



[Color index: [Important](#) | [Notes](#) | [Extra](#) | [Video-Case](#)]
Editing file [link](#)



Pelvic Floor Disorders

Objectives:

- Describe pelvic anatomy and pelvic support
- List risk factors for pelvic floor disorders
- Describe signs and symptoms of pelvic floor disorders
- Differentiate the types of urinary incontinence
- Discuss the steps in the evaluation of pelvic floor disorders
- Describe the anatomic changes associated with pelvic floor disorders
- Describe non-surgical and surgical management for pelvic floor disorders

References: team 433, kaplan lecture note 2018

Done by : Firas Almomen

Revised by: Fawzan Alotaibi

Introduction

- ❖ The lifetime risk for undergoing a surgery for prolapse or urinary incontinence is 11%.
- ❖ The most common cause for undergoing a hysterectomy procedure for 55 year-old women is pelvic prolapse.

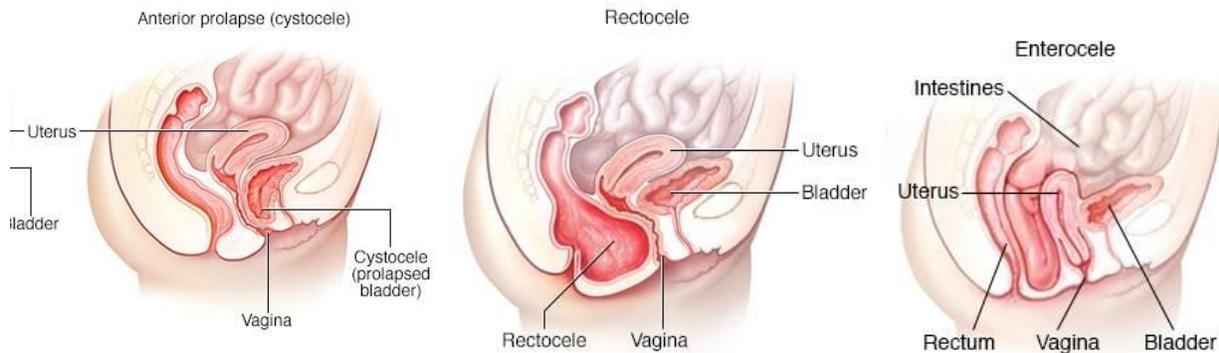
Pelvic organ support (anatomy of the pelvic floor):

- Pelvic diaphragm (**Levator ani muscles**):
Consist of Iliococcygeus muscle, Pubococcygeus muscle and Puborectalis muscle.
- Urogenital diaphragm (**perineal membrane**).
- **Uterosacral and cardinal ligaments: gives apical support to the uterus.**
- Arcus tendineus fascia pelvis: gives lateral support to the vagina which supports the cervix.

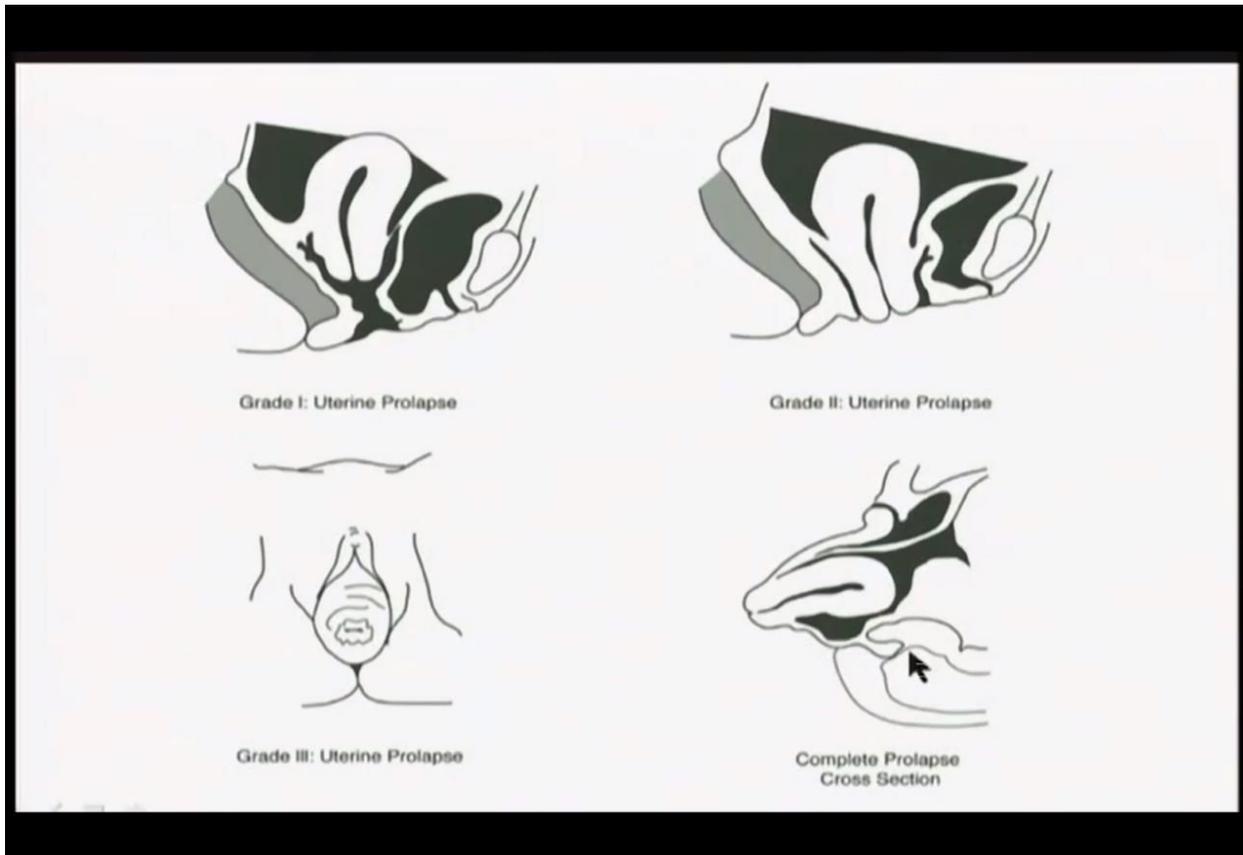
Pelvic organ prolapse:

- ❖ Occurs with the descent of one or more of the pelvic structures

Pelvic structure	Kaplan notes
<u>Anterior</u> wall of the vagina(bladder)	Herniation or bulging of the <u>anterior</u> vaginal wall and overlying bladder base into the vaginal lumen(Cystocele). Triad: 1- Postmenopausal woman 2- Anterior vaginal wall protrusion 3- Urinary incontinence
<u>Posterior</u> wall of the vagina(rectum)	Herniation or bulging of the <u>posterior</u> vaginal wall and underlying rectum into the vaginal lumen(Rectocele). Triad: 1- Postmenopausal woman 2- Posterior vaginal wall protrusion 3- Digitally assisted removal of stool
<u>Peritoneum of cul de sac</u> (small bowel)	Herniation of the <u>pouch of Douglas</u> containing small bowel into the vaginal lumen(Enterocele)



Uterine Prolapse



- ❖ Half of parous women who had a vaginal delivery will show a prolapse when clinically examined, but might not have any symptoms or functional abnormalities.
- ❖ Physical findings may not correlate with specific pelvic symptoms.

Symptoms:

1. Majority are **asymptomatic (no intervention)**.
2. Vaginal pressure or heaviness
3. Abdominal lower back pain (**back pain not consider main presentation because is common in male and female**)
4. Vaginal or perineal pain or discomfort
5. **Mass sensation/bulging (most common presentation)**.
6. Urinary or fecal loss or retention
7. Sexual health issues

Risk factors:

1. One vaginal delivery or more (**clinically 3 or more consider risk factor**)
2. Genetic predisposition
3. Menopause
4. Advance age
5. Pelvic surgery
6. Connective tissue diseases
7. Increased intra-abdominal pressure

Pelvic Organ Prolapse Quantification examination (POP-Q):

- **Stage 0** : No prolapse, the cervix or vaginal cuff is at the top of the vagina.
- **Stage I** : The leading part of the prolapse is more than 1 cm above the hymen
- **Stage II** : The leading part of the prolapse is less than or equal to 1cm above or below the hymen
- **Stage III** : The leading edge is more than 1 cm beyond the hymen, but less than or equal to the total vaginal length
- **Stage IV (Procidentia)** : Complete eversion

Management:

it is lifestyle problem if affect quality of life treat it if not affect lifestyle and patient tolerated just reassure patient

Non-surgical:

- 1- Kegel exercises (Kaplan) [Video](#)
- 2- Estrogen (**local and sometime consider progesterone to counter effect of estrogen**) for postmenopausal women (Kaplan)
- 3- Pessaries: most gynecologists use them as first-line therapy, it has many types, such as:
 - A- Ring pessary: supportive and used for mild prolapse
 - B- Gellhorn or Cube **pessaries**: space occupying and used in high degree prolapses or Procidentia



Surgical:

- 1- Hysterectomy (**most support area or will end by vaginal fold prolapse**): apical support is provided by either:
 - A- Uterosacral ligament suspension
 - B- Sacrospinous ligament suspension
- 2- Abdominal sacral colopexy: suspending the vagina to the sacrum
- 3- Colpocleisis: closure of the vagina. It's used in older women who won't tolerate invasive surgery and are no longer sexually active. (Kaplan: The anterior and posterior colporrhaphy uses the endopelvic fascia to restore the bladder and the rectum to their normal anatomy)

Urinary incontinence:

Stress incontinence (most common):

Caused by:

- 1- **Urethral hypermobility** (loss of integrity of pelvic floor muscles)
- 2- Intrinsic sphincter deficiency (weakness)

Urinary Incontinence		
Questions	Diagnosis	Mgmt
Voiding diary?	Document urine loss	Amt, time, activity
UA CS abnormal?	IRRITATIVE	Antibiotics Cystoscopy
Not at night?	STRESS	Kegels, ERT urethropexy
Invol bladd contr?	URGE	Anticholinergics B3AIDS
↑ residual volume?	OVERFLOW	Cholinergics α-adren blockers
Continual leakage?	BYPASS	Surgical KAPLAN MEDICAL

The patient will represent with: Urine loss with increased intra-abdominal pressure (coughing, sneezing, laughing, or physical activity). (Kaplan: **No urine loss when the patient is sleeping**) some patient present with Stress and urge incontinence ask what bother you more and treat it. you must assess incontinence if patient present with prolapse (**prolapse mask the incontinence when treat prolapse then symptoms of incontinence will appear**) .

Examination (Kaplan):

- 1- Neurological test: normal
- 2- Q-tip test: positive. The patient will be asked to increase their intra-abdominal pressure while using Q-tip test which is positive when a lubricated cotton-tip applicator is placed in the urethra and the patient increases intraabdominal pressure, the Q-tip will rotate >30 degrees.

Investigations: (Kaplan):

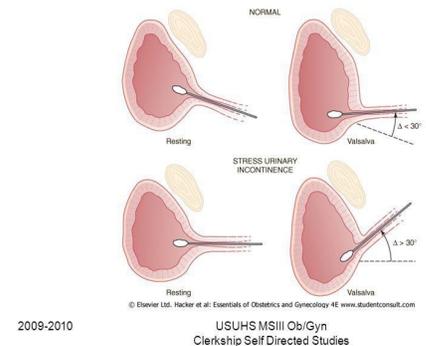
- 1- Urinalysis and culture: normal
- 2- Cystometric studies: are normal (we are looking for involuntary detrusor contractions)

Management:

- 1- Kegel Exercises
- 2- Estrogen replacement therapy in menopausal women (Kaplan)
- 3- Surgery: A-Tension-Free Vaginal Tape (TVT): most common and minimally invasive
 - A- Urethropexy (Kaplan): done by attachment of the sphincter to the symphysis pubis using the Burch procedure as well as the Marshall-Marchetti-Kranz (MMK) procedure
- 4- Bulking agents: used in sphincter deficiency when surgery fails or is contradicted (second-line therapy)

Q-Tip test

Increased mobility of urethra with incontinence



Urge (Hypertonic) incontinence: most common in older women

Caused by: Detrusor muscle over activity / idiopathic contractions which cannot get suppressed voluntarily.

The patient will represent with: Urine loss when the patient feels the need to urinate (**urgency**)

Examination (Kaplan):

- Neurological test: normal
- Pelvic examination: normal

Investigations: (Kaplan):

- Urine analysis and culture: normal
- Cystometric studies: involuntary detrusor contractions are present

Management:

- 1-Behavioral Therapy
- 2-Anticholinergic medications: oxybutynin and tolterodine
- Kaplan: 3- NSAIDs (to inhibit detrusor contractions)
- 4-tricyclic antidepressants
- 5-calcium-channel blockers

Mixed Incontinence (Kaplan): mostly in older women

Caused by: a combination of both Stress incontinence and Urge incontinence.

The contribution of each type of involuntary urine loss varies by individual.

The patient will represent with: Loss of urine may with **both** Increased intra-abdominal pressure (physical activity, coughing and sneezing) and as well as after experiencing an overwhelming urge to urinate.

Examination:

1- Pelvic exam may or may not show vaginal prolapse (cystocele, rectocele, or enterocele).

2-Q-tip test is variable.

3- Pudendal nerve innervation will be normal

Investigative studies: Urinalysis and Cystometry: normal, Involuntary detrusor contractions may be seen.

Management: No single therapy works for everyone. Options will be directed by whether the Stress or the Urge component is greater.

Functional Incontinence (Kaplan): mostly in older women.

Cause: The patient is unable to get to toilet on time, whether physically challenged (not moving quickly enough out of a wheelchair due to arthritis or Parkinson disease) or psychologically challenged (unclear thinking or communication due to Alzheimer's or dementia).

Patient represents with: inability to toilet oneself in a timely fashion.

Examination and investigative studies: normal.

Management: Treat the underlying medical condition

Overflow (Hypotonic) Incontinence (Kaplan):

Caused by: increased bladder pressure which occur gradually from an over-distended, hypotonic bladder. The bladder never empties. This may be caused by denervated bladder (e.g., diabetic neuropathy, multiple sclerosis) or systemic medications (e.g., ganglionic blockers, anticholinergics).

The patient will represent with: Loss of urine intermittently in small amounts and pelvic fullness.

Examination: neurologic examination will show decreased pudendal nerve sensation.

Investigative studies: Urinalysis and culture: normal, but may show an infection.

Cystometric studies: **markedly increased residual volume**

Management:

1- Intermittent self-catheterization.

2- Discontinue the causing medications.

3- Cholinergic medications: stimulate bladder contractions

4- α -adrenergic blocker to relax the bladder neck.

Fistula (Kaplan):

Caused by: urine leaking through a fistula from the urinary tract.

The patient will represent with: Loss of urine **continually** in small amounts. history of radical pelvic surgery or pelvic radiation therapy

Examination. Pelvic examination: normal

Investigative studies: Intravenous pyelogram (IVP): dye leakage from a urinary tract fistula.

Case



A 75-year-old woman G5P5 woman presents for an annual exam and reports a “fullness” in the vaginal area. The symptom is more noticeable when she is standing for a long time. This feeling is bothersome to her and is affecting her daily activities. She does not complain of urinary or fecal incontinence. She has no other urinary or gastrointestinal symptoms. There has been no vaginal bleeding. Her past medical history is significant for well-controlled hypertension and chronic bronchitis. She has never had surgery.

Pelvic exam reveals normal appearing external genitalia except for generalized atrophic changes. The vagina and cervix are without lesions. Relaxation of the anterior and posterior vaginal wall are noted to approximately one centimeter beyond the hymen when she is asked to Valsalva. The cervix also descends to the level of the hymen with Valsalva. Uterus is normal size. Ovaries are not palpable. No rectal masses are noted. Rectal sphincter tone is slightly decreased. The patient wishes to discuss options for treatment.

1- What are the most important support mechanisms for the pelvic organs?

- Levator ani muscles
- Uterosacral ligaments for the uterus and vaginal apex
- the vesicovaginal and rectovaginal connective tissues for the anterior and posterior vaginal wall

2-What increases this patient's risk for pelvic organ prolapse?

- a- One vaginal delivery or more
- b- Genetic predisposition
- c- Menopause
- d- Advance age
- e- Pelvic surgery
- f- Connective tissue diseases
- g- Increased intra-abdominal pressure

3-What are the symptoms of pelvic organ prolapse?

- 1- Vaginal pressure or heaviness
- 2- Abdominal lower back pain
- 3- Vaginal or perineal pain or discomfort
- 4- Mass sensation/bulging
- 5- Urinary or fecal loss or retention

6- Sexual health issues

4-What are the different types of pelvic organ prolapse?

Name of prolapse	Pelvic structure	Kaplan notes
Cystocele	<u>Anterior</u> wall of the vagina	Herniation or bulging of the <u>anterior</u> vaginal wall and overlying bladder base into the vaginal lumen. Triad: 1- Postmenopausal woman 2- Anterior vaginal wall protrusion 3- Urinary incontinence
Rectocele	<u>Posterior</u> wall of the vagina	Herniation or bulging of the <u>posterior</u> vaginal wall and underlying rectum into the vaginal lumen. Triad: 1- Postmenopausal woman 2- Posterior vaginal wall protrusion 3- Digitally assisted removal of stool
Enterocoele	<u>Peritoneum of cul de sac</u>	Herniation of the <u>pouch of Douglas</u> containing small bowel into the vaginal lumen

5. What are the steps in evaluating someone with prolapse?

- The most important thing to evaluate is the patient's complaint. Prolapse is not dangerous on woman unless it is impacting her ability to empty her bladder (causing urinary retention).
- The Pelvic Organ Prolapse Quantitative (POPQ) is an objective evaluation tool that gynecologists and pelvic floor specialists (Urogynecologists) use to measure prolapse.
- Grading systems (such as the Baden Walker system) may also be used to document prolapse.
- If indicated, evaluation for urinary retention (such as performance of a post void residual) should be completed.
- Some providers will also evaluate levator muscle strength by asking a woman to perform a Kegel squeeze on examination.

6. What are treatment options that you should discuss with this patient?

Non-surgical:

- 1- **Kegel exercises** (Kaplan)
- 2- **Estrogen** for post-menopausal women (Kaplan)
- 3- **Pessaries**: most gynecologists use them as first-line therapy, it has many types, such as:
 - A- Ring pessary: supportive and used for mild prolapse
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Surgical:

- 1- Hysterectomy: apical support is provided by either:
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7. When is surgery indicated for prolapse?

- Patients desire to for surgical correction
- Recurrent vaginal ulceration or other complications for pessary use

8. What are the different types of urinary incontinence?

- **Stress urinary incontinence:** loss of urine associated with coughing, sneezing, laughing, or physical activity
- **Urge incontinence:** loss of urine associated with or immediately preceded by urgency.
- **Mixed urinary incontinence:** a combination of stress and urge incontinence
- **Continuous incontinence:** continual urine passage (commonly caused by vesicovaginal fistula)
- **Overflow incontinence:** Loss of urine intermittently in small amounts and pelvic fullness.
- **Functional incontinence:** Physical or psychological inability to go to and urinate

9. What are the steps in evaluating someone with urinary incontinence?

- Questions (history) to clarify what type of incontinence they are experiencing, along with a physical examination and a urinalysis
- Many providers may do a cough stress test or a post void residual to further evaluate bladder function during physical examination. Urodynamic testing may be performed if the provider feels that this is warranted. Some providers will have patients fill voiding diaries to evaluate symptoms

10. What are nonsurgical treatment options for urinary incontinence?

- **Behavioral modification** is important to discuss with patients with incontinence symptoms. Decreasing bladder irritants and timed voids can be important and low risk treatments for many women.
- Pelvic floor physical therapy (**Kegel exercises**) can be important and effective in managing urinary incontinence symptoms.
- Medical therapy primarily focused on treatment of detrusor over-activity (**anticholinergics**)
- Incontinence **pessaries** can be an effective treatment of stress incontinence.