Pelvic Organ Prolapse

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Obstetrics and Gynecology

Reproductive Endocrinology and Infertility
Laparoscopy and Hysteroscopy

Main reference

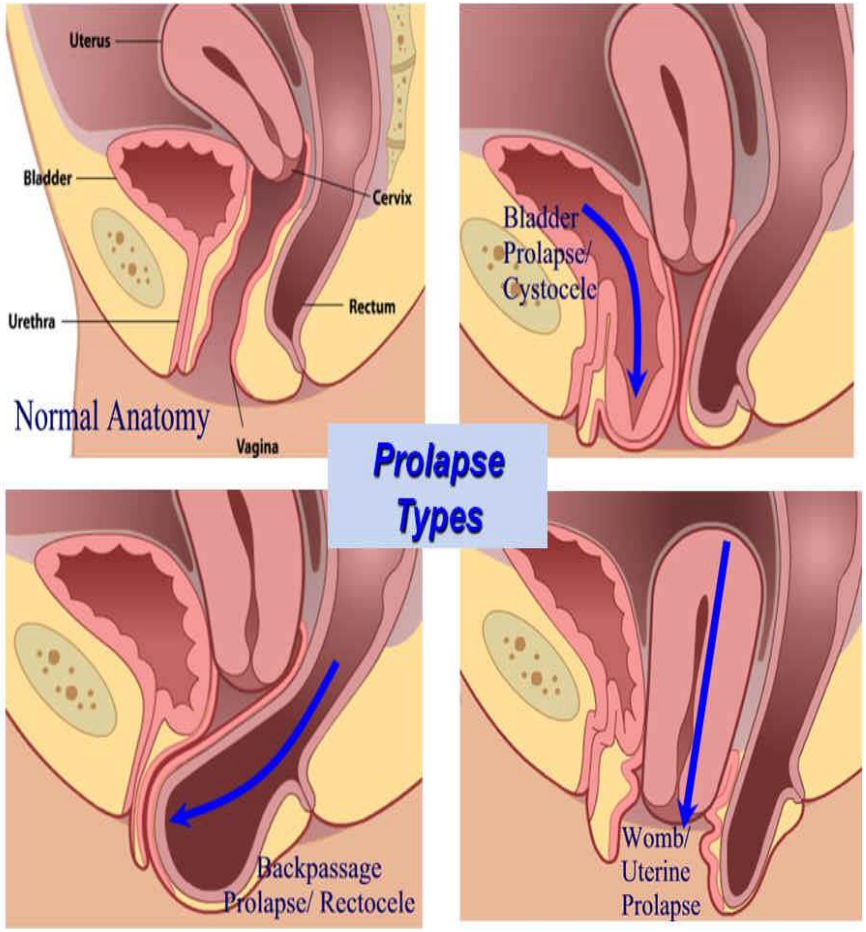
- **Comprehensive Gynecology 7th edition, 2017 (Lobo RA, Gershenson DM, Lentz GM, Valea FA *editors);* chapter 20**

Pelvic Organ Prolapse: Outline

- Definition
- Pathophysiology
- Classification/quantification
- Urethrocoele and cystocoele
- Rectocoele
- Enterocoele
- Uterine prolapse

Pelvic Organ Prolapse (POP)

- condition characterized by the failure of various anatomic structures to support the pelvic viscera.
- It is defined as the descent of one or more of the vaginal walls or cervix:
  - **anterior vaginal wall prolapse (cystocele, urethrocele, paravaginal defect)**,
  - **posterior vaginal wall prolapse (rectocele or enterocele)**,
  - **uterine/cervical prolapse**
  - **vaginal vault prolapse** (after hysterectomy, often with an enterocele)



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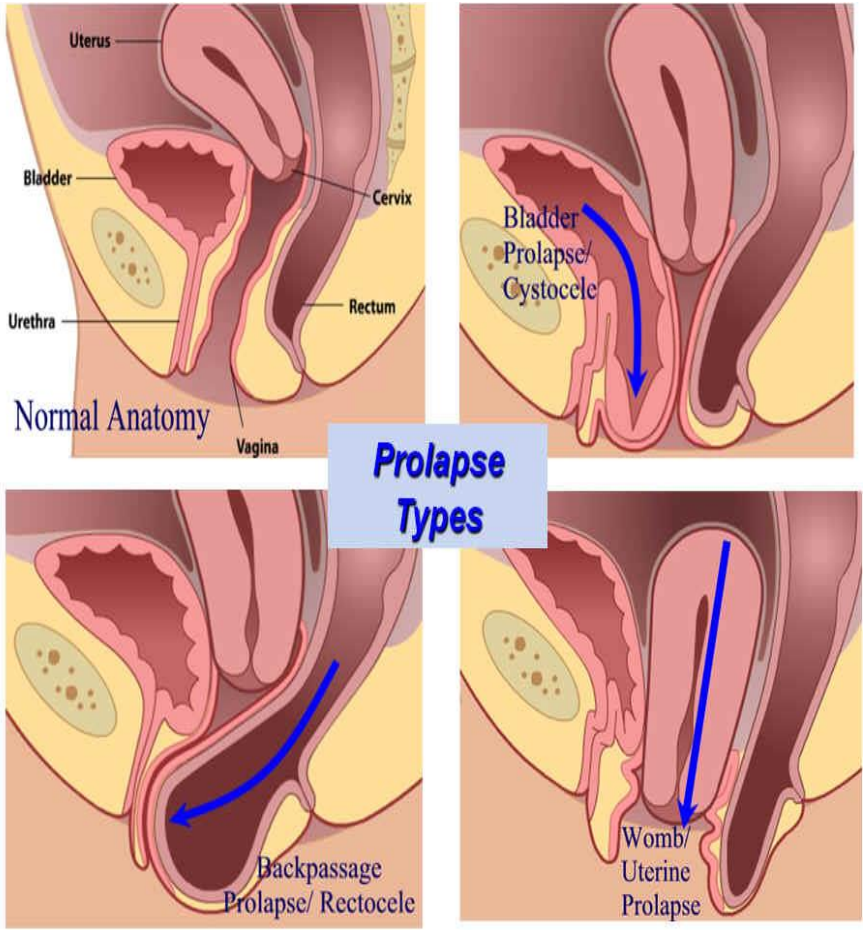
Pelvic Organ Prolapse (POP)

- POP is common in parous women.
- Pelvic support structure defects are often associated with:

1. vaginal childbirth–related injury (either neuropathy or muscular injury),
2. stress and strain from heavy lifting,
3. aging process.



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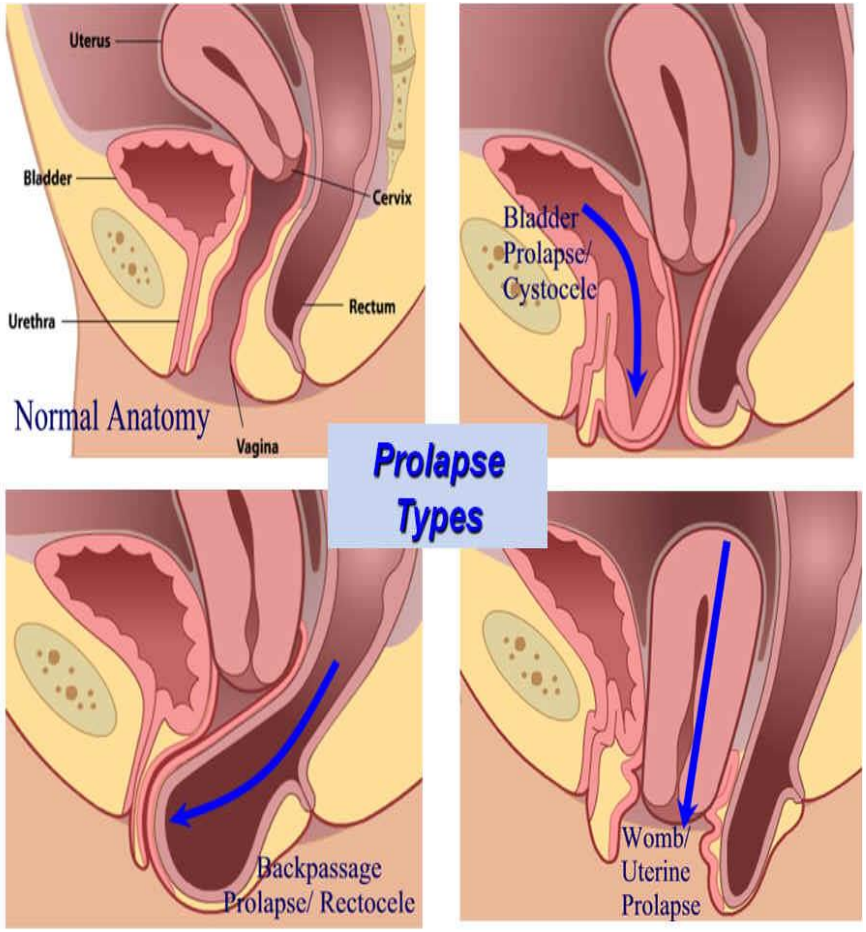
Pelvic Organ Prolapse (POP)

- Symptoms can include vaginal bulging, pelvic pressure, vaginal bleeding or discharge, low backache, and the need to replace the prolapse (**splint**) in order to void or defecate
- POP can be asymptomatic.
- Symptoms are more common when the prolapse extends beyond the hymen



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Risk Factors

Box 20.1 Risk Factors for Development of Pelvic Organ Prolapse

Vaginal childbirth
Aging
Obesity
Diabetes
Genetic conditions/connective tissue disorders
Neurologic injury

Possible Associations with Pelvic Organ Prolapse

Prior pelvic surgery
Hysterectomy
Constipation
Irritable bowel syndrome
Episiotomy
Higher weight of the largest infant delivered vaginally
Chronic cough and respiratory diseases
Exercise
Heavy lifting
Lower education

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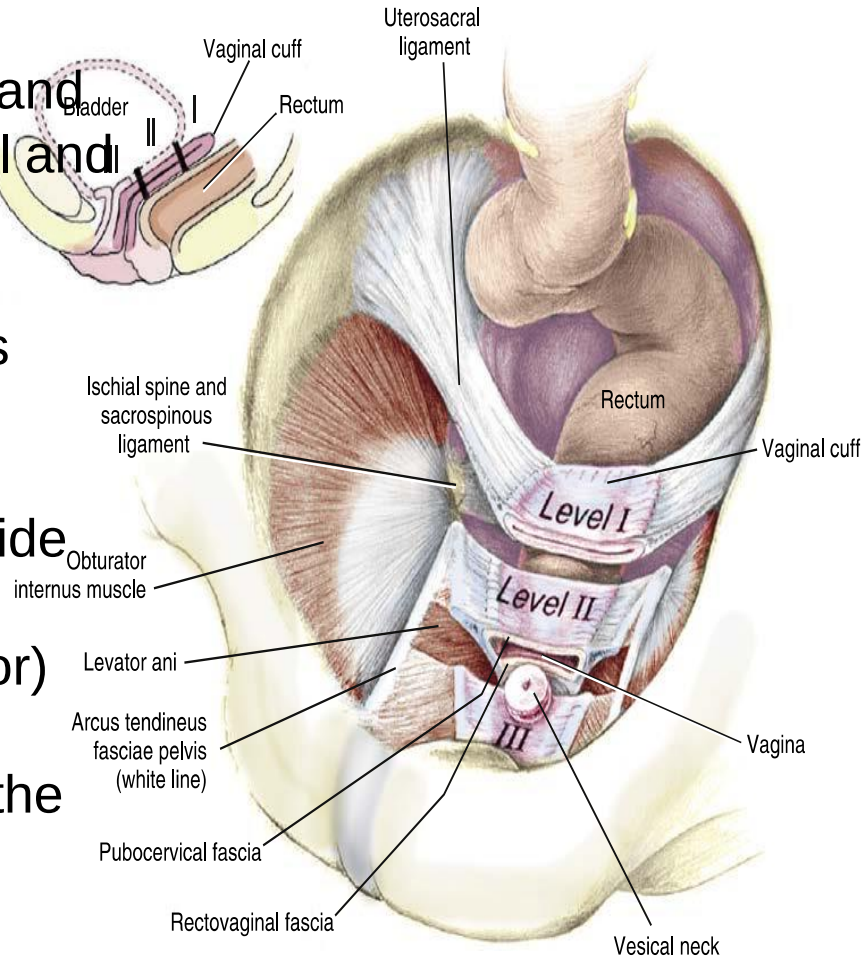
Pathophysiology

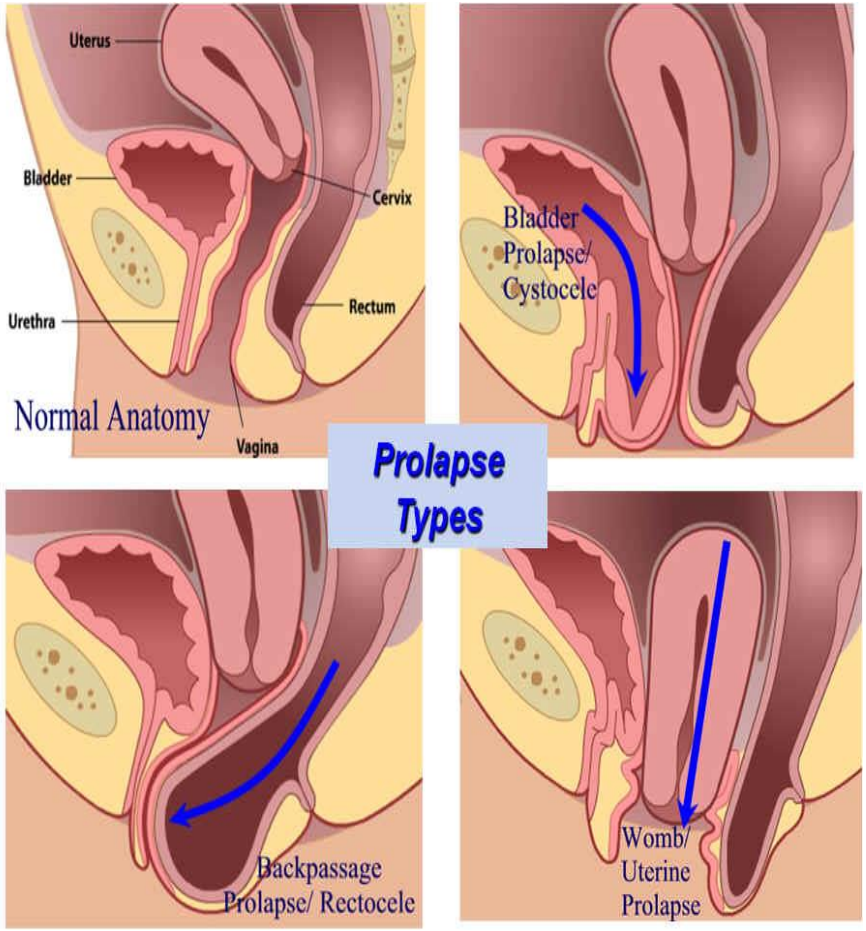
- Normal support of pelvic organs is provided by several key anatomic structures:

- **Level I** support of the vaginal apex and cervix is provided by the uterosacral and cardinal ligaments and associated connective tissue
- **Level II** support of the mid-vagina is provided by connective tissue attachments to the arcus tendineus fasciae pelvis on the lateral pelvic side walls
- **Level III** support of the distal (inferior) vagina is provided by the perineal membrane and muscles, and all of the attachments are connected through endopelvic connective tissue.



Pathophysiology

- pathophysiology of POP is multifactorial.
- theoretical explanations include:
  - muscle atrophy from denervation from childbirth injuries
  - muscle wasting from muscle insertion detachment from childbirth, and possibly age and hormonal status.



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Pathophysiology: multifactorial

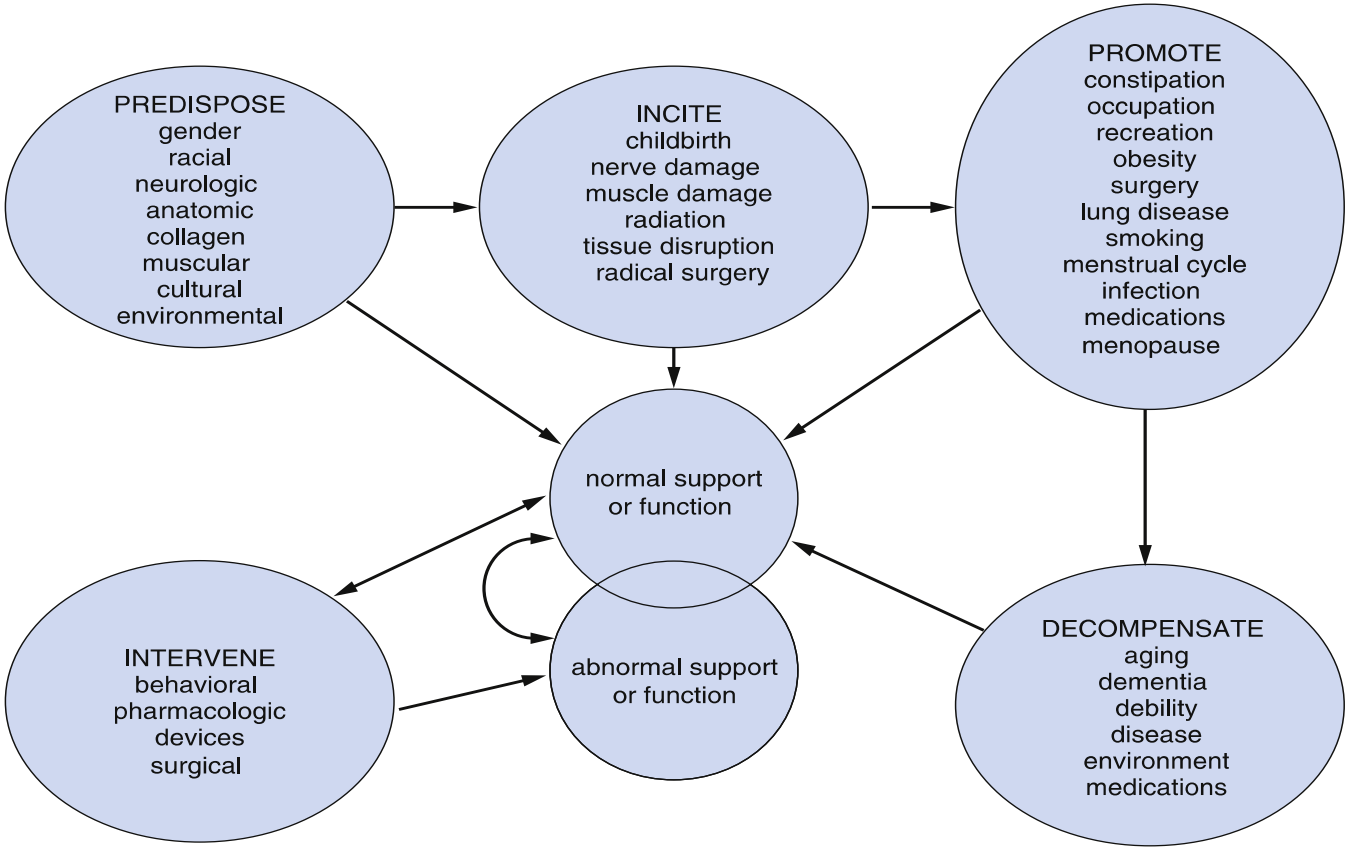

Figure 20.10 Model for the development of pelvic floor dysfunction in women. (From Bump RC, Norton PA. Epidemiology and natural history of pelvic floor dysfunction. *Obstet Gynecol ClNA.* 1998;25[4]:723.)

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Pathophysiology

The three greatest risk factors for developing POP in reproductive-age women:

- POP during pregnancy (OR 2.06; CI 1.42 to 3.00)
- maternal history of POP (OR 1.67; CI 1.10 to 2.54)
- current heavy physical work (OR 1.48; CI 0.98 to 2.23).

- For the general population, obesity and smoking may be modifiable risk factors.
- Genetic factors also contribute to POP.

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GENERAL SYMPTOM ASSESSMENT

- many women have no symptoms.
- the classic symptoms of prolapse include vaginal heaviness and pressure, a vaginal bulge, pelvic pain, or vaginal bleeding (from erosions of exposed vaginal epithelium).
- Back pain and pelvic pain are not reliably associated with prolapse.
- If a woman with objective prolapse does not have any symptoms or evidence of associated medical risks such as urinary retention or renal impairment from urethral or ureteral kinking, she does not need treatment

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GENERAL SYMPTOM ASSESSMENT

- Urinary symptoms: urinary incontinence, difficulty voiding, slow urinary stream, or a sensation of incomplete bladder emptying.
- Bowel symptoms: constipation, straining, incomplete evacuation, fecal incontinence, or splinting (reducing the prolapse) to achieve bowel movements
- Sexual symptoms: discomfort, irritation, and decreased sexual desire..

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General symptom assessment

Box 20-2 Pelvic Organ Prolapse Symptom Categories for Clinical Evaluation

Lower urinary tract symptoms
- Urinary incontinence
- Frequency, urgency, nocturia
- Voiding difficulty: slow stream, incomplete emptying, obstruction
- Urinary splinting

Bowel symptoms
- Constipation
- Straining
- Incomplete evacuation
- Bowel splinting
- Anal incontinence

Sexual symptoms
- Interference with sexual activity
- Dyspareunia
- Decreased sexual desire

Other symptoms
- Pelvic pressure, heaviness, pain
- Presence of vaginal bulge/mass
- Low back pain
- Tampon not retained
- Quality of life impacts

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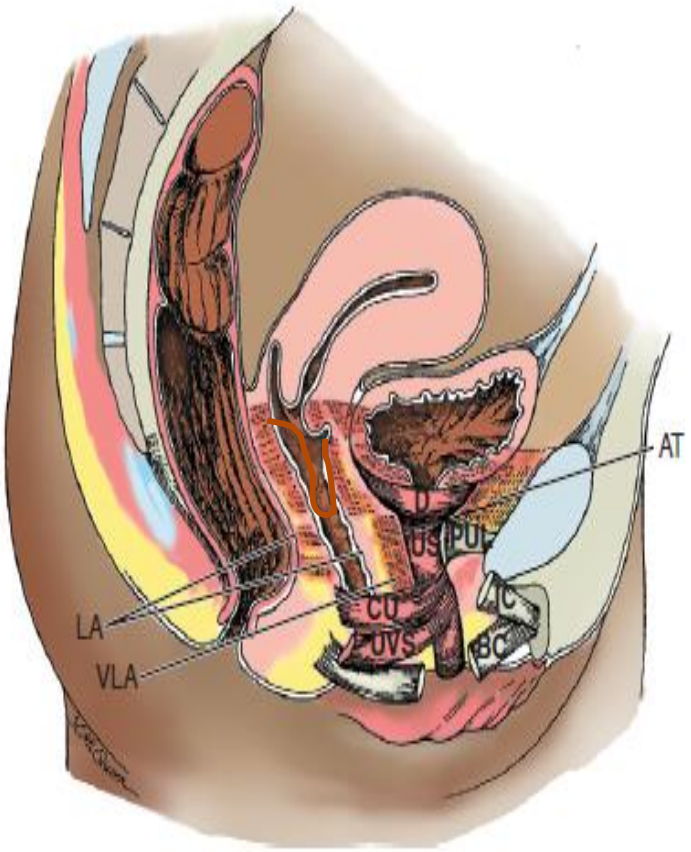
Quantification of POP

- **First degree**: prolapse into the upper barrel of the vagina
- **Second degree**: prolapse is through the vaginal barrel to the region of the introitus
- **Third degree**: If the cervix and uterus prolapse out through the introitus
- **Fourth degree**: complete eversion of the uterus and cervix (procidentia) or vaginal apex.



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Quantification of POP

- In 1996, the International Continence Society, the American Urogynecologic Society, and the Society of Gynecologic Surgeons adapted a standardized terminology for the description of female pelvic organ prolapse and pelvic floor dysfunction.

- This is an objective, site-specific system for describing, quantifying, and staging pelvic support and was developed to enhance both clinical and academic communication with respect to individual patients and populations of patients.

- The terminology replaces such terms as cystocele, rectocele, enterocele, and urethrovesical junctions with precise descriptions relating to specific anatomic landmarks.

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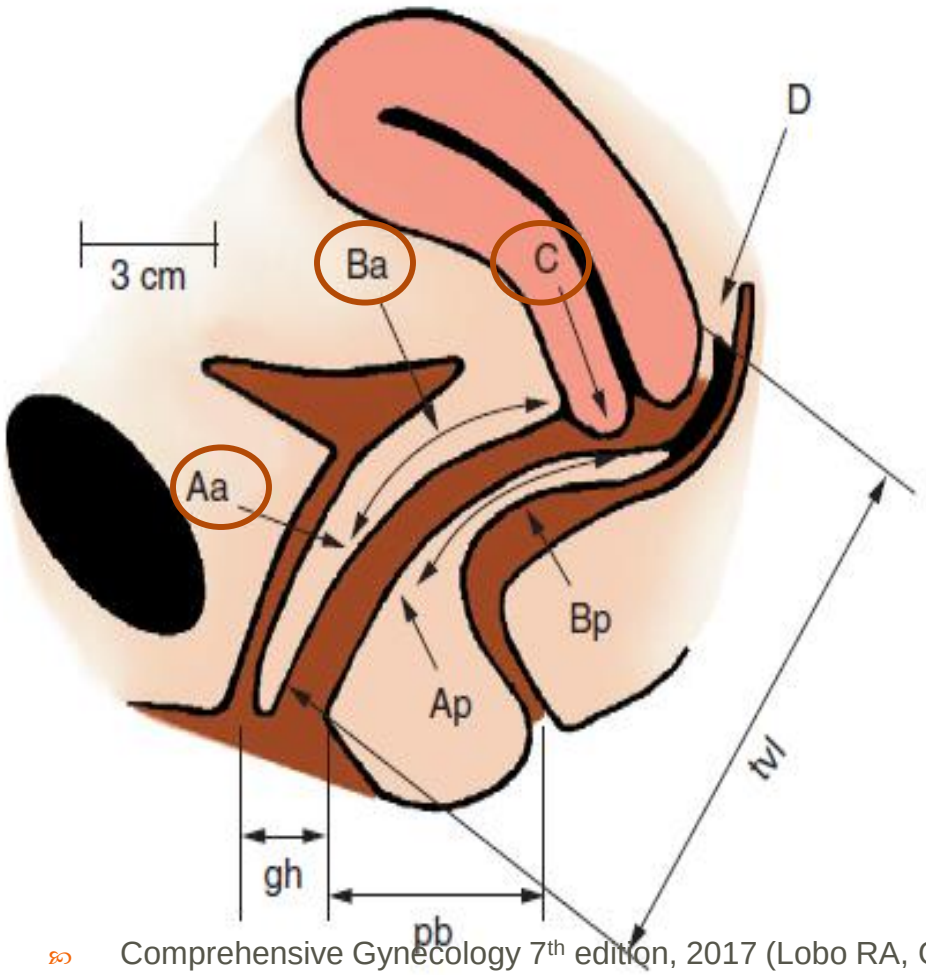
Quantitative description of female POP
POP-Q system: six sites



Point Aa is a point located in the midline of the anterior wall 3 cm proximal to the urethral meatus and is roughly the location of the **urethrovesical crease.**

Point Ba represents the most distal position of any part of the anterior vaginal wall.

Point C represents either the most distal edge of the cervix or the leading edge (apex) of the vagina if a hysterectomy has been performed.

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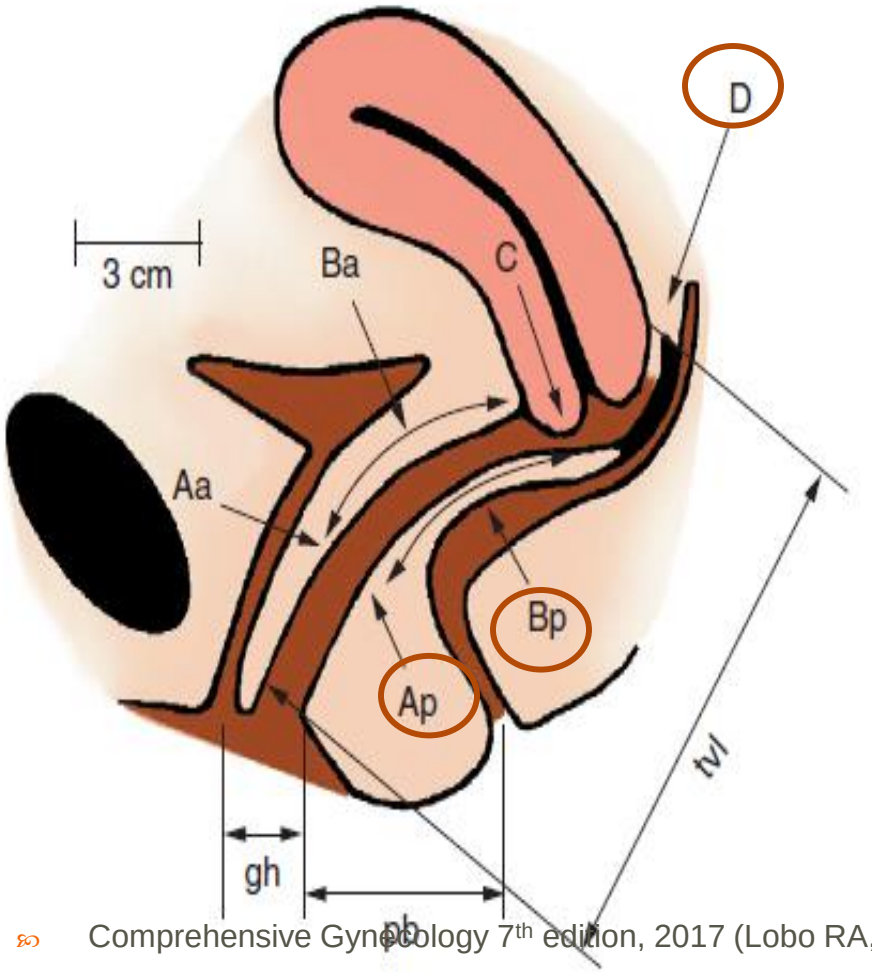

Point D represents the location of the posterior fornix (pouch of Douglas) in a woman with a cervix.

Point Bp is a point most distal of any part of the upper posterior vaginal wall,

Point Ap is a point located in the midline of the posterior vaginal wall 3 cm proximal to the hymen.

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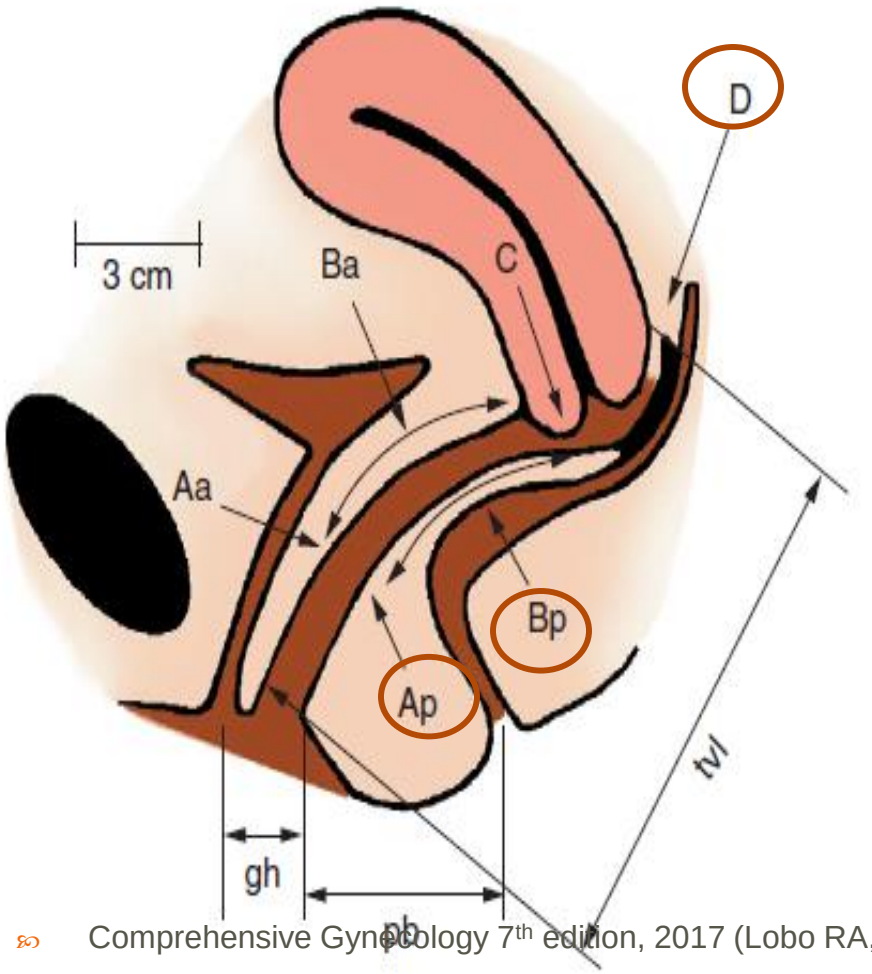

PB - length of the perineal body between the posterior vagina and rectum

GH - genital hiatus measurement from the urethra to the posterior vagina

- These are measured during straining
- The most severe prolapse measurement on any of the vaginal walls can then be used to assign the **stage** of prolapse

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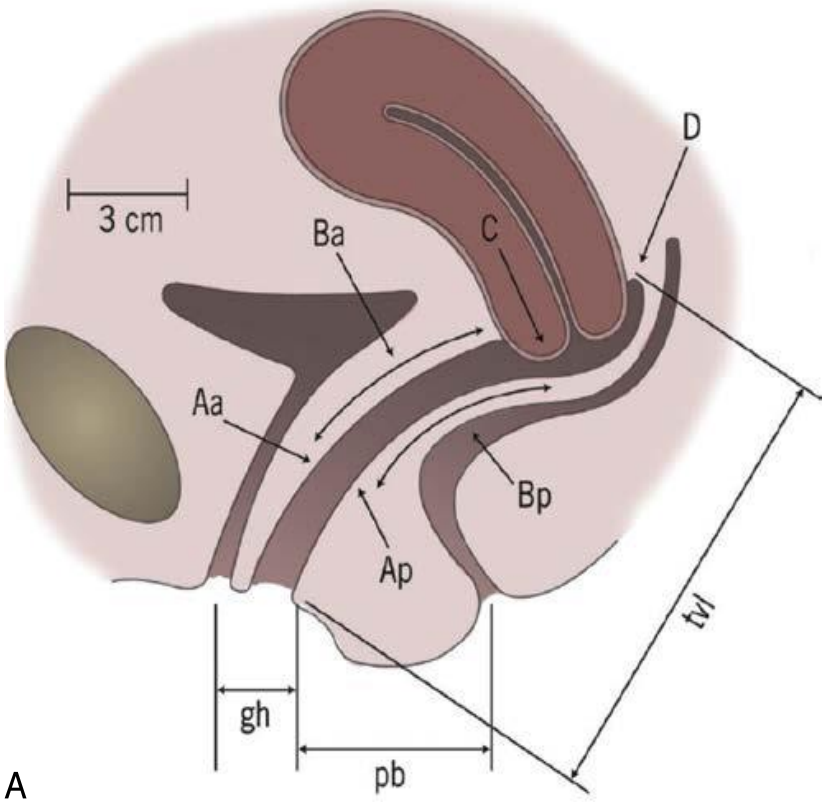


A

B

Point	Description	Range of values
Aa	Anterior vaginal wall 3 cm proximal to the hymen	–3 cm to +3 cm
Ba	Most distal position of remaining upper anterior vaginal wall	–3 cm to +tvl
C	Most distal edge of cervix or vaginal cuff scar	–
D	Posterior fornix (N/A if post-hysterectomy)	–
Ap	Posterior vaginal wall 3 cm proximal to the hymen	–3 cm to +3 cm
Bp	Most distal position of remaining upper posterior vaginal wall	–3 cm to +tvl
gh (genital hiatus)	Measured from middle of external urethral meatus to posterior midline hymen	–
pb (perineal body)	Measured from posterior margin of gh to middle of anal opening	–
tvl (total vaginal length)	Depth of vagina when point D or C is reduced to normal position	–

Figure 20.14 **A,** Landmarks for the Pelvic Organ Prolapse Quantification System (POP-Q) system. **B,** POP-Q points of reference. (**A,** from Bump RC, Mattiasson A, Bo K, et al. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. *Am J Obstet Gynecol.* 1996;175[1]:10–17. **B** from and **A** also modified from Kobashi KC. Evaluation of patients with urinary Incontinence and pelvic prolapse. In: Wein AJ, Kavoussi LR, Novick AC, et al. *Campbell-Walsh Urology.* 10th ed. Philadelphia: Elsevier; 2012:1896-1908.e30.)

Quantitative description of female POP
POP-Q system: six sites

Box 20.3 Staging of Pelvic Floor Prolapse Using International Continence Society Terminology

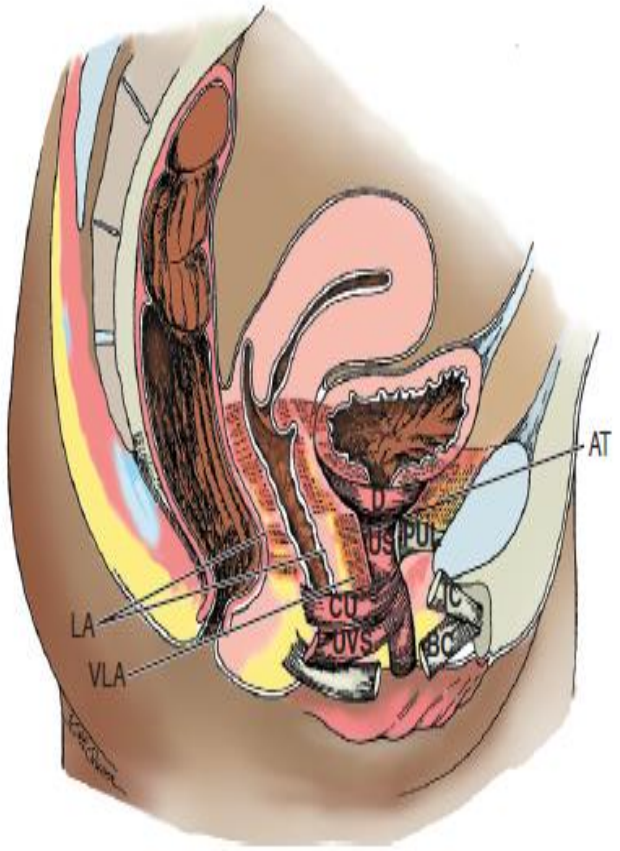
Stage 0
No prolapse is demonstrated. Points Aa, Ap, Ba, and Bp are all at −3 cm, and either point C or D is between total vaginal length −2 cm.

Stage I
Criteria for stage 0 are not met, but 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 protrudes no farther than 2 cm less than the total vaginal length in centimeters.

Stage IV
Essentially complete eversion of the total length of the lower genital tract.



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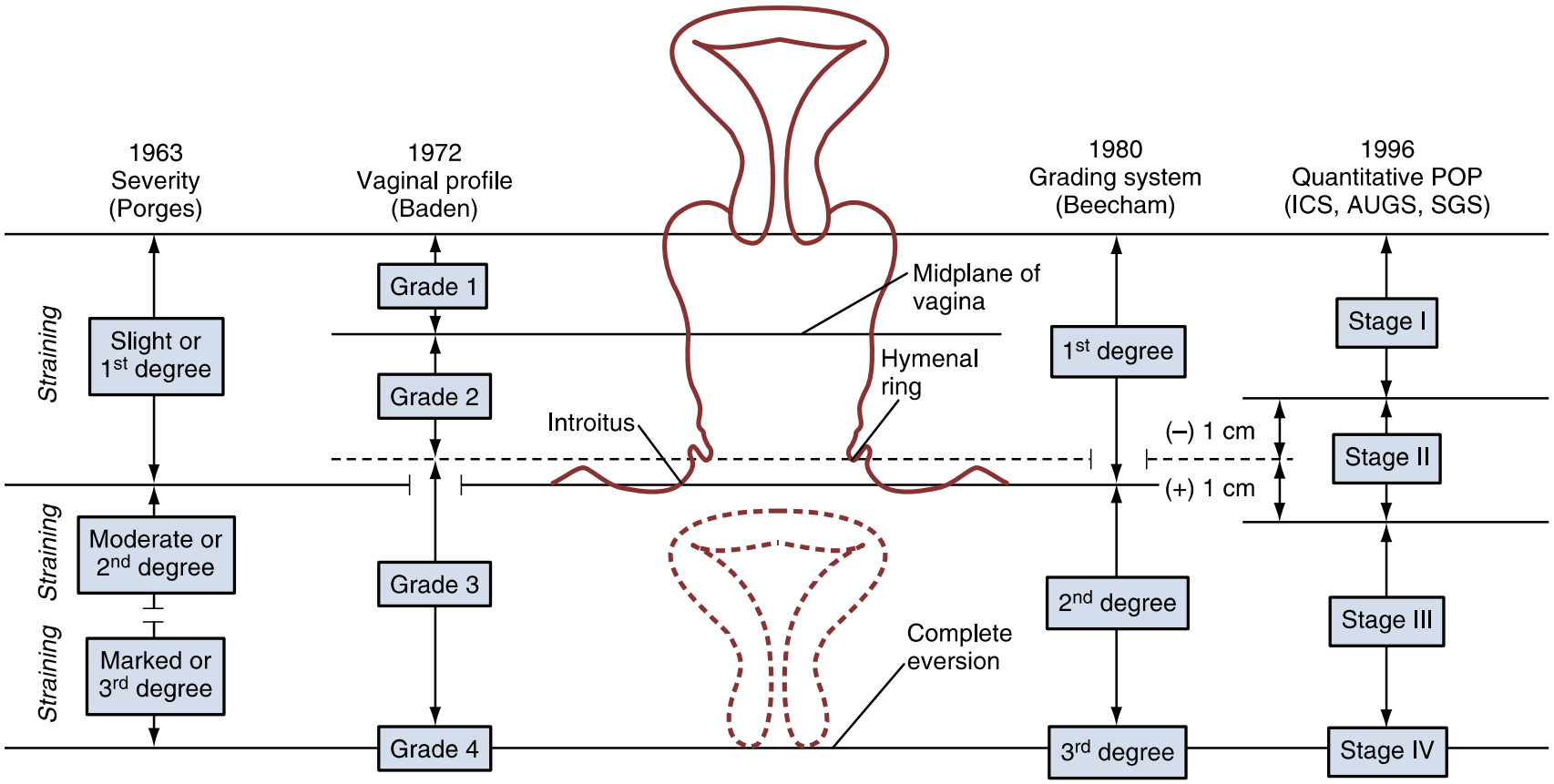

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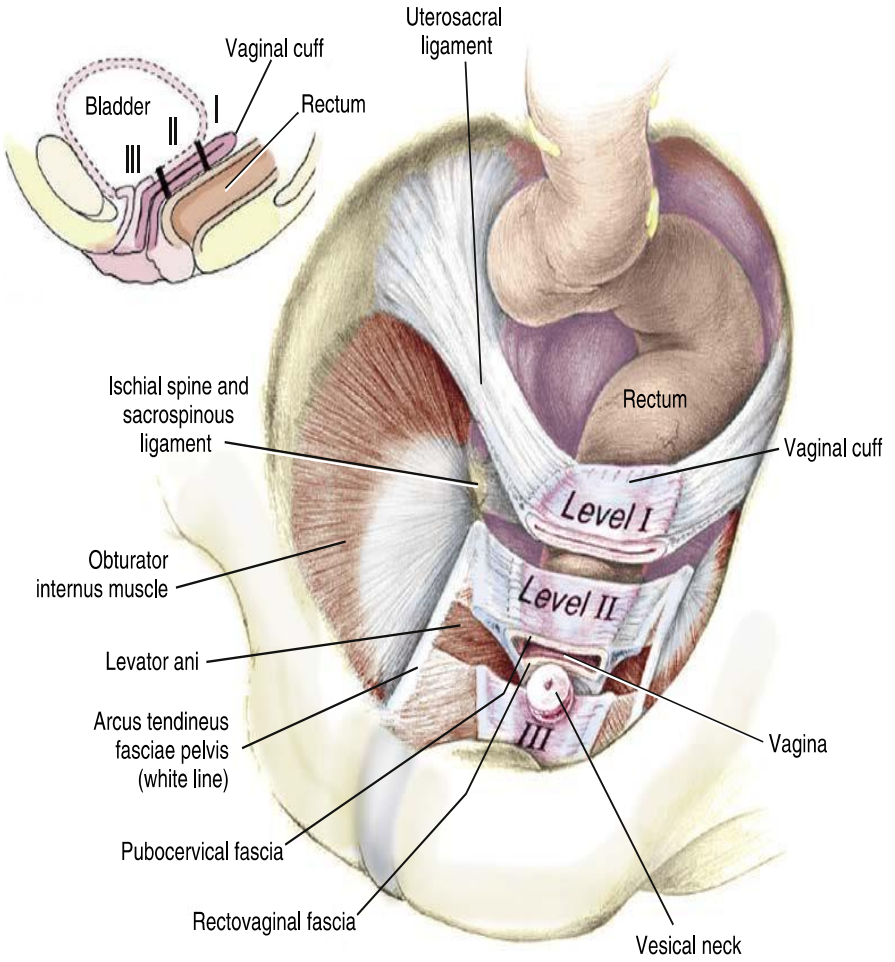
Anterior vaginal wall prolapse: cystocoele and urethrocoele

- Loss of anterior vaginal wall support is the most common site of primary POP.
- Normal support of the anterior vaginal wall depends on level I apical support and level II support from the endopelvic connective tissue and its attachments to the bony pelvis and pelvic muscles.
- Anterior vaginal wall prolapse can be associated with stress urinary incontinence from urethral hypermobility or urinary retention from urethral kinking that causes obstruction



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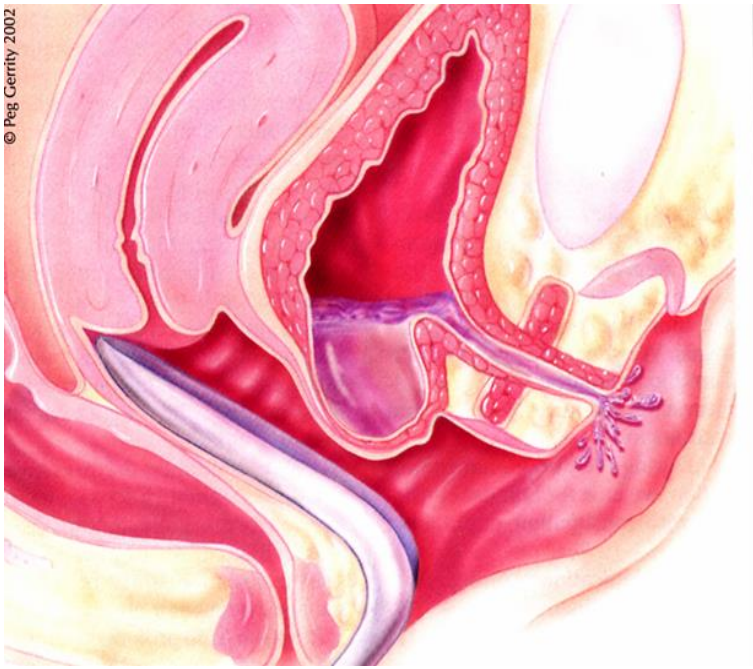
Urethrocoele and Cystocoele

- cystocele is the protrusion of the bladder into the vagina, signifying the relaxation of fascial supports of the anterior vaginal wall.



Fascial breaks:

- Lateral breaks correspond to paravaginal defects;
- Apical detachments from the pubocervical fascia of the cervix or vaginal apex are transverse cystoceles
- distal detachments from near the pubic symphysis appear as urethroceles or urethral hypermobility.

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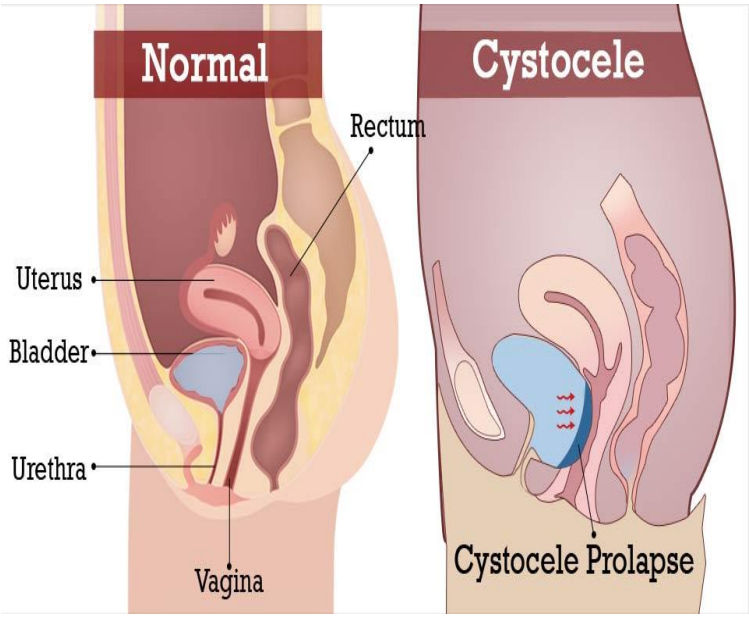
Urethrocoele and Cystocoele: Symptoms and Signs

Symptoms:

1. sensation of fullness
2. pelvic pressure
3. vaginal bulge
4. feeling that organs are falling out
5. feeling of incomplete emptying with voiding
6. slow urinary stream
7. urinary urgency.

Signs:

- soft, bulging mass of the anterior vaginal wall.
- In some patients this mass must be replaced manually before the patient can void.
- Strain, cough, or prolonged standing often accentuates the bulge.
- Often POP symptoms are less bothersome in the morning and worsen later in the day after upright activities.



Urethrocoele and Cystocoele: diagnosis

- The urethrocoele and the cystocele are best demonstrated with a patient in the lithotomy position.
- A retractor or posterior wall blade of a Graves speculum is used to depress the posterior vaginal wall.
- The patient is then asked to strain, and the degree of the cystocele or urethrocele is noted.
- The physician should palpate the bladder neck and note whether it is well supported

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Urethrocoele and Cystocoele: diagnosis

- Best performed with the bladder at least partially filled (100 to 250 mL).

- A standing exam with Valsalva often allows the physician to see the maximal descent of the POP.

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Urethrocoele and Cystocoele: Management

- Treatment of anterior vaginal wall prolapse may be nonoperative or operative depending on patient preferences and goals.
- If the patient is not bothered by the prolapse, it can be left alone and managed expectantly unless it is causing urinary retention or renal hydronephrosis.
- Women with mild (e.g., Stage 2) POP may elect for nonoperative management with pelvic floor physical therapy and Kegel exercises

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Urethrocoele and Cystocoele: Management

- Nonoperative treatment consists of supporting the herniation of the anterior vaginal wall with the use of :

1. Smith-Hodge ring
2. Cube
3. inflatable pessary
4. Intermittent use of a large tampon.
5. Kegel exercises - help to strengthen the pelvic floor musculature and thereby may relieve some of the pressure symptoms produced by the cystocele.

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Urethrocoele and Cystocoele: Management

- A younger woman with a large cystocele should be encouraged to avoid operative repair until she has completed her family.

- Occasionally the abnormality is so uncomfortable that repair must be performed before childbearing is complete. If this is the case, cesarean delivery should be considered for subsequent pregnancies.

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Urethrocoele and Cystocoele: Management

- Operative repair of a cystocele is generally performed in conjunction with the repair of all other pelvic support defects.

- Repair consists of:

1. anterior colporrhaphy
2. Correction of uterine descensus or apical defect
3. possibly posterior colporrhaphy for rectocele.

- Cystoscopy should be performed to assess bladder and ureteral integrity after the procedure is completed.

Posterior vaginal wall prolapse: Rectocoele and Enterocoele

Rectocoele: signs and symptoms

- heavy pelvic pressure or “falling out” feeling in the vagina.
- May complain of constipation and occasionally may need to splint the vagina with her fingers to affect a bowel movement.
- May also have a feeling of incomplete emptying of the rectum at the time of the bowel movement.
- Protrusion of the prolapse may worsen later in the day and be aggravated by prolonged standing or exertion.

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Rectocoele: Diagnosis

- identified by retracting the anterior vaginal wall upward with one half of a Graves or Pederson speculum and having the patient strain.
- The rectum will bulge into the vagina, and this bulge may protrude through the introitus
- The physician should then place one finger in the rectum and one in the vagina and palpate the defect.
- Often the rectovaginal septum is paper thin, and the rectocele can be palpated to its upper margin.
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Rectocoele: Management

- Nonoperative procedures include Pessaries, Kegel exercises, and estrogen (?)
- Gastrointestinal symptoms must be thoroughly evaluated, including screening for colorectal cancer if appropriate.
- If constipation and straining are issues, a dietary fiber and fluid intake review should be obtained.
  - At least 25 g of fiber, six to eight glasses of fluid, regular exercise, and allowing time for defecation after meals can be recommended
- Operative management of a rectocele involves Posterior colporrhaphy

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Enterocoele

- herniation of the pouch of Douglas (cul-desac) between the uterosacral ligaments into the rectovaginal septum and usually contains small bowel.
- It frequently occurs after an abdominal or vaginal hysterectomy
- generally is the result of a weakened support for the pouch of Douglas and the loss of vaginal apical support by the uterosacral ligaments.
- true hernia of the peritoneal cavity emanating from the pouch of Douglas between the uterosacral ligaments and into the rectovaginal septum

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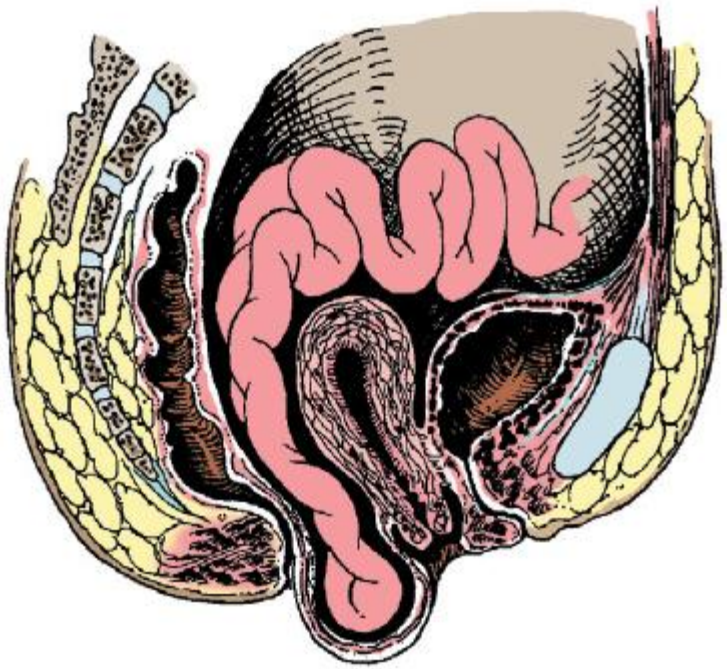
Enterocoele: Diagnosis

- noticed as a separate bulge above the rectocele, and at times it may be large enough to prolapse through the vagina
- Transilluminate the bulge and seeing small bowel shadows within the sac.



Enterocoele: Management

- Enteroceles may be reduced transabdominally as a primary procedure or at the time of other abdominal procedures.
- In the primary procedure the sac should be reduced upward if possible and dissected free from the bladder and rectum.
- If the uterosacral ligaments are present, these may be brought together in the midline and attached to the vaginal cuff after closing the anterior and posterior fascia of the vaginal apex.
- Concentric purse-string sutures in the endopelvic fascia may obliterate the cul-de-sac.

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Enterocoele: Management

- Enteroceles may be managed expectantly if asymptomatic, or they can be treated with pessaries or surgery.
- Repair of the enterocele can be carried out vaginally at the time of the posterior colporrhaphy and apical repair.
- The sac must then be dissected free of underlying tissue and isolated at its neck.
- The neck of the hernia is then sutured with a purse-string 0 polyglycol or permanent suture ligature and the sac excised

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UTERINE PROLAPSE (DESCENSUS, PROCIDENTIA)

- associated with injuries of the endopelvic fascia, including the cardinal and uterosacral ligaments, as well as injury to the neuromuscular unit with relaxation of the pelvic floor muscles, particularly the levator ani muscles

- Occasionally, prolapse is the result of increased intraabdominal pressure (acites or large pelvic or intraabdominal tumors) superimposed on poor pelvic supports

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UTERINE PROLAPSE (DESCENSUS, PROCIDENTIA)

- Feeling of pelvic pressure and heaviness, fullness, or “falling out” in the perineal area.

- In cases where the cervix and uterus are low in the vaginal canal, the cervix may be seen protruding from the introitus, giving the patient the impression that a tumor is bulging out of her vagina.

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UTERINE PROLAPSE : Management

- Stage I uterine prolapse does not require therapy unless the patient is very uncomfortable

- For stages 2-4, operative repair for prolapse of the uterus and cervix generally involves a **vaginal hysterectomy** with a vaginal vault suspension.

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UTERINE PROLAPSE : Management

- In some women the cervix is hypertrophied and elongated to the area of the introitus, but the supports of the uterus itself are intact.
- A cystocele and rectocele may be present, and operative repair can consist of a **Manchester (Donald or Fothergill) operation**.
  - combines an anterior and posterior colporrhaphy with the amputation of the cervix and the use of the cardinal ligaments to support the anterior vaginal wall and bladder.
  - Ideal for elderly women with comorbid medical conditions who have an elongated cervix and well-supported uterus because it is technically easier and has a shorter operative time than the vaginal hysterectomy

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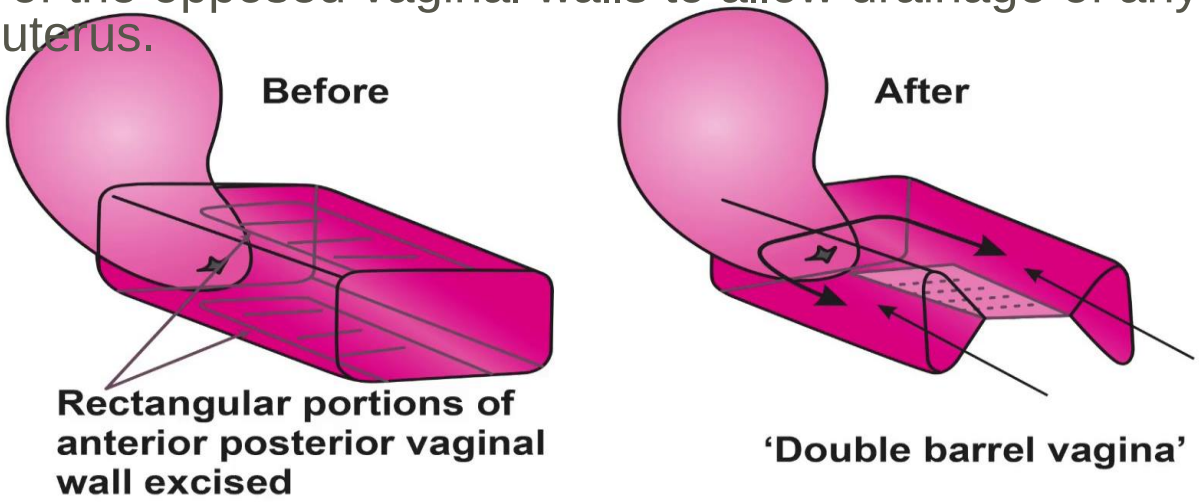
UTERINE PROLAPSE : Management

- In elderly women who are no longer sexually active, a simple procedure for reducing prolapse is an obliterative procedure called a **colpocleisis (Le Fort procedure)**
- The classic partial colpocleisis procedure was described by Le Fort in 1877
- involves the removal of a strip of anterior and posterior vaginal wall, with closure of the margins of the anterior and posterior wall to each other.
- vaginal cavity is nearly completely closed, with small vaginal canals on either side of the opposed vaginal walls to allow drainage of any fluid from the cuff or uterus.



UTERINE PROLAPSE : Management

- **Goodall-Power modification** of the Le Fort operation allows for the removal of a triangular piece of vaginal wall beginning at the cervical reflection or 1 cm above the vaginal scar at the base of the triangle, with the apex of the triangle just beneath the bladder neck anteriorly and just at the introitus posteriorly.
- the cut edge of vaginal wall making up the base of the triangle anteriorly is sutured to the similar wall posteriorly, and the vaginal incision is then closed with a row of interrupted sutures beginning beneath the bladder neck and carried side to side to the area of the introitus.
- Ideal for relatively small prolapses, whereas the Le Fort is best for larger ones.

- Comprehensive Gynecology 7th edition, 2017 (Lobo RA, Gershenson DM, Lentz GM, Valea FA *editors);* chapter 20

Pelvic Organ Prolapse: Summary

- Definition
- Pathophysiology
- Classification/Staging
- Urethrocoele and cystocoele
- Rectocoele
- Enterocoele
- Uterine prolapse

Thank you!

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