterosacral ligament
Stretched cardinal ligament
Stretching and gaping pelvic floor

Classification:

Genital prolapses are classified according to their location and the organs contained within them :

1.Anterior compartment.

2.Posterior compartment.

3.Apical prolapse.

Classification:

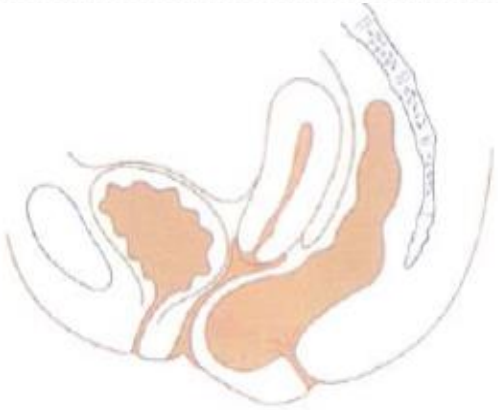
Anterior (compartment) vaginal wall prolapse

- Urethrocele: urethral descent.
- Cystocele: bladder descent.
- Cystourethrocele: descent of bladder and urethra.

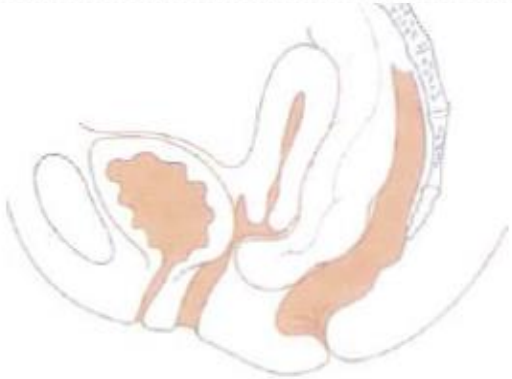
Posterior(compartment) vaginal wall prolapse

- Rectocele: rectal descent.
- Enterocele: small bowel descent.

(a) Cystourethrocele

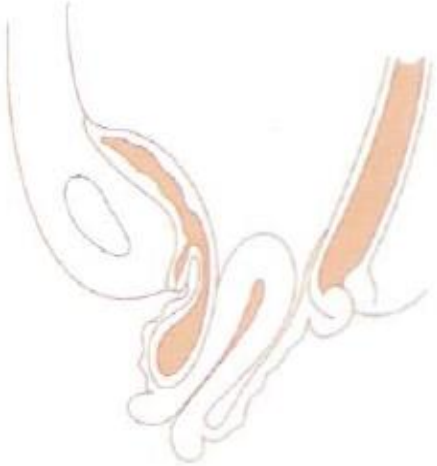


(b) Rectocele



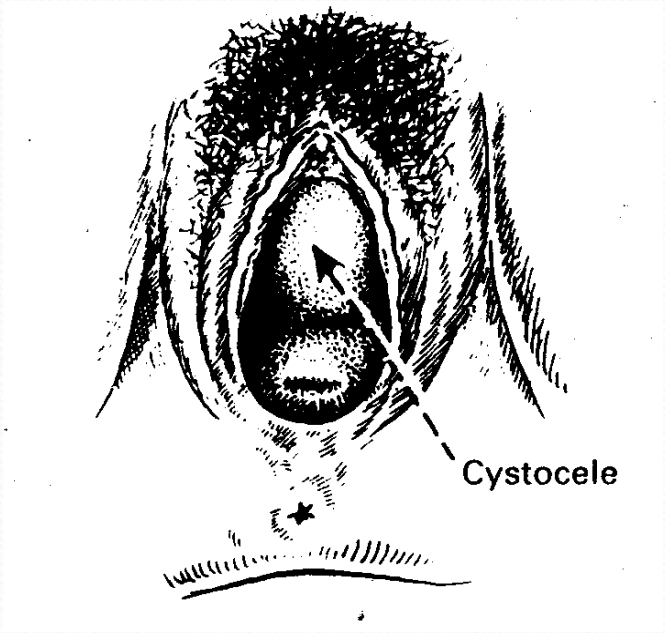
(c) Enterocele

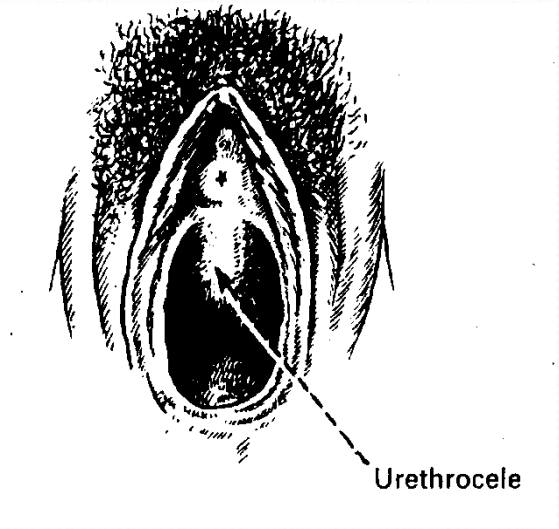
(d) Uterine prolapse



(e) Procidentia

Figure 17.2 Varieties of prolapse.


Cystocele


Urethrocele

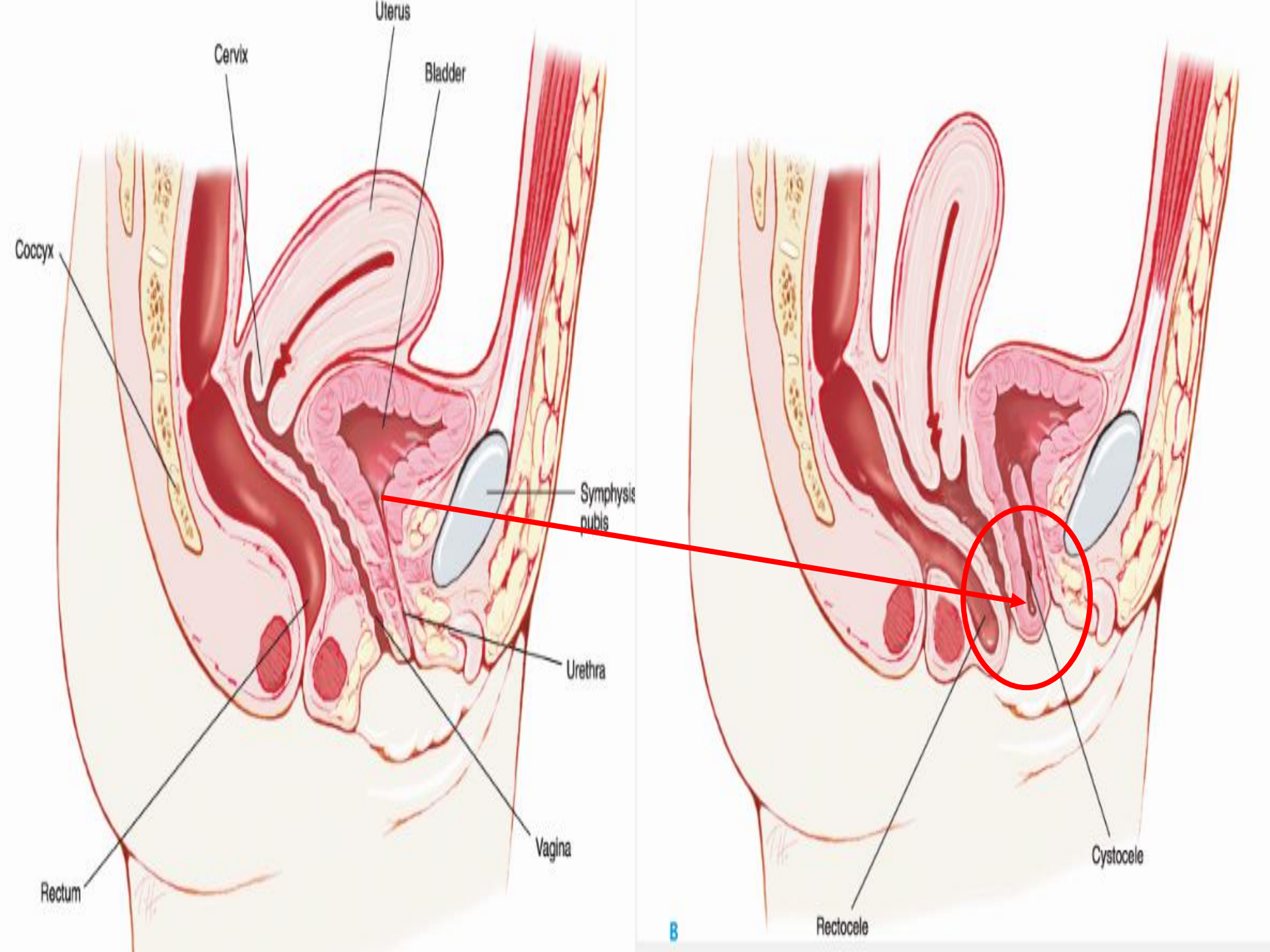
CYSTOCELE

- herniation of the urinary bladder through the anterior vaginal wall

- weak pubo cervical musculoconnective tissue at midline or detaches from its lateral or superior connecting points

- occurs downward (bet. Utero-sacral ligament and recto-vaginal space)

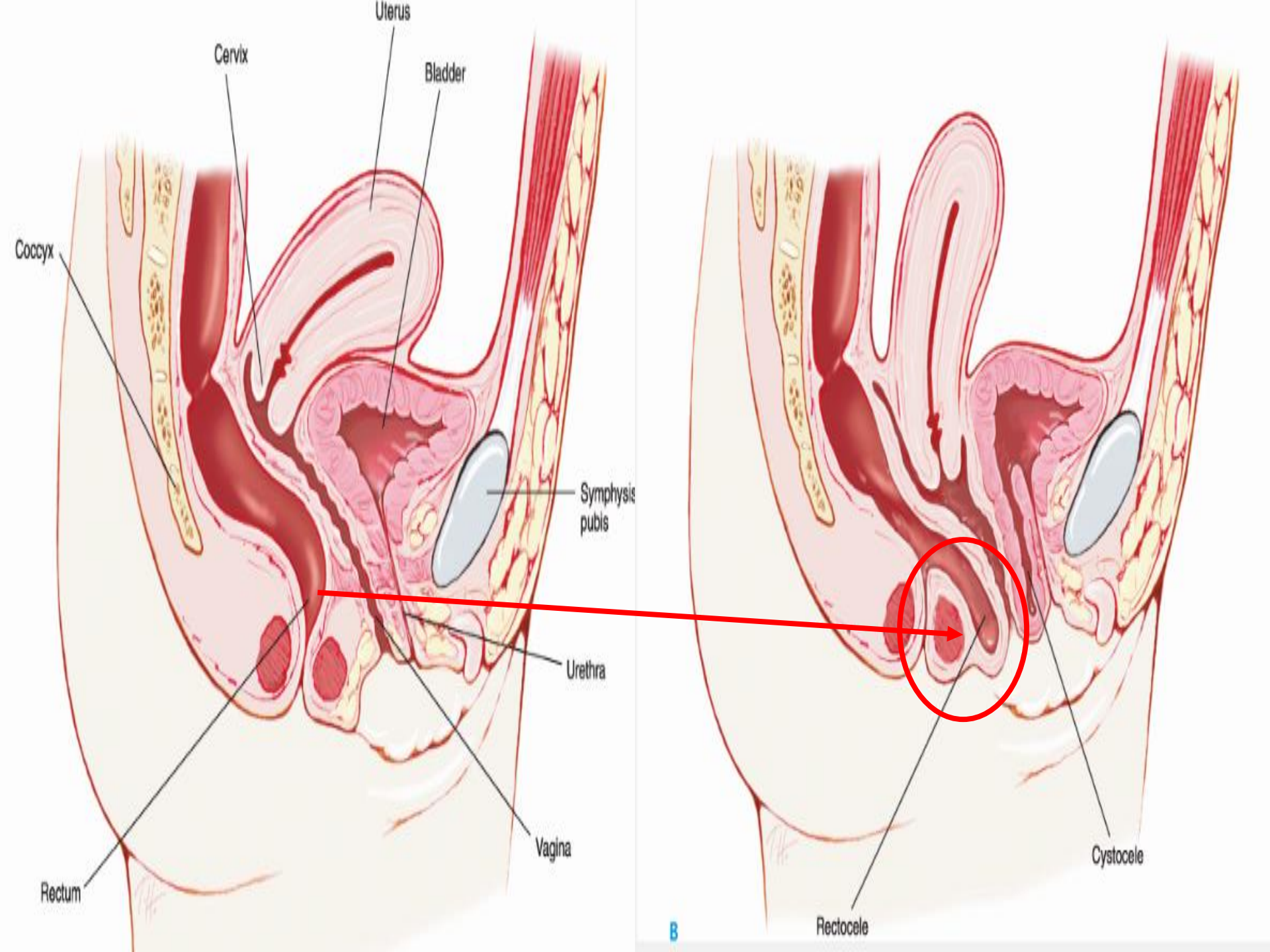
- apically (previous hysterectomy)


Uterus
Cervix
Bladder
Coccyx
Symphysis pubis
Urethra
Vagina
Rectum
Cystocele
Rectocele
B

RECTOCELE

-protrusion of the rectum into the vaginal lumen

-weak muscular wall of rectum and paravaginal connective tissue (holds rectum posteriorly)


Uterus
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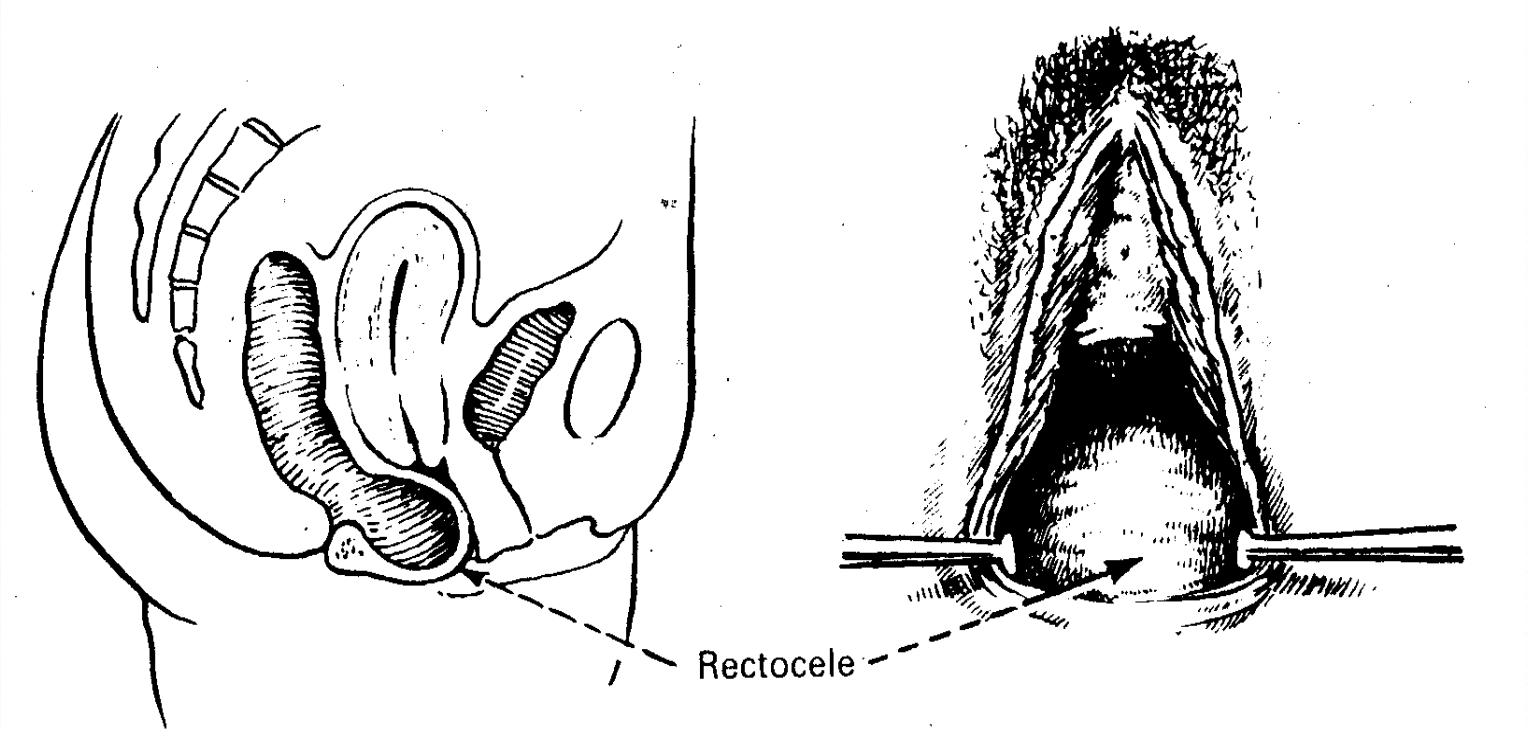
Vagina
Rectum
Rectocele
Cystocele
B

Rectocele



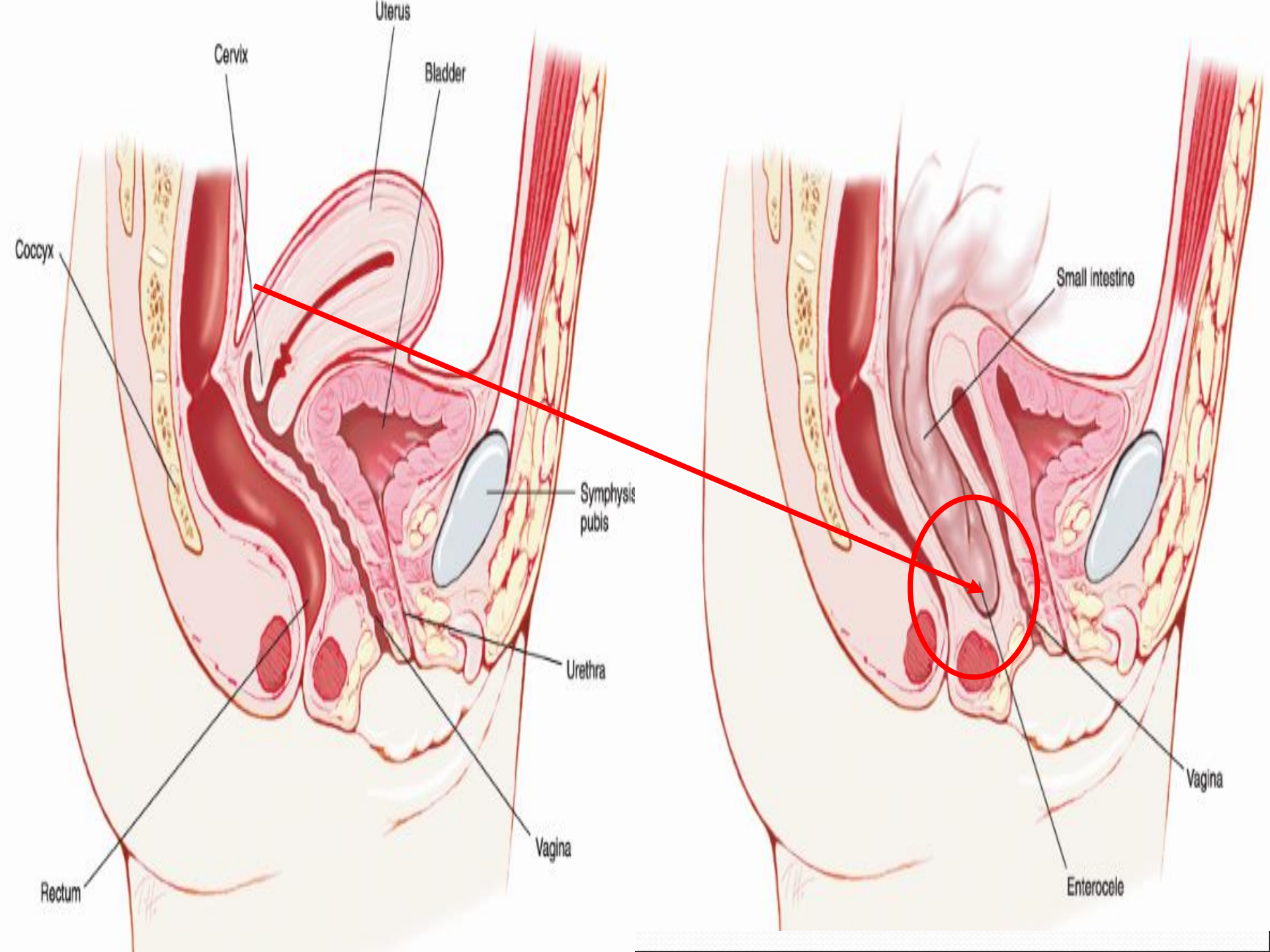
ENTEROCELE

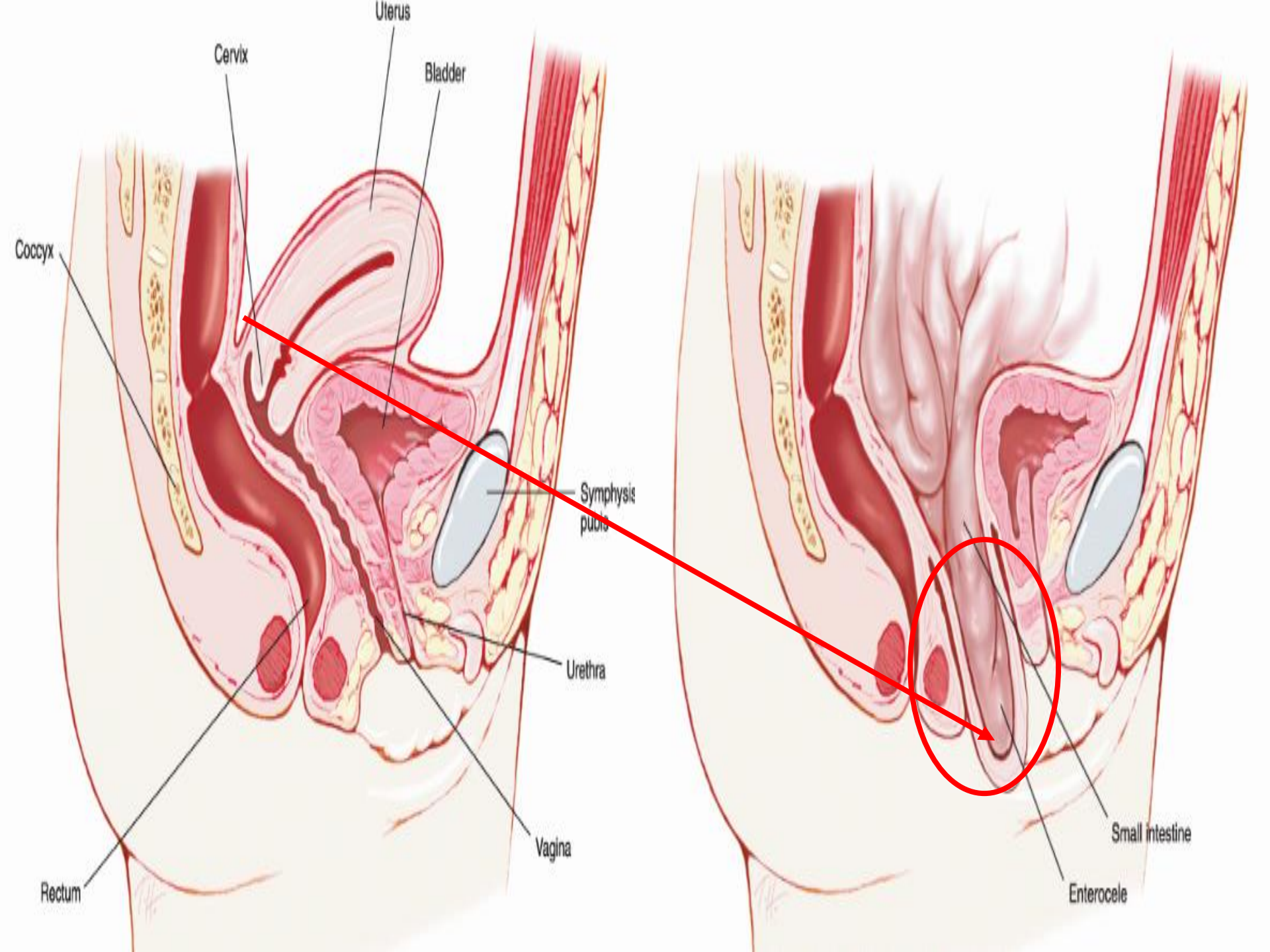
- herniation of the peritoneum and small bowel

- true hernia

- occurs downward (bet. uterosacral ligament and rectovaginal space)

- apically (previous hysterectomy)


Uterus
Cervix
Bladder
Coccyx
Symphysis pubis
Urethra
Vagina
Rectum
Small intestine
Vagina
Enterocele


Uterus
Cervix
Bladder
Coccyx
Symphysis
pubis
Urethra
Vagina
Rectum
Small intestine
Enterocele

Uterine prolapse

-Poor cardinal or uterosacral ligament apical support

- downward protrusion of cervix and uterus towards the introitus

Procedentia – prolapse of uterus and vagina

Total vaginal vault prolapse – after hysterectomy

EVERSION OF VAGINA

2.Uterine prolapse: uterine descent with inversion of vaginal walls

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

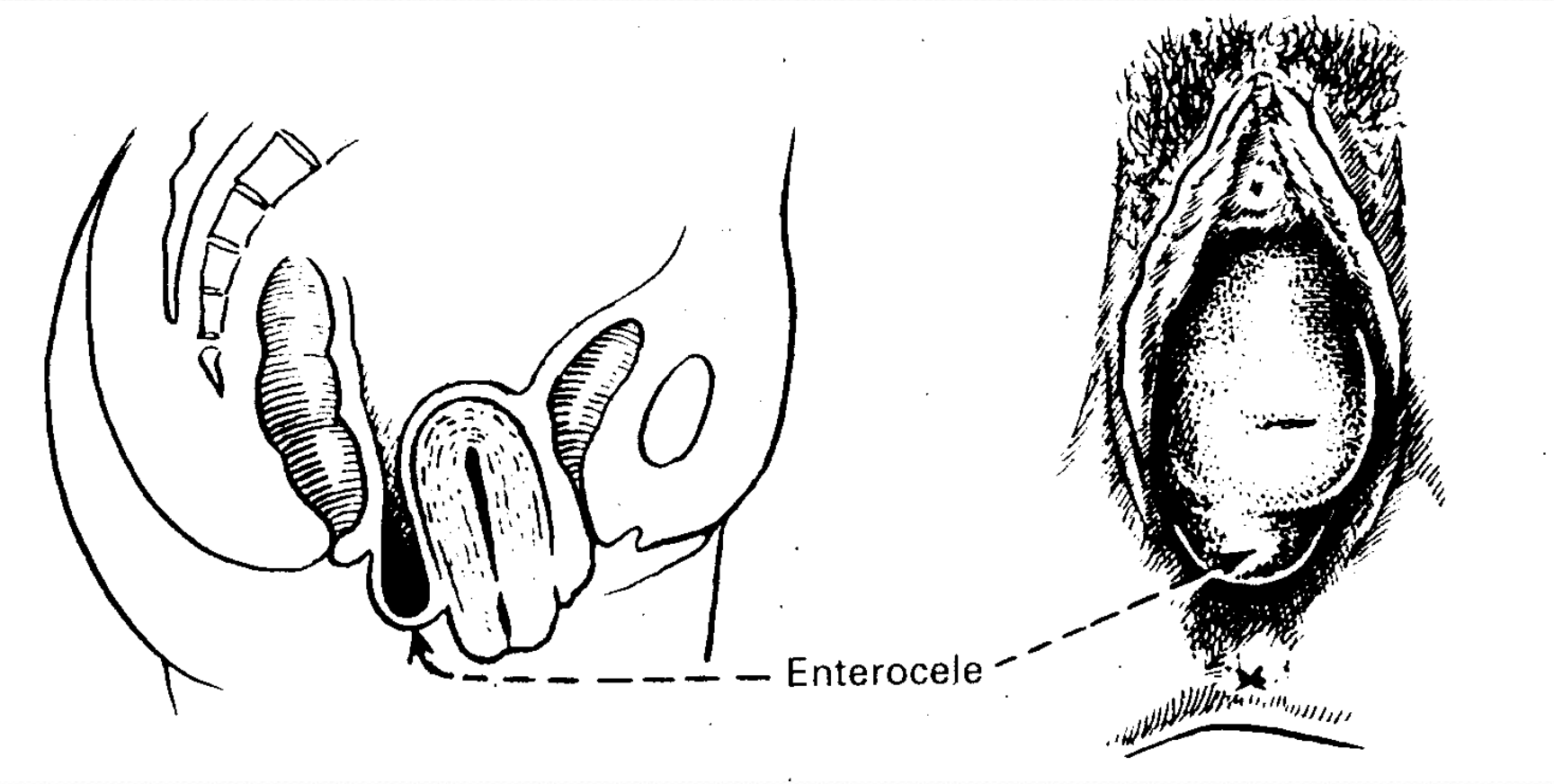
- 1st degree : descent within the vagina (cervix still inside vagina).
- 2nd degree : descent of the cervix to the introitus and appear out side the introitus.
- 3rd degree : the cervix and the whole uterine body seen outside the uterus.

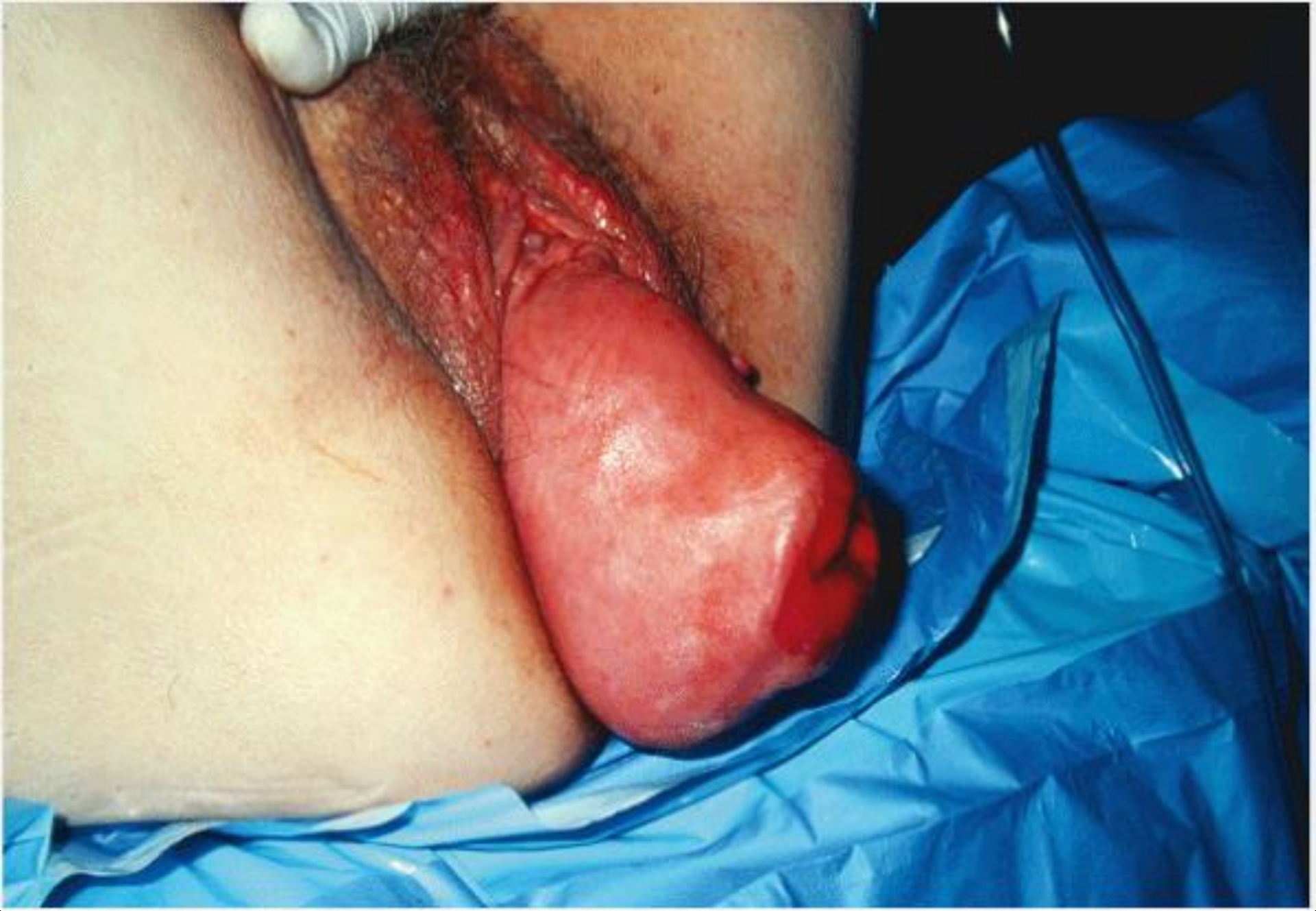
Third-degree uterine prolapse is termed **procidentia and is usually accompanied by cystourethrocele and rectocele**

3.Vault prolapse: post-hysterectomy inversion of vaginal apex

Uterine prolapse with apical detachment from the uterosacral ligament complex and lateral wall detachment from the endopelvic connective tissue.

Uterine prolapse with Enterocele





Procidentia of the uterus and vagina

Table 24.2. Stages of Pelvic Organ Prolapse

Stage 0	No prolapse is demonstrated. Points Aa, Ap, Ba, Bp are all at -3 cm, and point C is between total vaginal length (TVL) and â€‟(TVL -2 cm).
Stage I	The most distal portion of the prolapse is >1 cm above the level of the hymen.
Stage II	The most distal portion of the prolapse is <1 cm proximal or distal to the plane of the hymen.
Stage III	The most distal portion of the prolapse is <1 cm below the plane of the hymen but no further than 2 cm less than the total vaginal length.
Stage IV	Complete to nearly complete eversion of the vagina. The most distal portion of the prolapse protrudes to > + (TVL -2) cm.

From **Bump RC, Mattiassion A, Bo K, et al.** The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. *Am J Obstet Gynecol* 1996;175:13, with permission.

Etiology:

-The connective tissue, levator ani muscles and an 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 etiology of prolapse and urinary stress incontinence.

1.Congenital

-Two per cent of symptomatic prolapse occurs in nulliparous women, implying that there may be a congenital weakness of the connective tissues.

-In addition genital prolapse is rare in Afro-Caribbean women, suggesting genetic differences exist.

2.Childbirth and raised intra-abdominal pressure

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

-Studies 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**.

-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 of pregnancy (e.g. chronic cough or constipation) is also a risk factor.

3.Aging

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 estrogen deficiency

4.Postoperative

Poor attention to vaginal vault support at the time of hysterectomy leads to vault prolapse in approximately 1%.

Precipitating Factor

-Increased intra abdominal pressure

-> ascites, large pelvic or intra abdominal tumors

-Sacral nerve disorders (S1-S4), Diabetic neuropathy

- Chronic respiratory disease

-> chronic bronchitis, asthma, bronchiectasis

symptoms

-Something coming down.

-A ‘bearing down’ sensation.

-Backache (which characteristically felt at the end of the day and relived by lying down.

Those with Cystocele will complain of:

-frequency of micturition.

-repeated UTI.

-stress incontinence.

-sometimes difficulty in voiding urine.

-also some patient complain of coital problems

1-Vaginal symptoms(All compartement)

Feeling of bulge

Dragging sensation in perineum

Pressure

Discomfort

Rarely bleeding &discharge from decubutus ulcer

2-Urinary symptoms(Anterior com.)

- Difficulty to initiate voiding
- Feeling of incomplete voiding and use of voiding Maneuvers
- Incontinence
- Urgency
- Retention
- Recurrent urinary tract infection

3-Bowel symptoms(Posterior com.)

Feeling of bulge on straining

Feeling of incomplete emptying

Digitations or splinting of vagina to empty bowels

Incontinence, soiling

4-Sexual symptoms(All comp.)

- Reduced vaginal sensation
- Dyspareunia
- Avoidance of sex

II (Examination:

A (General examination:

-General condition as asthenia and anemia

- Chest examination e.g. bronchitis

-Spina bifida (may be associated with congenital prolapse)

B (Abdominal examination:

-Abdominal masses or ascites

-Tone of the abdominal muscles and hernia

-Visceroptosis (in congenital prolapse)

-Enlarged tender kidney (hydronephrosis)

(1**Inspection**:

-Perineal tears

-Gaping introitus

-Genital prolapse reaching the introitus (on straining)

-Stress incontinence (ask the patient to cough)

-Sulci

- Submeatal sulcus, just below the external urethral meatus
- Transverse vaginal sulcus, at the level of the bladder neck
- Bladder sulcus, at the level of the base of the bladder

Vaginal examination

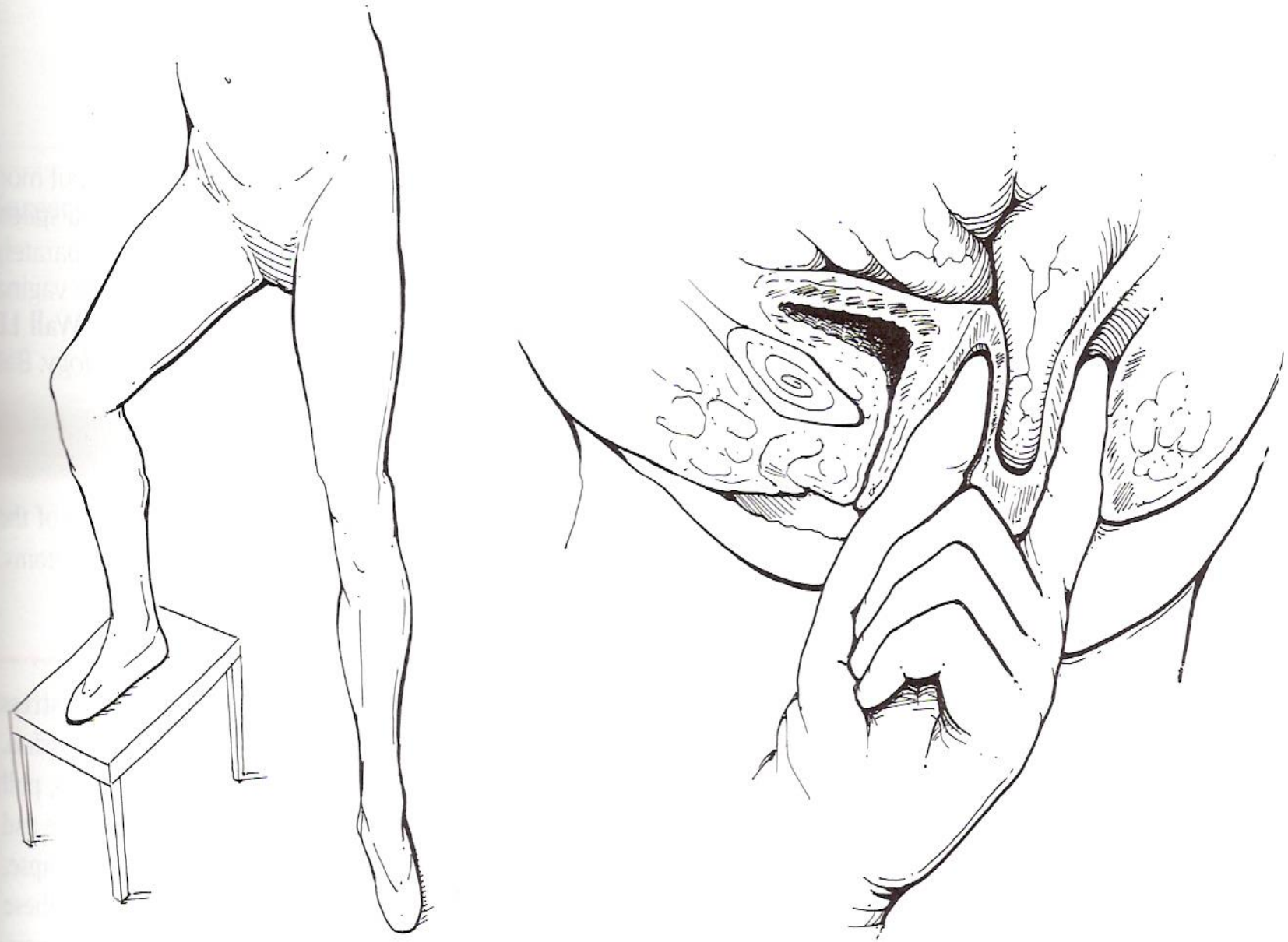
-Prolapse may be obvious when examining the patient- in the dorsal position if it protrudes beyond the introitus; ulceration and/or atrophy may be apparent.

-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 Sims' speculum.

-Combined rectal and vaginal digital examination can be an aid to differentiate rectocele from enterocele

Figure 20.19 Standing examination of the patient to detect the extent of pelvic organ prolapse. An enterocele is detected during a standing rectovaginal examination by palpating the small bowel between the thumb and index finger.



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Hernia of Douglas pouch can be detected by:

.a] Descent of the upper part of post wall

.b] Impulse on cough

.c] Gurgling sensation

d] Rectal examination and combined recto-vaginal examination show that the rectum is pushed backwards by the swelling and is not forming part of it.

Prolapse of the uterus and its degree

a] This is diagnosed when the external os and fornices are below their normal level.

b] In the third degree prolapse, the fingers can be approximated at the neck of prolapse but in the second degree, the supra-vaginal cervix is felt (we can not get above the swelling(

Procidentia causes a thrust or an impulse on coughing, it is usually reducible, and if it

contains intestine, it may be resonant on percussion & gives gurgling sensation.

The following points should be ascertained in examining a case of prolapse.

- Type of prolapse.
- Degree of prolapse
- Condition of perineum.
- Direction of the uterus
- Supravaginal elongation of cervix.
- Ulcers on cervix or vagina.

Complications:

1-Keratinisation of vaginal walls
2- Decubital ulceration.
3- Hypertrophy of the cervix.
Elongation of the supra-vaginal portion.
Congestion and edema.
Chronic infection.
4- Infection of the urinary tract.
5- Obstruction of ureter in severe prolapse causing hydronephrosis.
6- Incarceration of the prolapse.
7- Cancer cervix is very rare in prolapse.
Due to free drainage of the cervix.
Cornification of the cervical epithelium resist malignant changes
Congestion ↓ →O2 supply.
↓ temperature (cervix outside introitus.(

Investigations

-There are no specific investigations.

-If urinary symptoms are present, urine microscopy, cystometry and cystoscopy should be considered.

-In those with long standing procidentia, serum urea and creatinine should be evaluated and renal ultrasound performed as well as IVU.

Treatment

The choice of treatment depends on

1-The patient's wishes,

2-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.

Conservative Management

-Lifestyle alteration

- physical intervention (PELVIC FLOOR MUSCLE TRAINING)

- GOALS:

> prevent worsening prolapse

> decrease severity of symptoms

> increase strength, endurance and support of pelvic floor musculature

> avoid or delay surgical intervention

1.Conservative(non surgical):

-Silicon-rubber-based ring pessaries are the most popular form of conservative therapy.

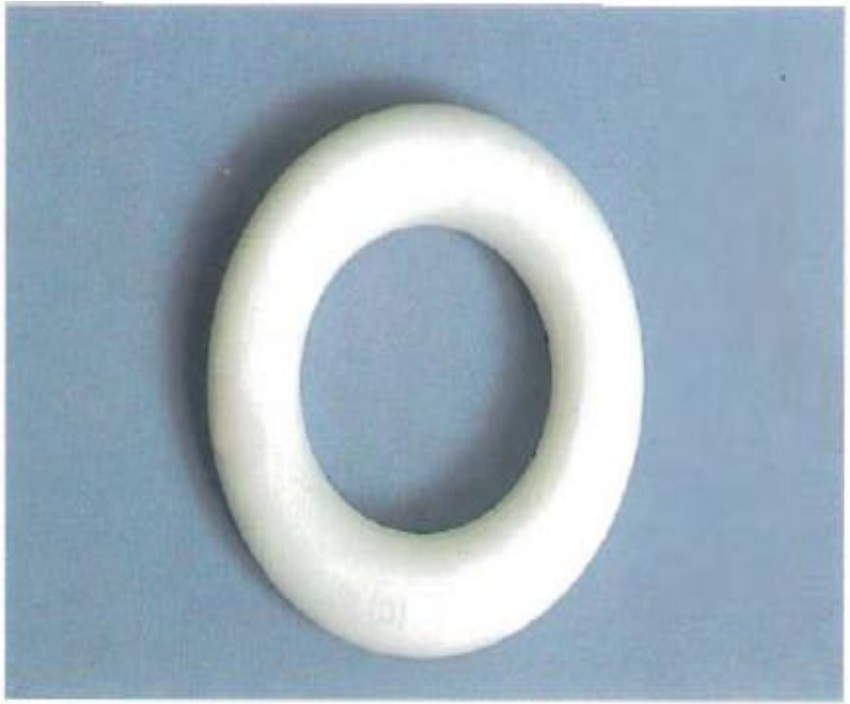
They are inserted into the vagina in much the same way as a contraceptive diaphragm and need replacement at annual intervals.

-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.

Ring pessary



shelf pessary

Indications for pessary treatment

- Patient's wish
- As a therapeutic test.
- Childbearing not complete.
- Medically unfit for surgery.
- During and after pregnancy (awaiting involution).
- While awaiting for surgery.

How to use pessary

Surgical Management

-relieve symptoms

- restore vaginal anatomy→ sexual function

- obliterative and constrictive surgery – sexual function not desired

- vaginal

  abdominal

  laparoscopic

Restorative

- uses patient's endogenous support structures

Compensatory

- attempts to replace deficient support with permanent graft material

Obliterative

- close or partially close the vagina

2.Surgery

1.For 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

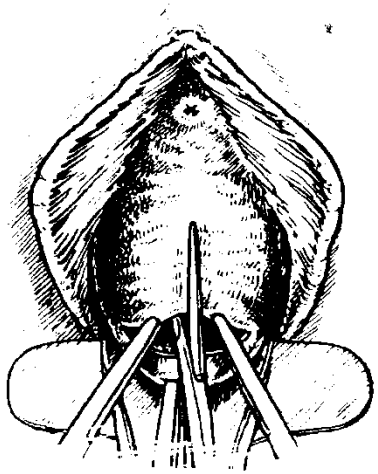
2. For rectocele

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.

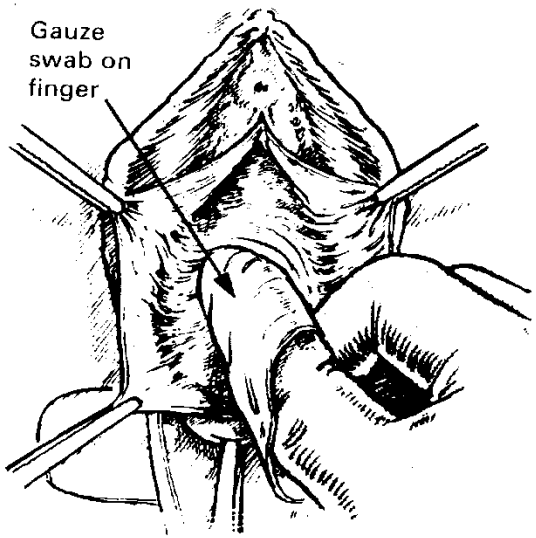
The rectal position restored, any redundant vaginal epithelium is excised and the incision closed.

Repair of Cystocele

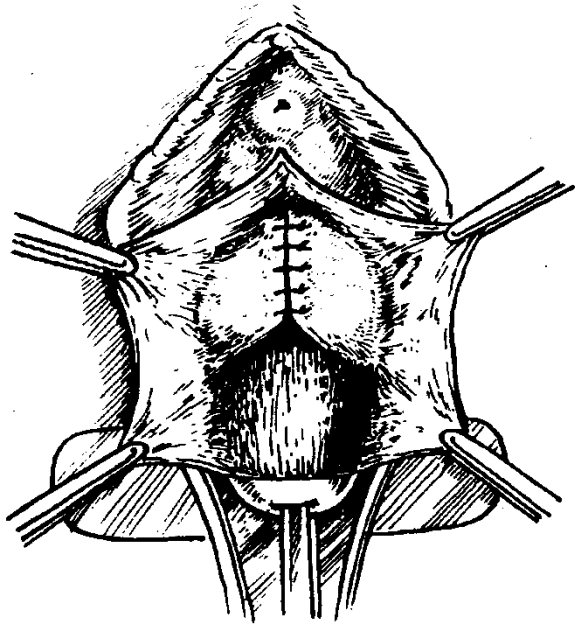


ANTERIOR REPAIR

1. Opening up the anterior vaginal wall.



2. Mobilising cystocele from vaginal walls.



5. Obliteration of the cystocele completed.

3.Enterocele

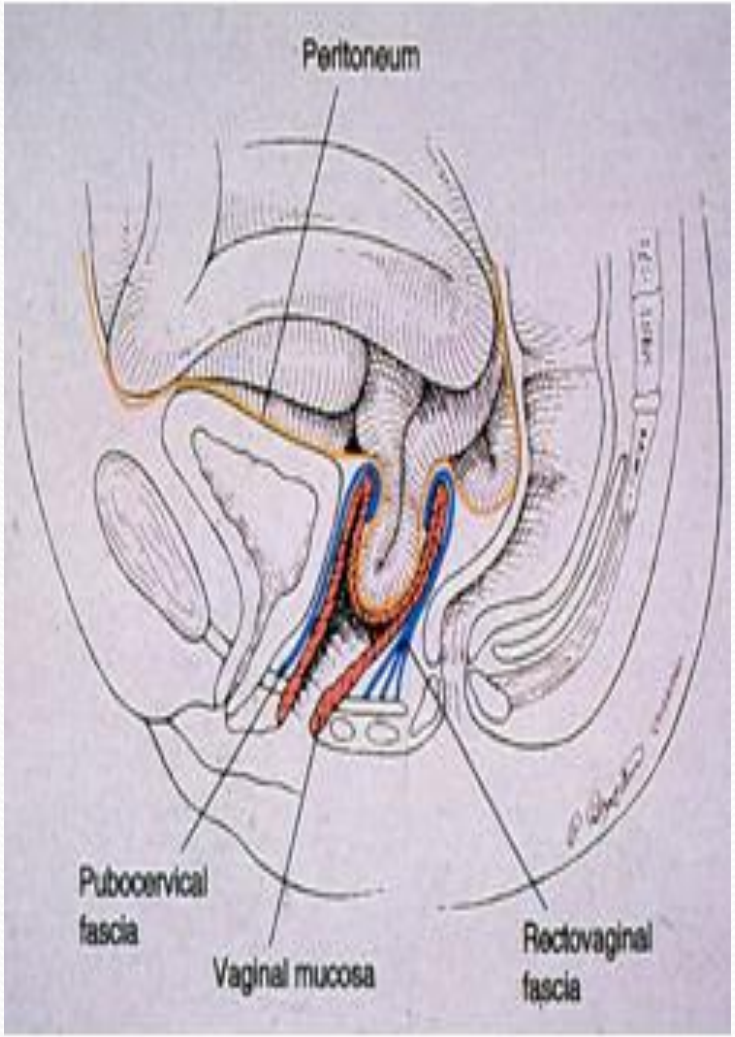
-The surgical principles are similar to those of anterior and posterior repair but the peritoneal sac containing the small bowel should be excised.

-In addition, the pouch of Douglas is closed by approximating the peritoneum and/or the uterosacral ligament

Enterocele Repair

Whether by vaginal, abdominal, of laparoscopic access, enterocele repair is traditionally performed by sharply dissecting the peritoneal sac from the rectum and bladder

A purse-string suture can be used to close the peritoneum as high as possible



4.Uterovaginal prolapse

-If the woman does not wish to conserve her uterus for fertility or other reasons, a vaginal hysterectomy with adequate support of the vault to the uterosacral ligaments is sufficient.

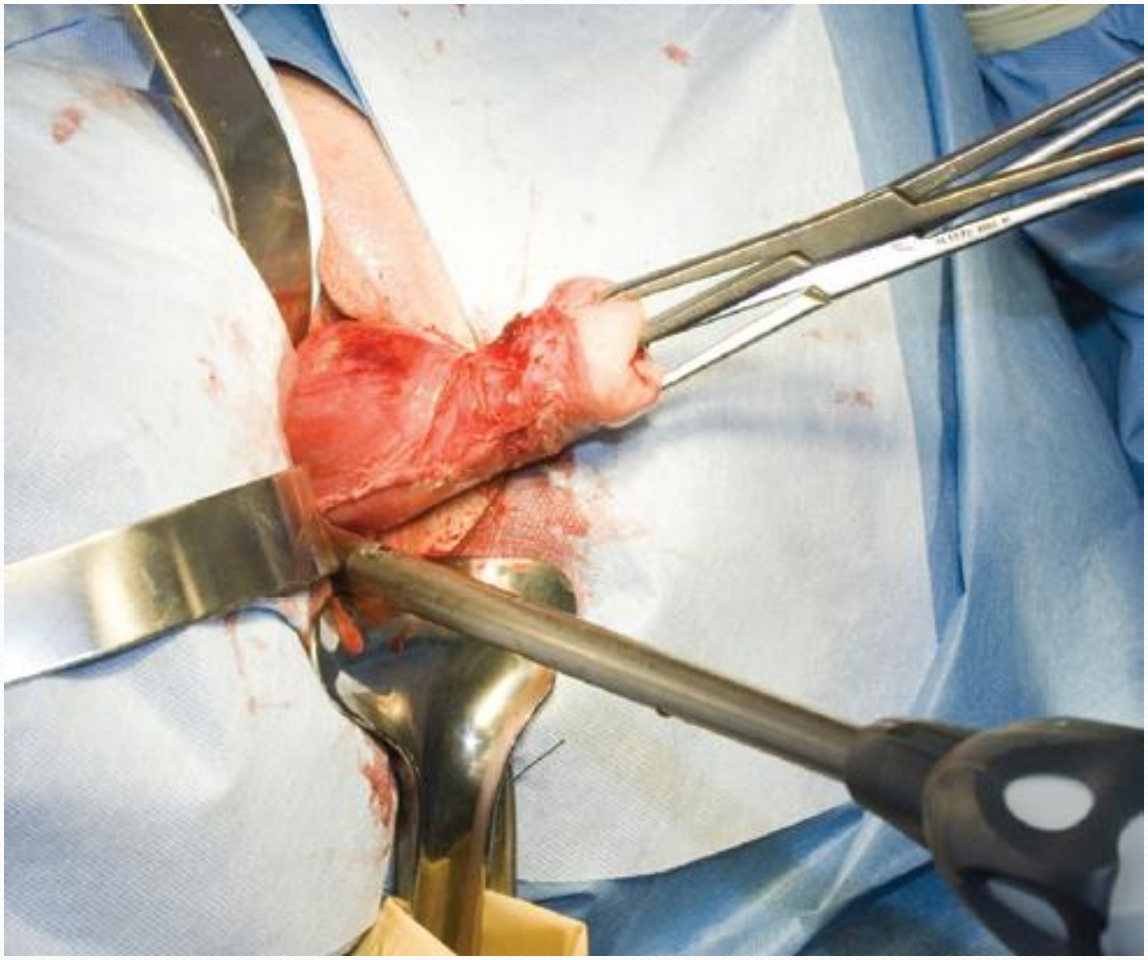
-If uterine conservation is required, the Manchester operation and sacrohysteropexy are alternatives.

-The Manchester operation involves partial amputation of the cervix and approximation of the cardinal ligaments below the retained cervix remnant. (It is usually combined with anterior and posterior repair.)

-Sacrohysteropexy is an abdominal procedure and involves attachment of a synthetic mesh from the uterocervical junction to the anterior longitudinal ligament of the sacrum.

-The pouch of Douglas is closed.

Vaginal Hysterectomy



COMPLICATIONS OF MANCHESTER OPERATION:

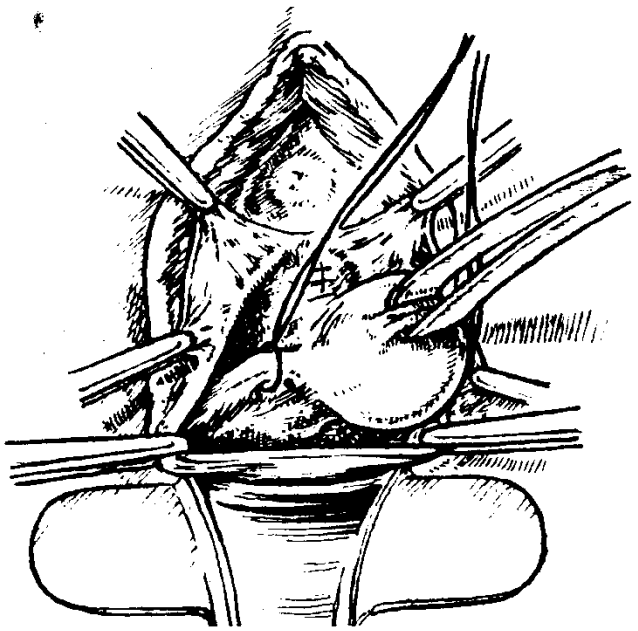
1.Cervical stenosis or cervical incompetence.

2.Repeated miscarriages as a result of cervical incompetence.

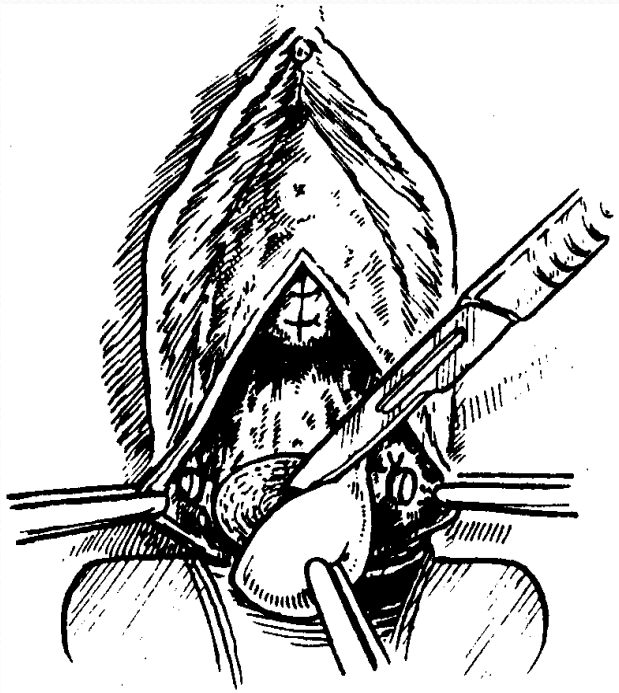
3.Cervical dystocia during labour due to cervical stenosis.

4.Infertility

Manchester repair



3. Elongated transverse cervical and uterosacral ligaments are sutured and divided.



4. Amputation of cervix.

Vault prolapse

-Sacrocolpopexy 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.

-Transvaginal repairs (extraperitoneal)

- sacrospinous
- iliococcygeal
- high paravaginal suspensions

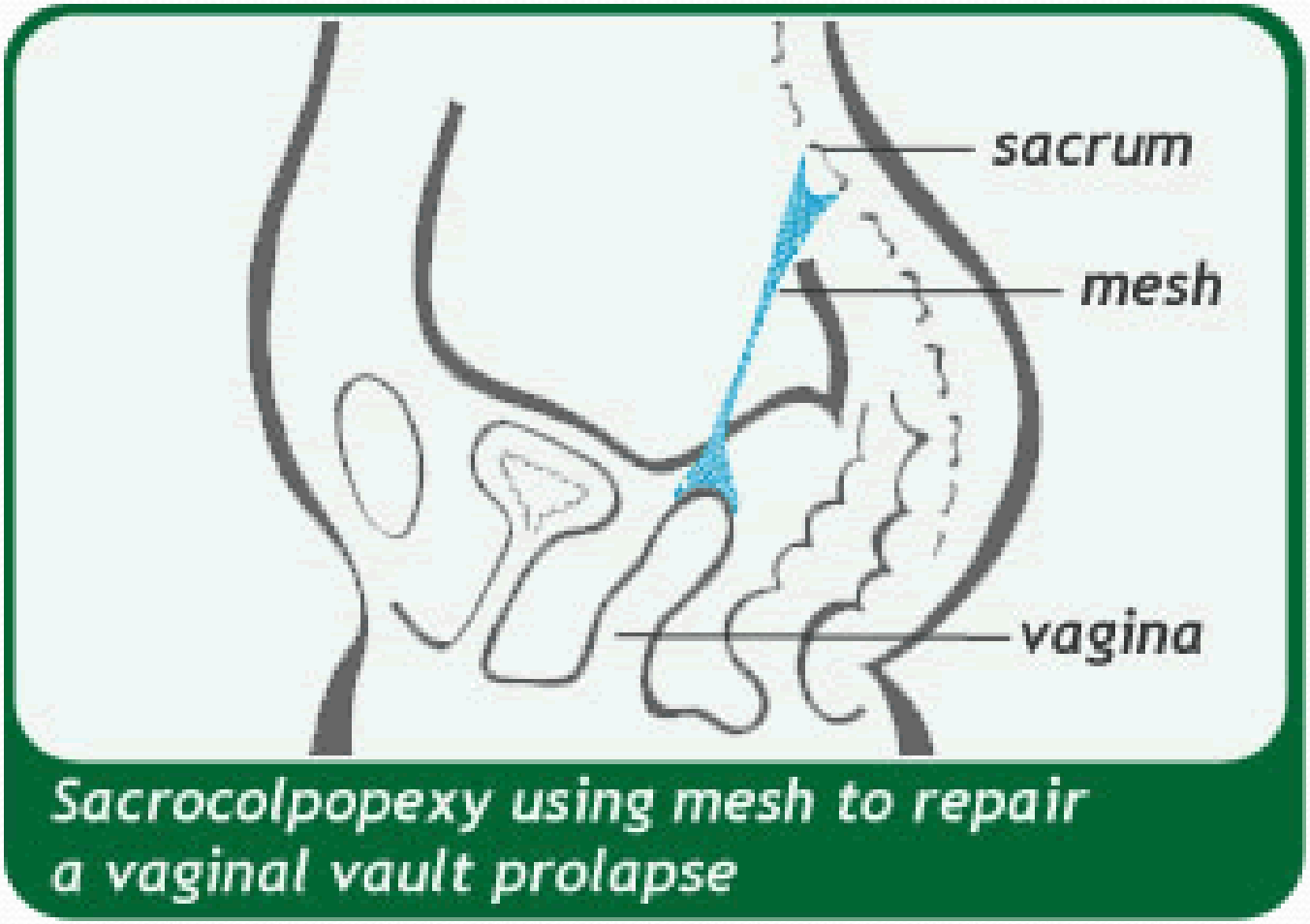
-Abdominal Procedures

Abdominal Uterosacral Suspension

Abdominal Sacrocolpopexy

Laparoscopic Techniques

Abdominal Sacralcolpopexy



Sacrocolpopexy using mesh to repair a vaginal vault prolapse

Sacrospinous Ligament Suspension

Sacrospinous ligament fixation entails attachment of the vaginal apex to the sacrospinous ligament, the tendinous component of the coccygeus muscle

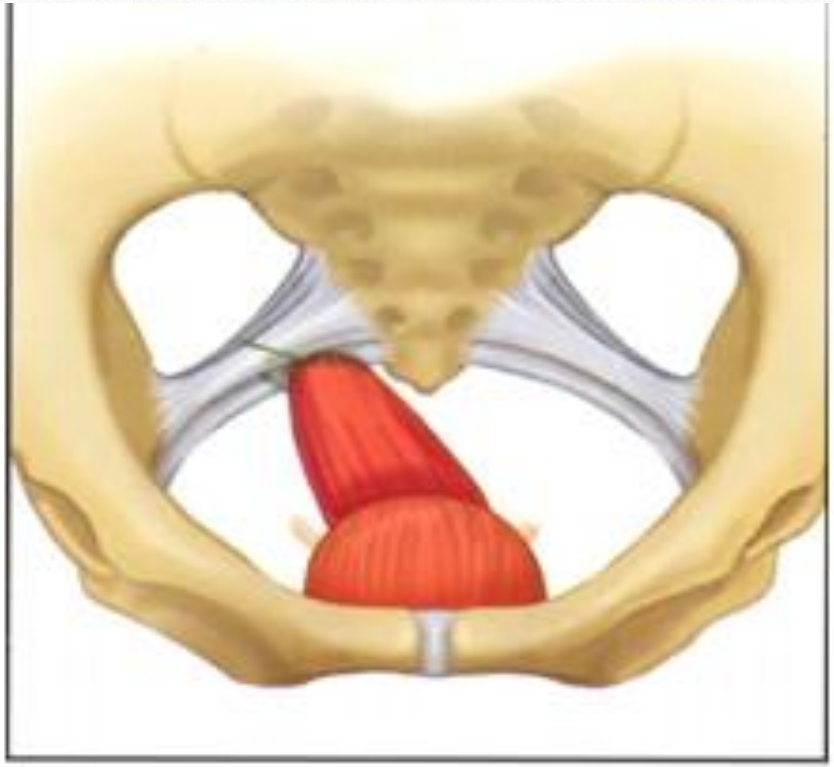


***Figure 8**: The upper vaginal vault is secured to the sacrospinous ligament, restoring vaginal wall support and correcting prolapse*

Vaginal Obliterative Procedures

Colpocleisis

-For debilitated patients who do not desire vaginal function

- partial colpocleisis – total colpectomy

-Le forte operation