DEPARTMENTS OF OB/GYN AND UROLOGY

BASICS OF PELVIC ORGAN PROLAPSE

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April 23, 2020

LOYOLA UNIVERSITY CHICAGO

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1870

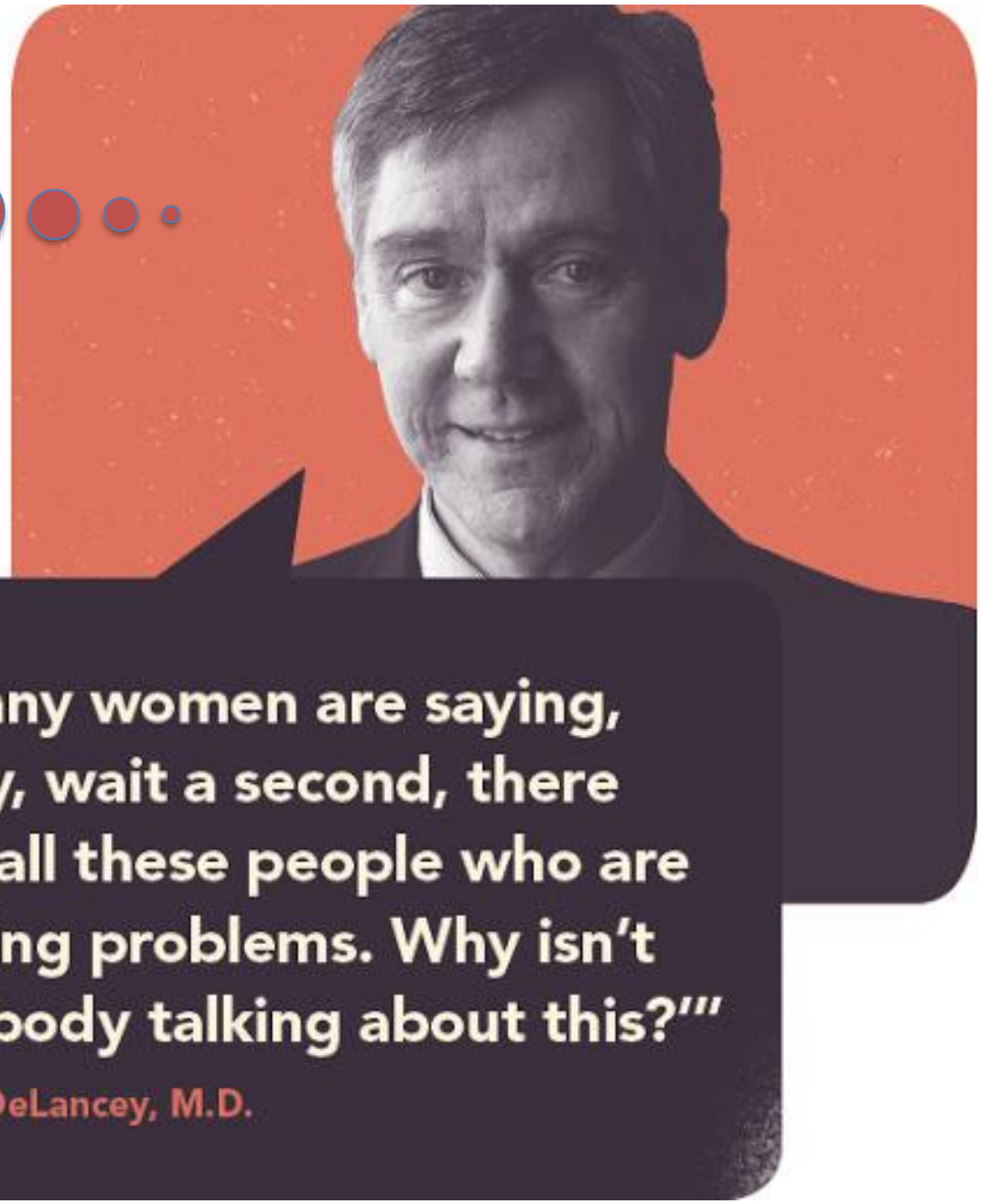
DISCLOSURES

- NIH 1U01DK106898
- Loyola RFC

OBJECTIVES

- Distinguish normal and abnormal pelvic anatomy and support structures.
- Understand the different types of prolapse
- Outline a basic approach to their initial evaluation and management.
- Describe both medical and surgical options for treatment

I will also propose the DeLancey Levels! I'm a urogyn rock star



http://www.medicineatmichigan.org/feature/2017/winter/lets-talk-about-pelvic-floor

PELVIC SUPPORT DEFECTS

- loss of connective tissue support of the reproductive tract organs
  - loss of support of the uterus,
  - paravaginal tissue,
  - bladder wall,
  - urethra
  - urethrovesical angle
  - distal rectum.

Beckmann Chapter 30, pp 262-270

PELVIC SUPPORT DEFECTS

- disorder in which organs have lost their support and descend through the urogenital hiatus

- should be familiar with the types of pelvic support defects, the symptoms related to each, and the therapeutic options available

Beckmann Chapter 30, pp 262-270

PELVIC SUPPORT DEFECTS

- more common among women of advancing age,
- tissues become less resilient,
- accumulated stresses have an additive effect.

Beckmann Chapter 30, pp 262-270

Support - Muscle

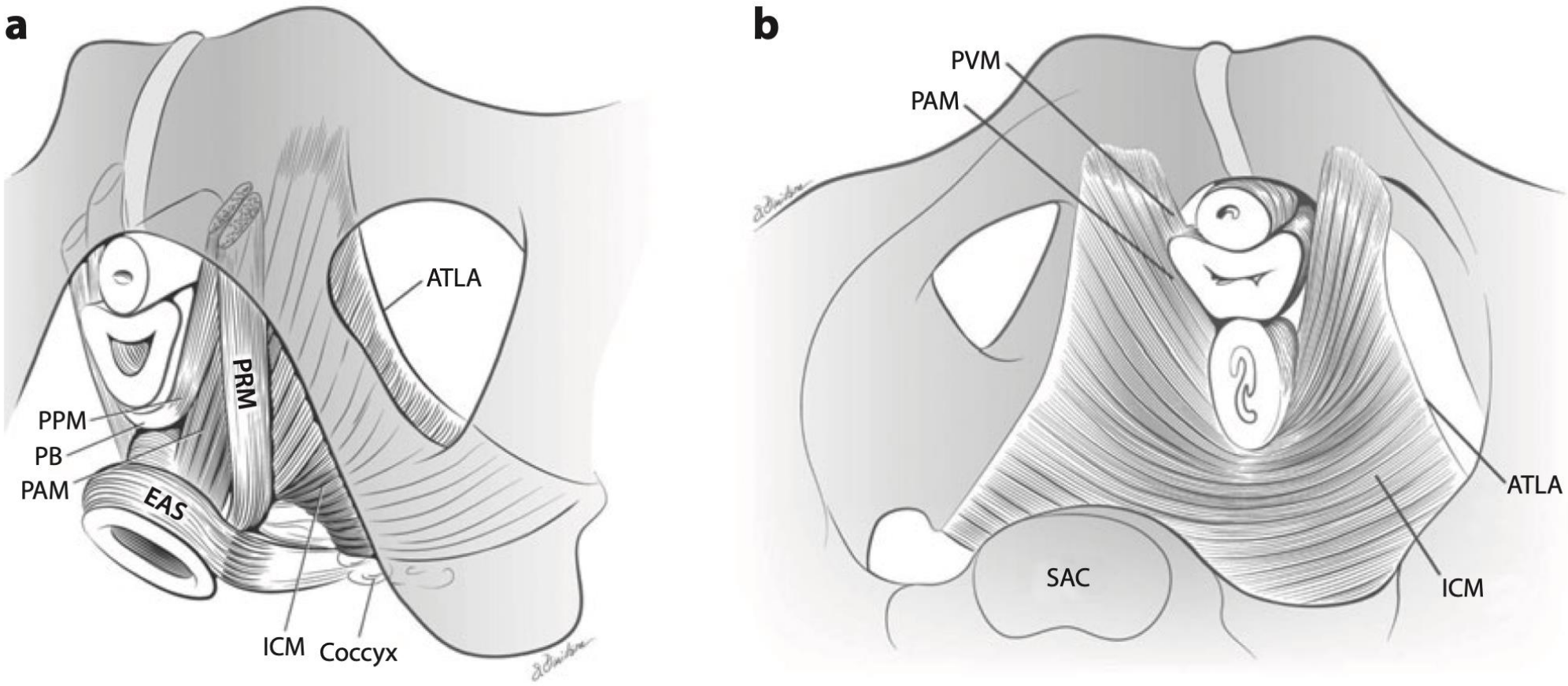
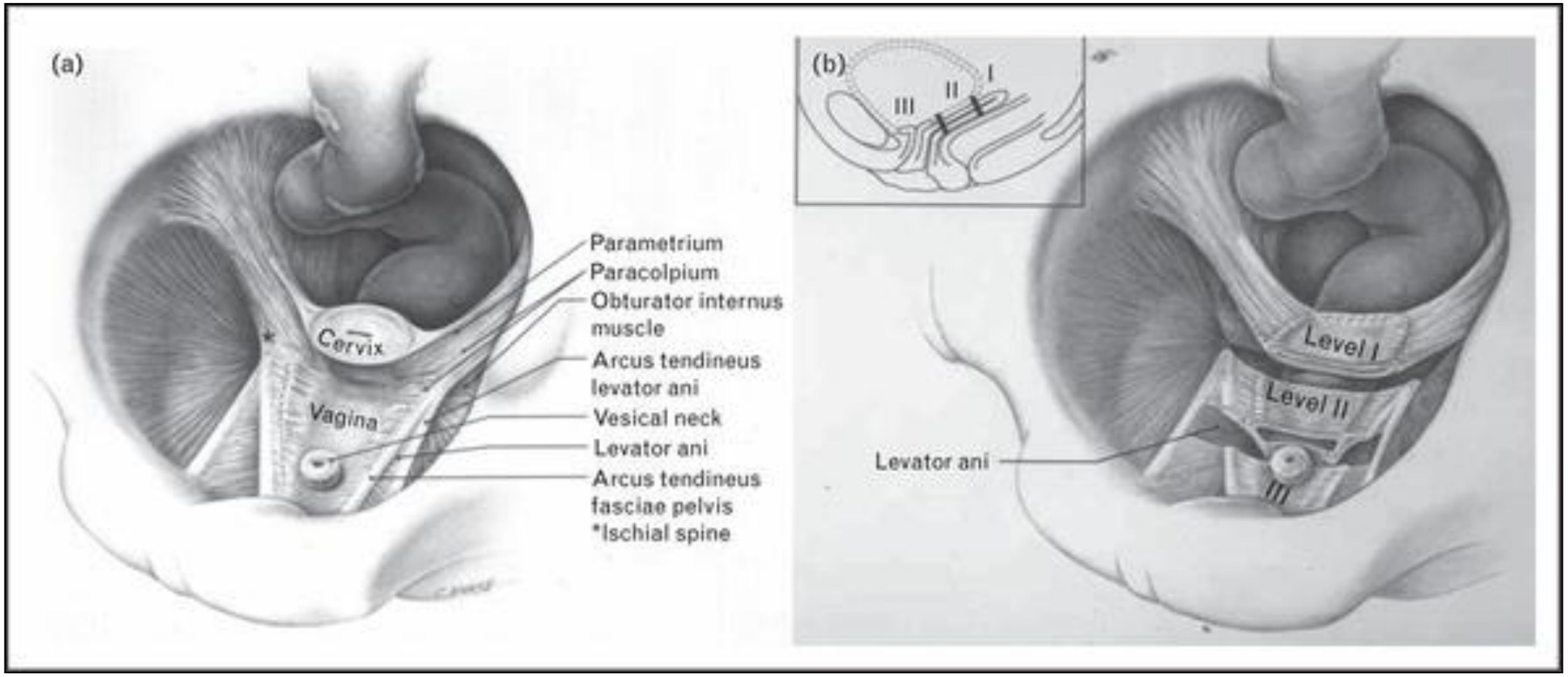


Figure 1

Ashton-Miller, 2009

Support - Connective Tissue



What's new in the functional anatomy of pelvic organ prolapse?.
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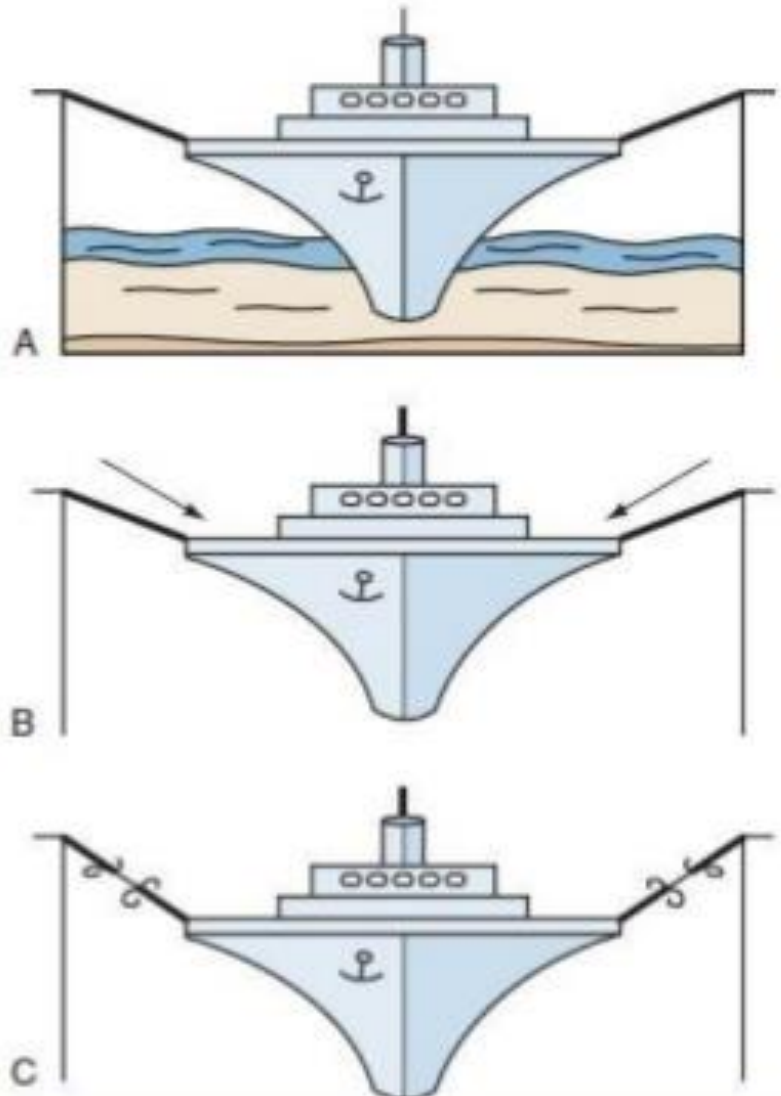
Analogy demonstrating the support



A: Pelvic floor (water) and ligaments (ropes) to the pelvic organs (ship).

B: Consequences of a pelvic floor muscle weakness with increasing strain placed on ligamentous structures.

C: Ligamentous damage as a consequence of loss of pelvic floor muscle weakness.

EPIDEMIOLOGY

- 3% of women in the U.S.
- Prevalence
  - reported symptoms was much lower (3–6%) than the prevalence identified by examination (41–50%)
  - Most women asymptomatic

ACOG Practice Bulletin No. 214 Pelvic Organ Prolapse

WHEN TO TREAT?

- medical and social implications

Discuss with your patient!

- Signs
  - cervical hypertrophy,
  - excoriation,
  - ulceration,
  - and bleeding

Beckmann Chapter 30, pp 262-270

WHEN TO TREAT?

- Life-threatening symptoms are ***rare***
  - ureteral obstruction,
  - systemic infection,
  - incarceration,
  - and evisceration.

- Most women with a pelvic support defect on physical examination are asymptomatic; physical findings do not correlate with specific pelvic symptoms.

Beckmann Chapter 30, pp 262-270

PELVIC SUPPORT DEFECTS – POSSIBLE RISK FACTORS

- genetic predisposition,
- parity (particularly vaginal birth),
- menopause,
- advancing age,
- prior pelvic surgery,
- connective tissue disorders,
- factors associated with elevated intra-abdominal pressure
  - e.g., obesity and chronic constipation with excessive straining

Beckmann Chapter 30, pp 262-270

CAUSES

- The pelvic organs are supported by a complex interaction of
  - muscles (levator muscles),
  - fasciae (urogenital diaphragm and endopelvic fascia),
  - and ligaments (uterosacral and cardinal ligaments).

Beckmann Chapter 30, pp 262-270

CAUSES

- birth trauma,
- chronic elevations of intra-abdominal pressure (e.g., in obesity, chronic cough, and repetitive heavy lifting),
- intrinsic weaknesses,
- or atrophic changes caused by aging or estrogen loss.

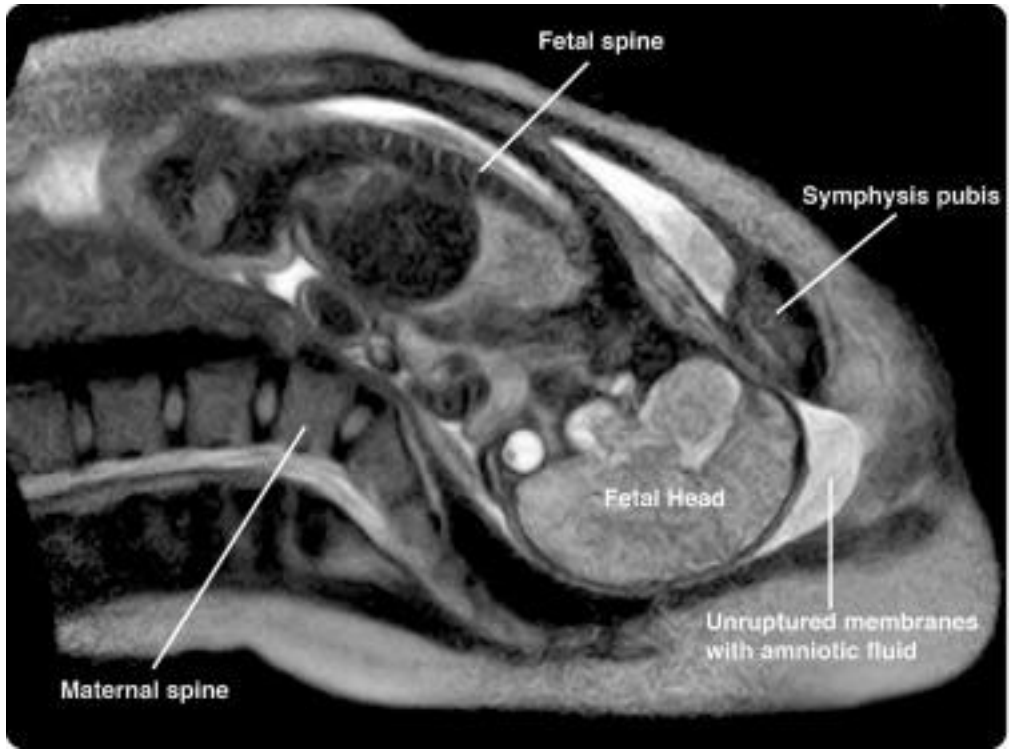
Beckmann Chapter 30, pp 262-270

CAUSES

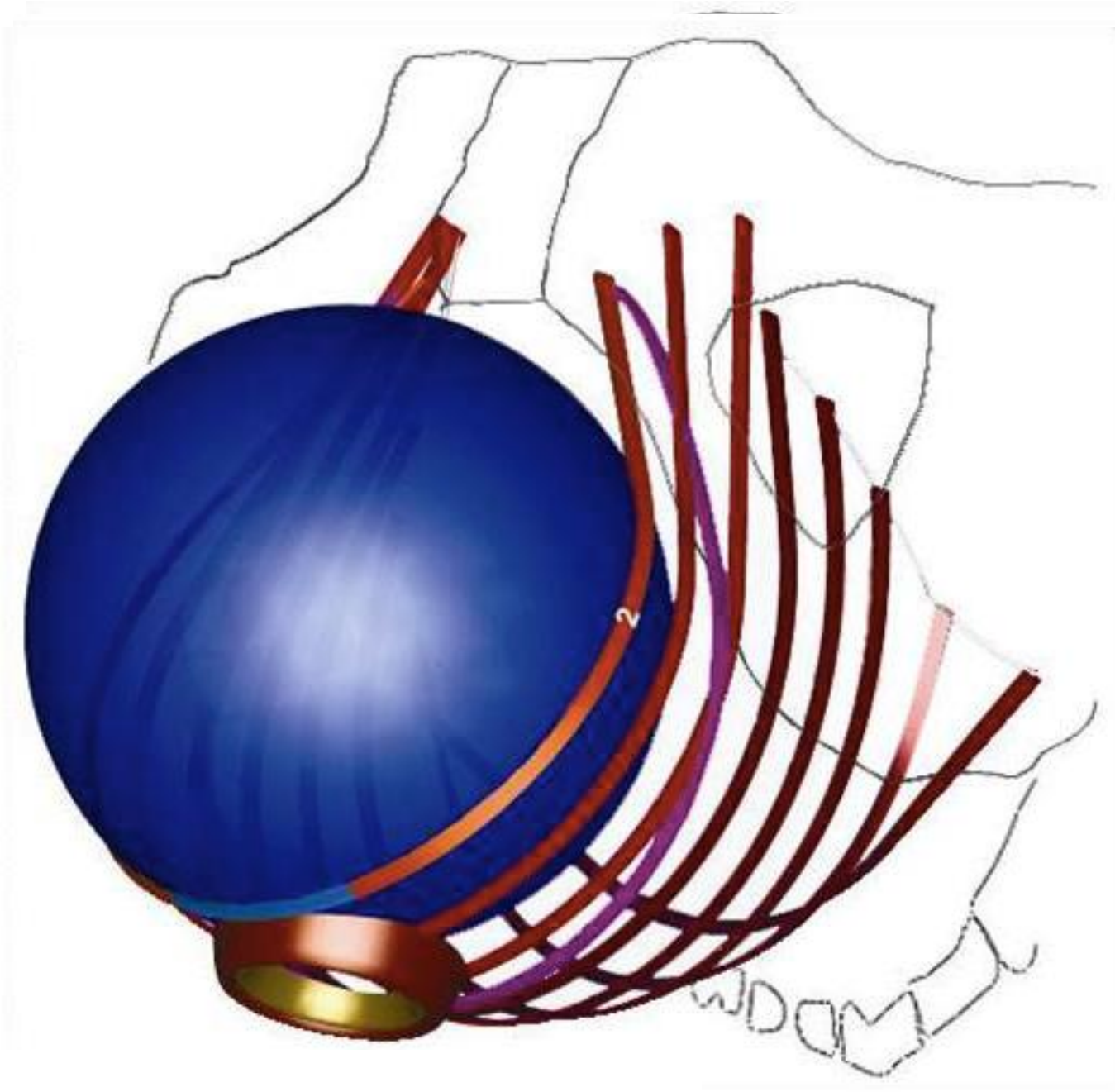
- Historically, attenuation or stretching of pelvic connective tissue.
- More recent findings demonstrate that breaks or tears of site-specific connective tissue result in identifiable anatomic defects in pelvic support.

Beckmann Chapter 30, pp 262-270

Delivery

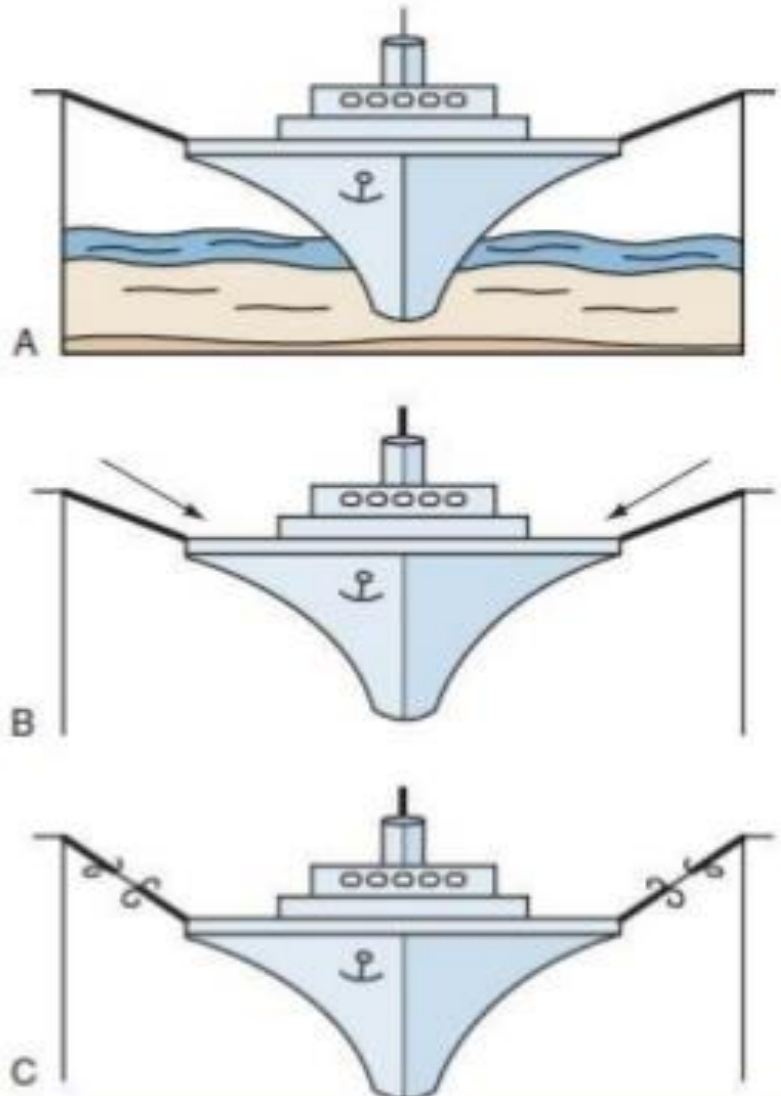


- Biologic mechanisms have not been proven conclusively
- Suggested that damage is due to stretching, tearing of nerves, muscles, connective tissue



Lien, et al, 2004

Analogy demonstrating the support

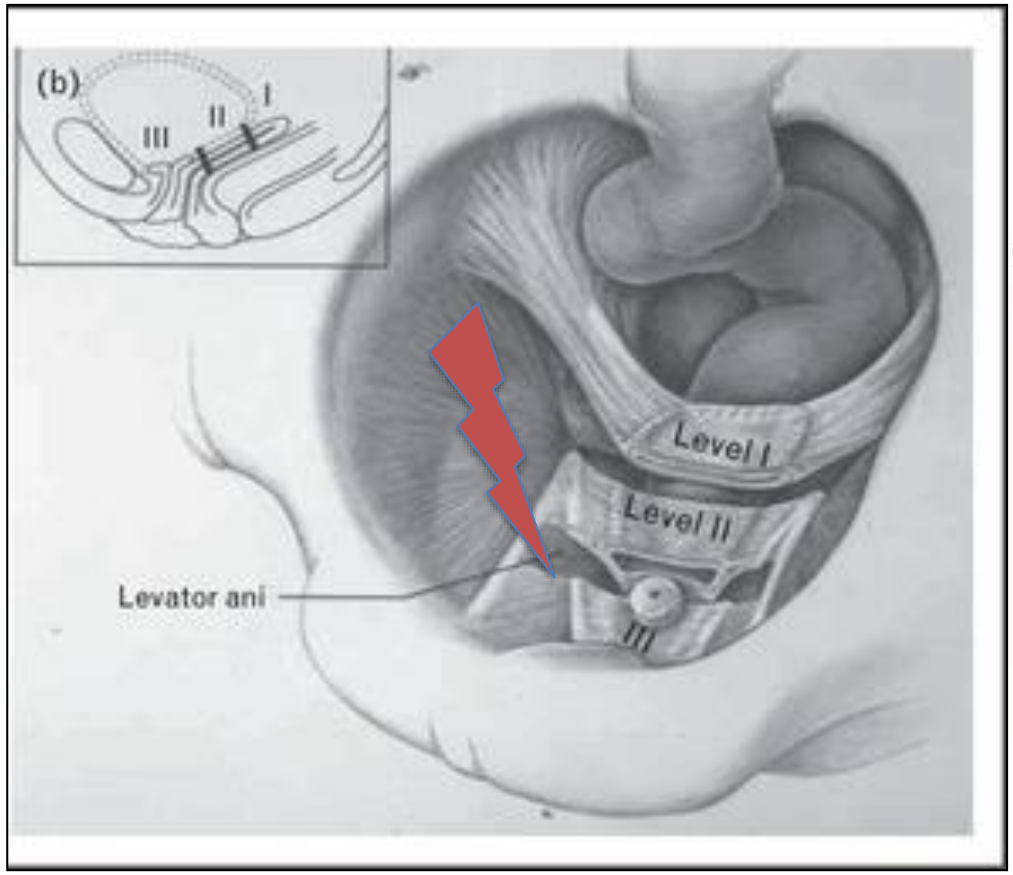


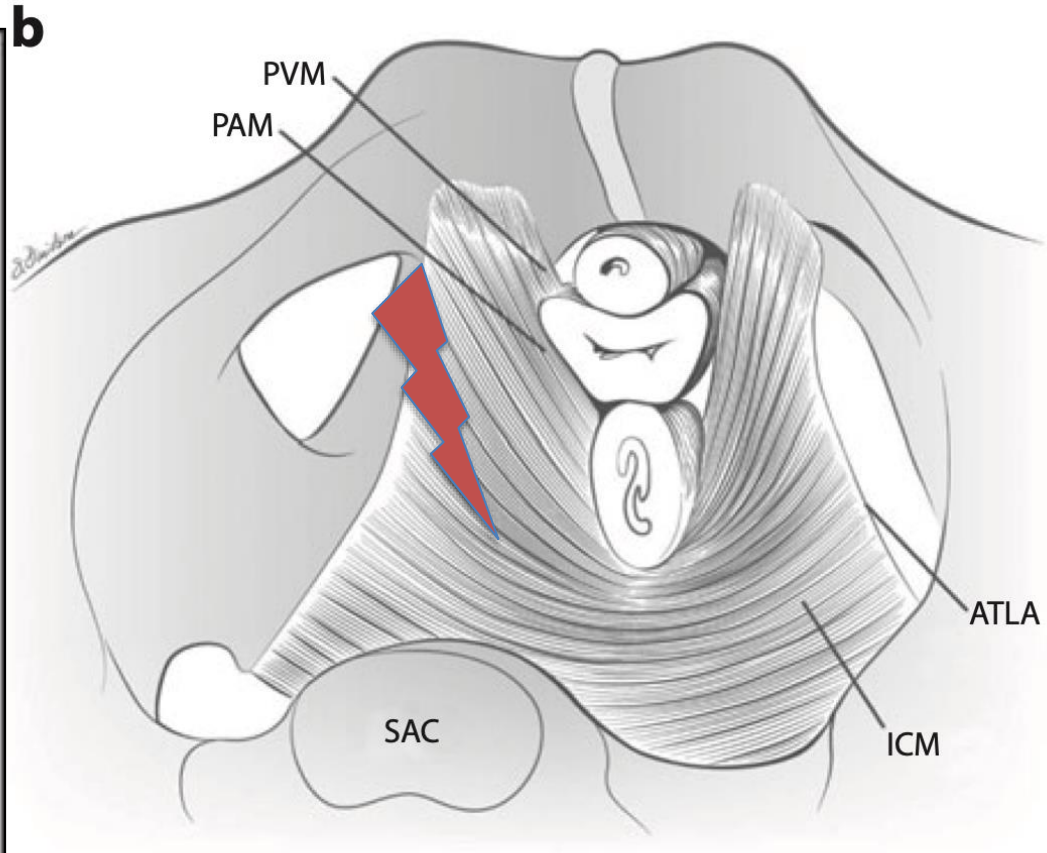
A: Pelvic floor (water) and ligaments (ropes) to the pelvic organs (ship).

B: Consequences of a pelvic floor muscle weakness with increasing strain placed on ligamentous structures.

C: Ligamentous damage as a consequence of loss of pelvic floor muscle weakness.

Support - INJURY!





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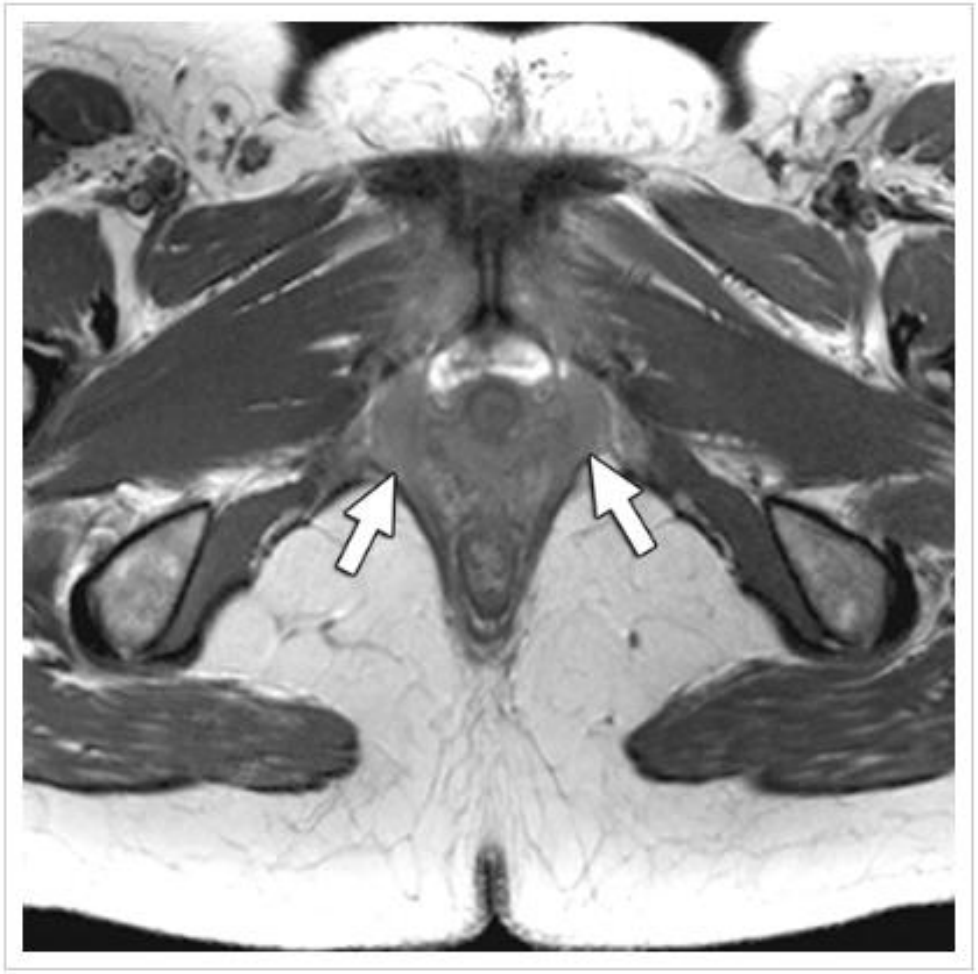
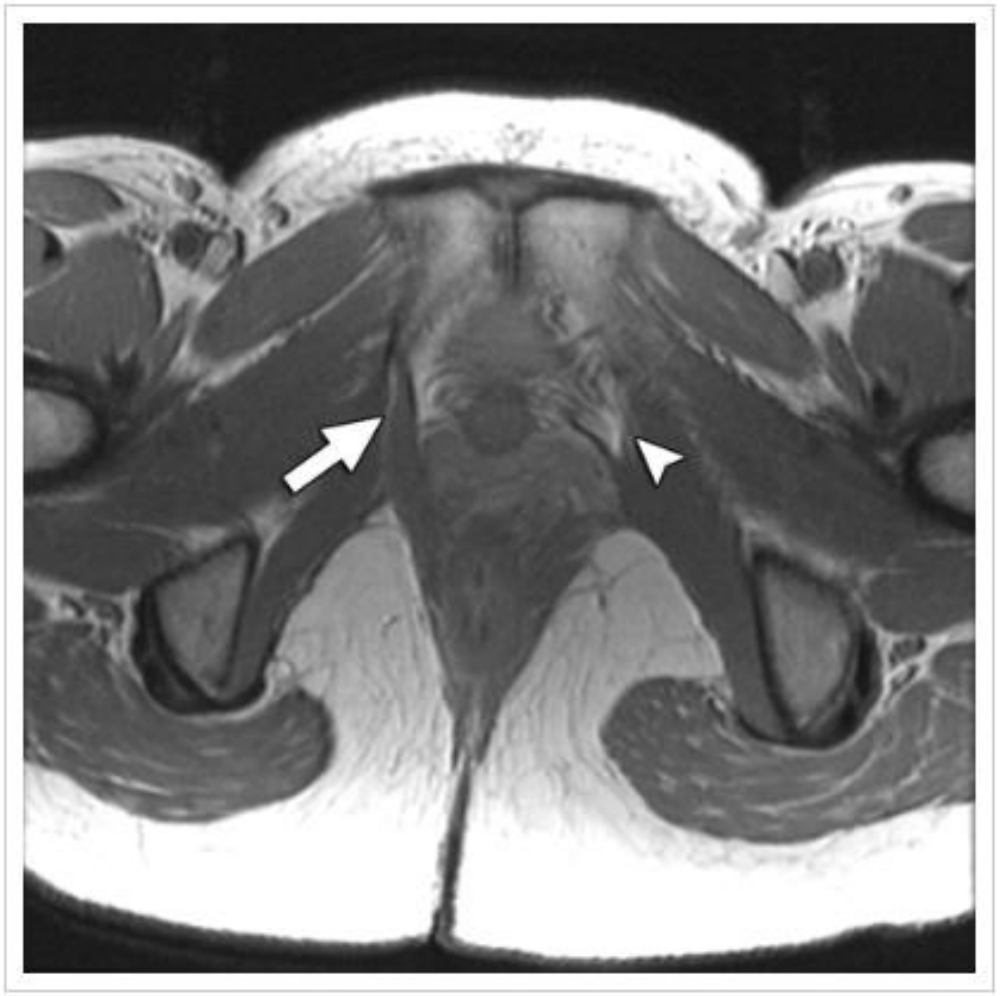
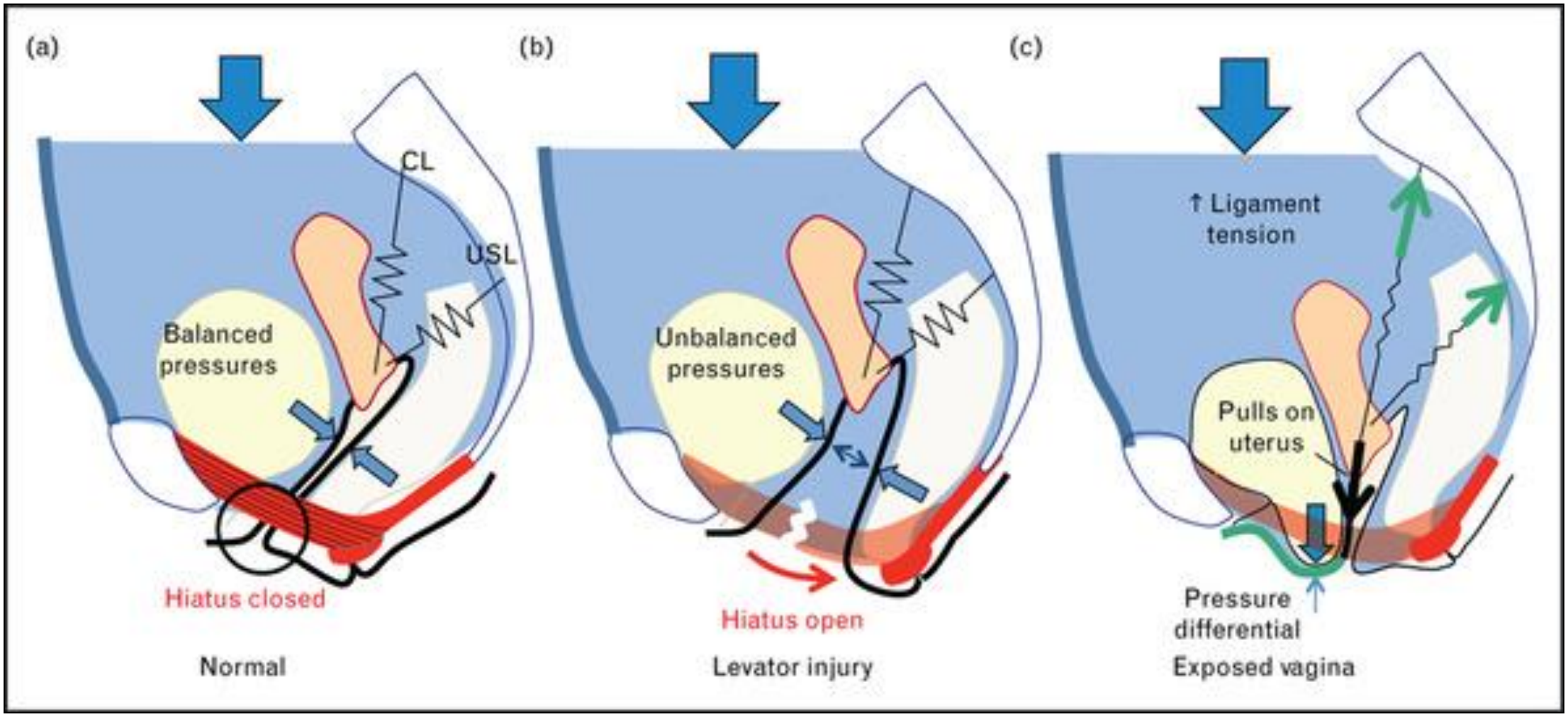
MRI Findings After Vaginal Birth

No Tear, Edema
3wks PP



+ Tear
6wks PP





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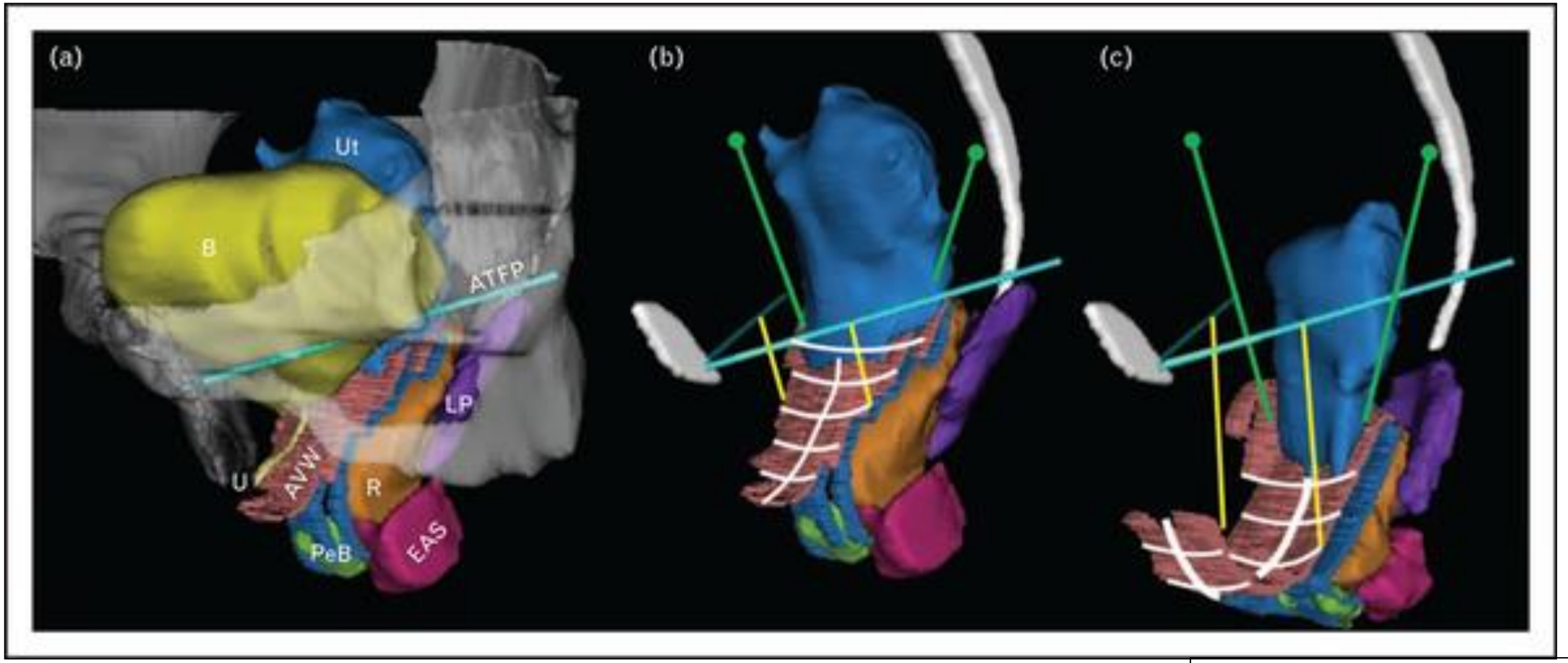
At rest **Max Valsalva**



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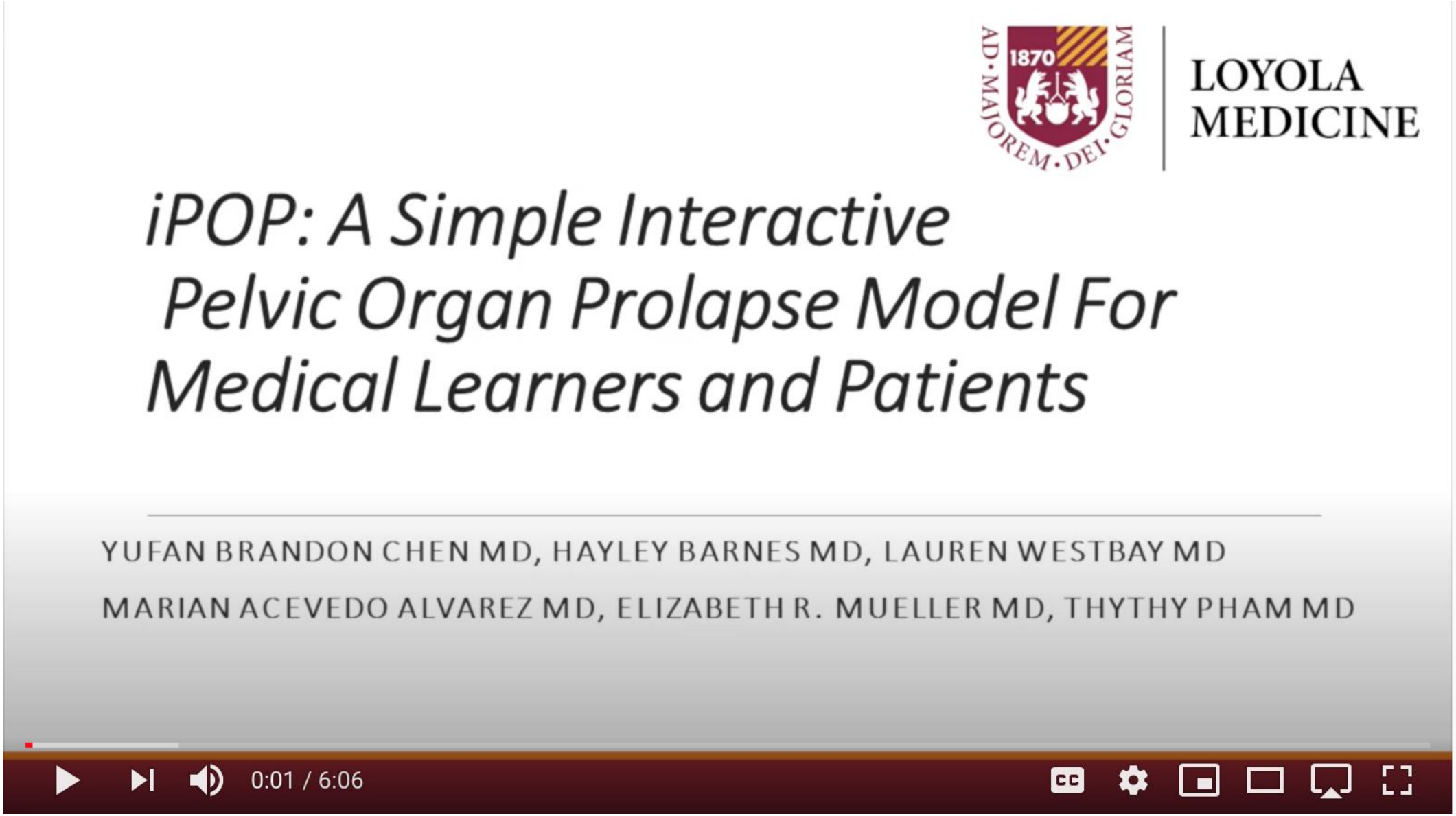
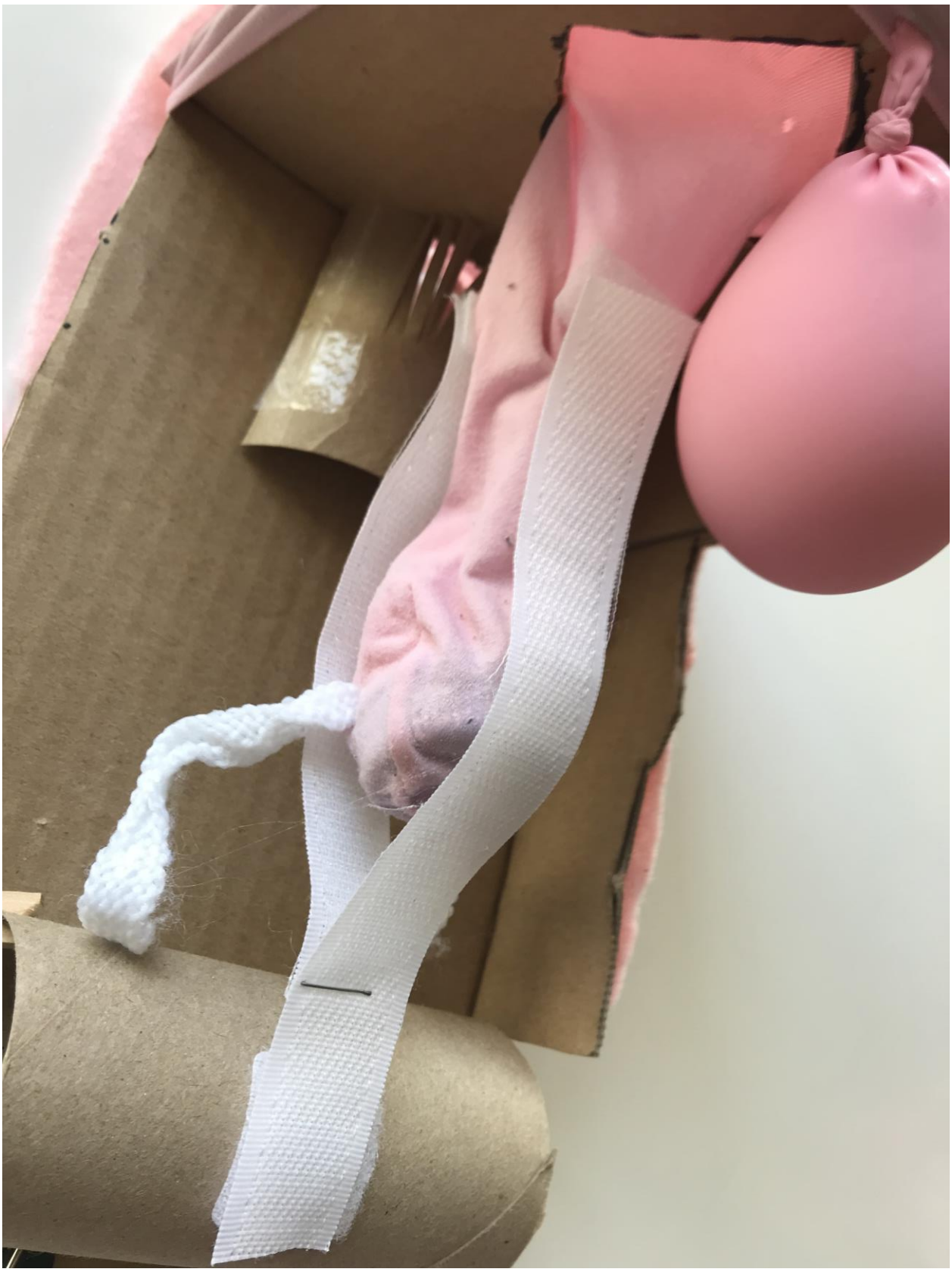
TYPES

- descent or prolapse of the uterus,
- urethra (urethral detachment, or **urethrocele**),
- bladder (**cystocele**),
- or rectum (**rectocele**).
- small bowel to herniate through (**enterocele**) can also occur.

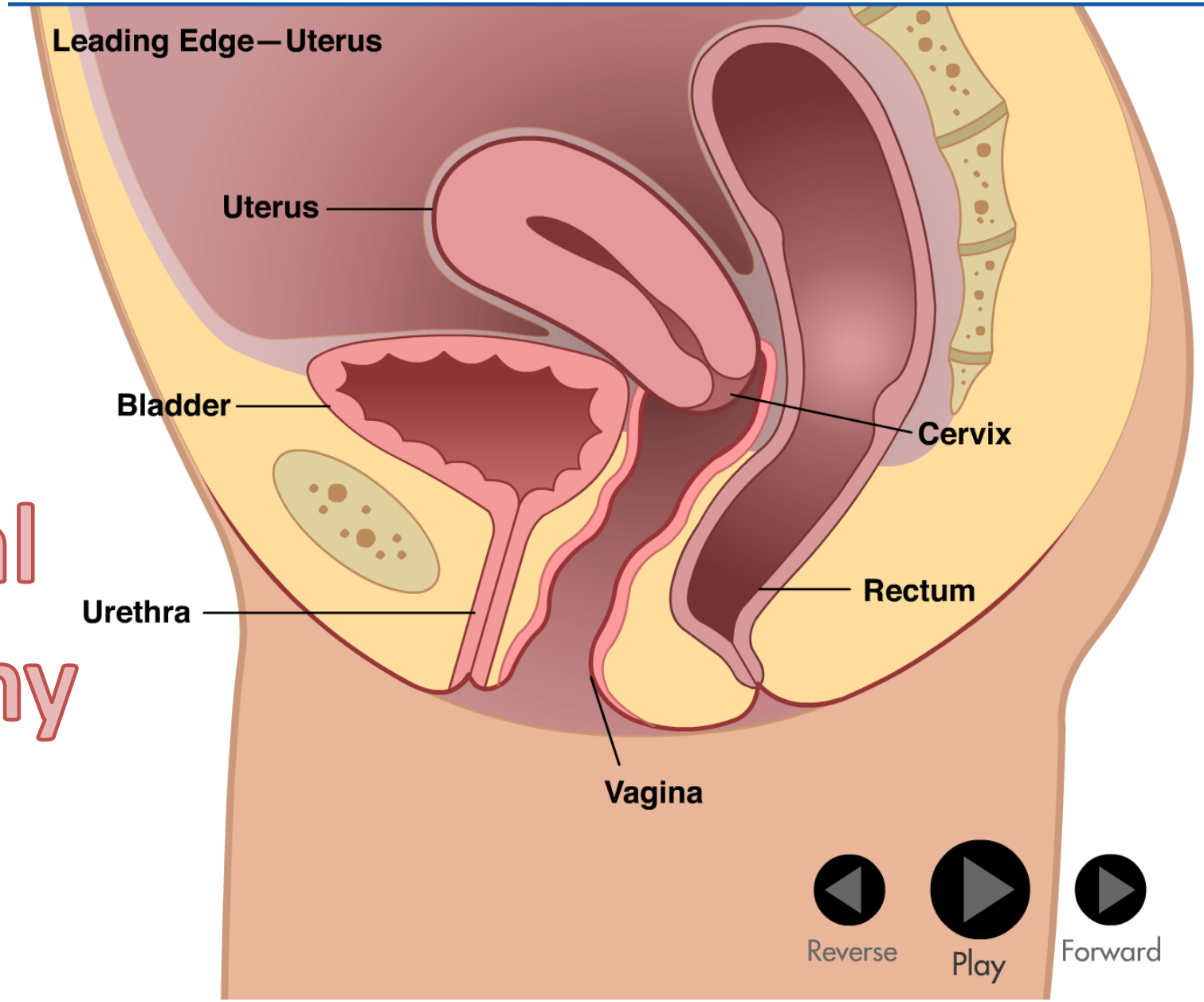
Beckmann Chapter 30, pp 262-270



https://youtu.be/J-nay3xOcCw

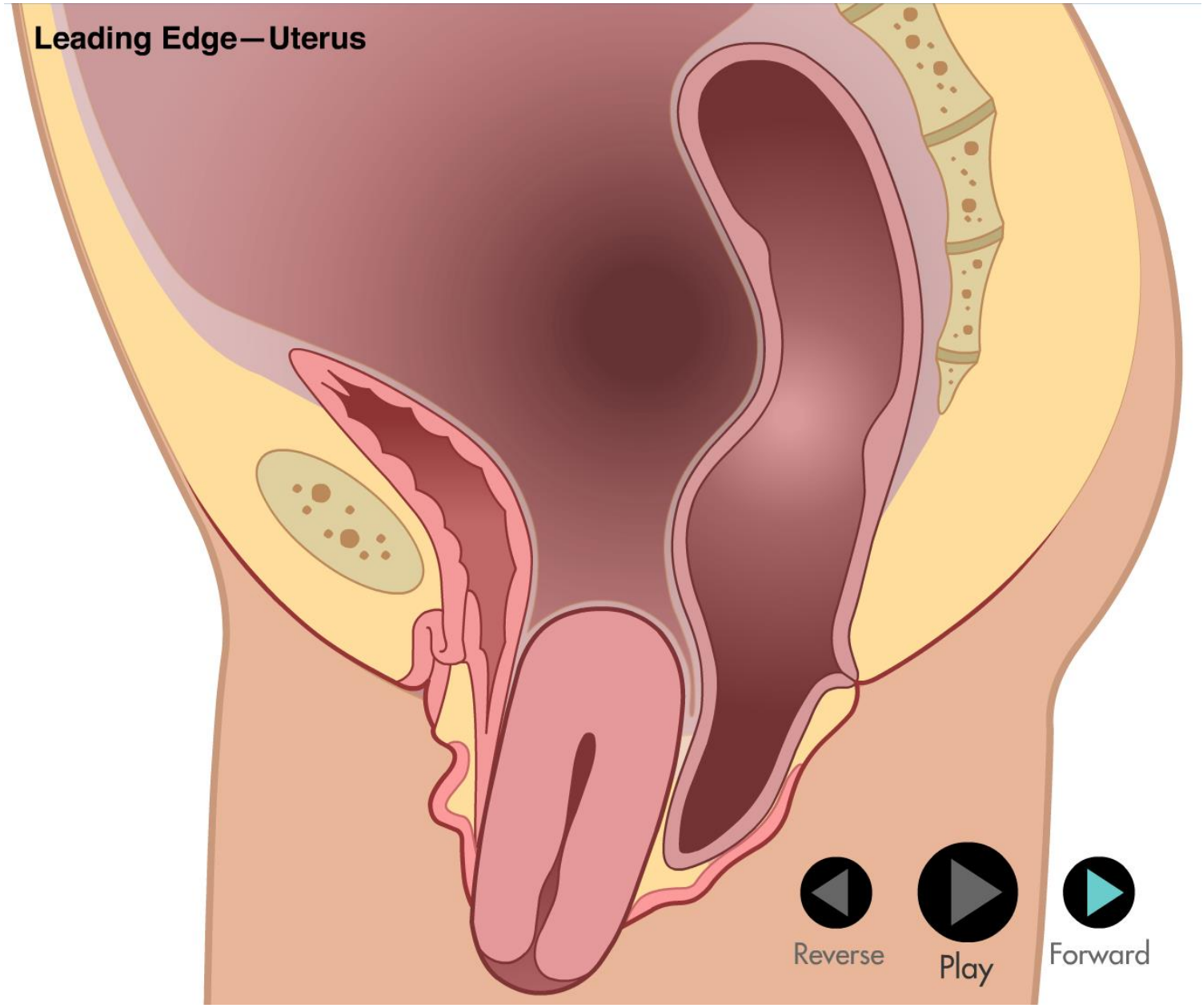


Normal Anatomy



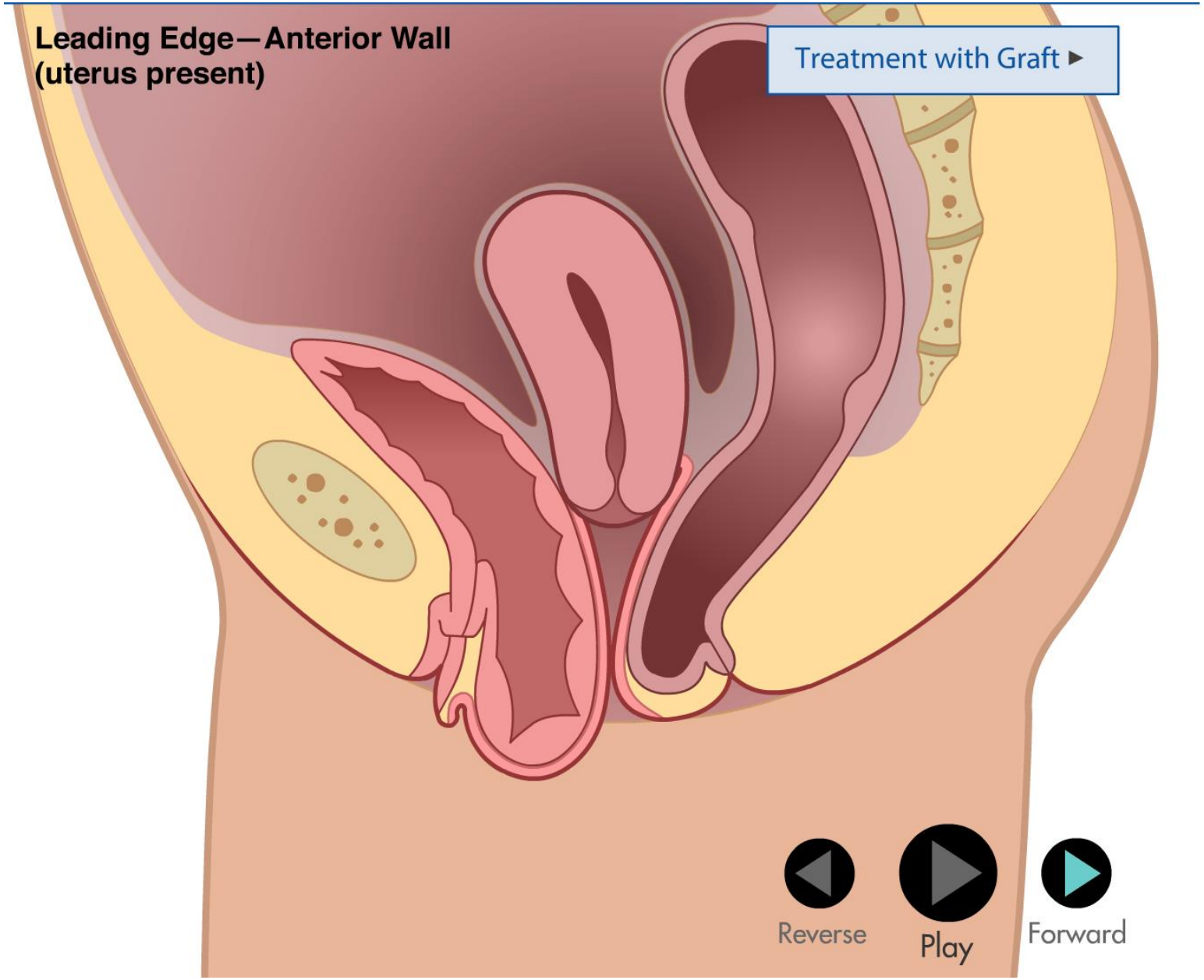
AUGS POP-Q Interactive Tool

Types of POP: Uterine Prolapse



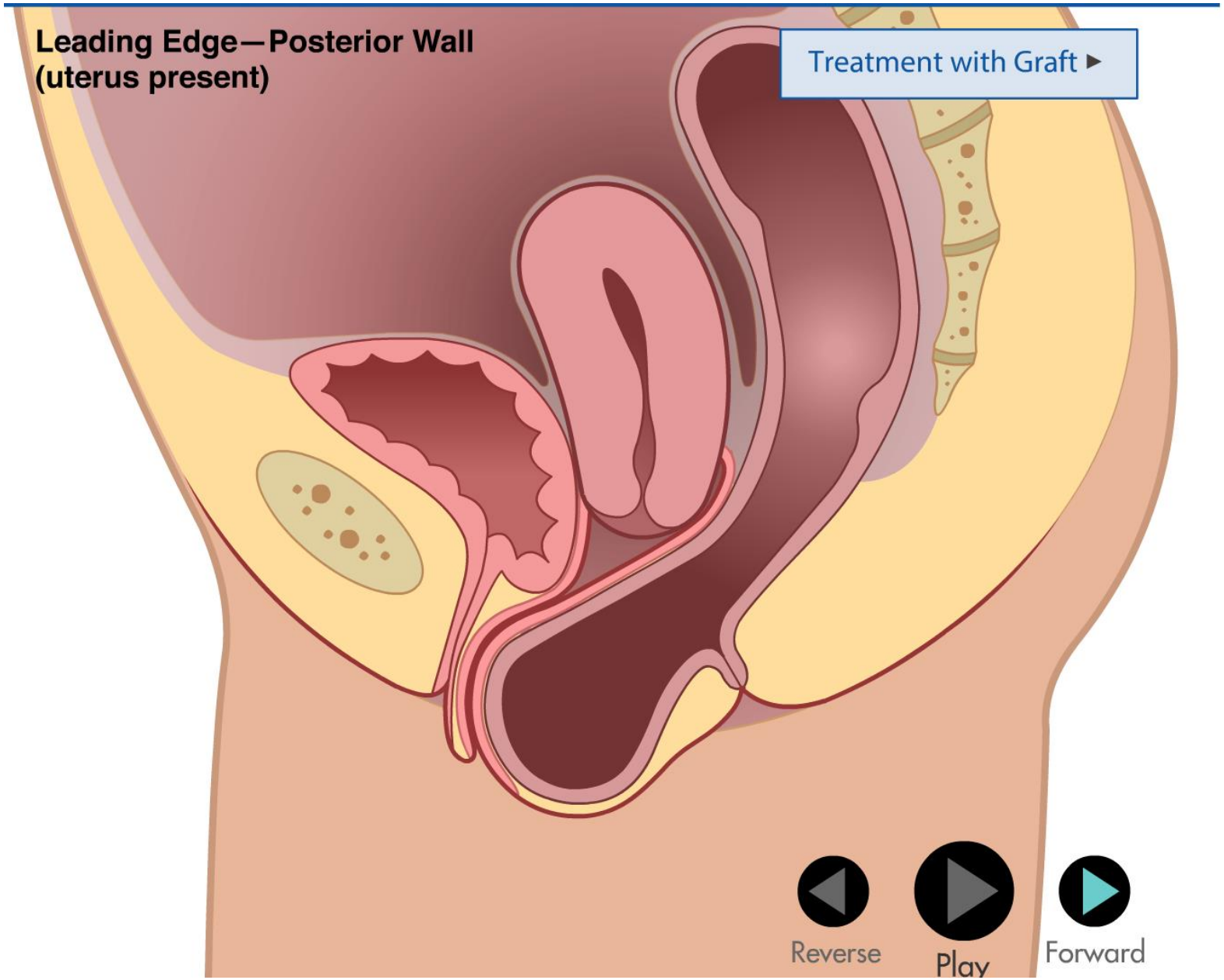
AUGS POP-Q Interactive Tool

Types of POP
Cystocele



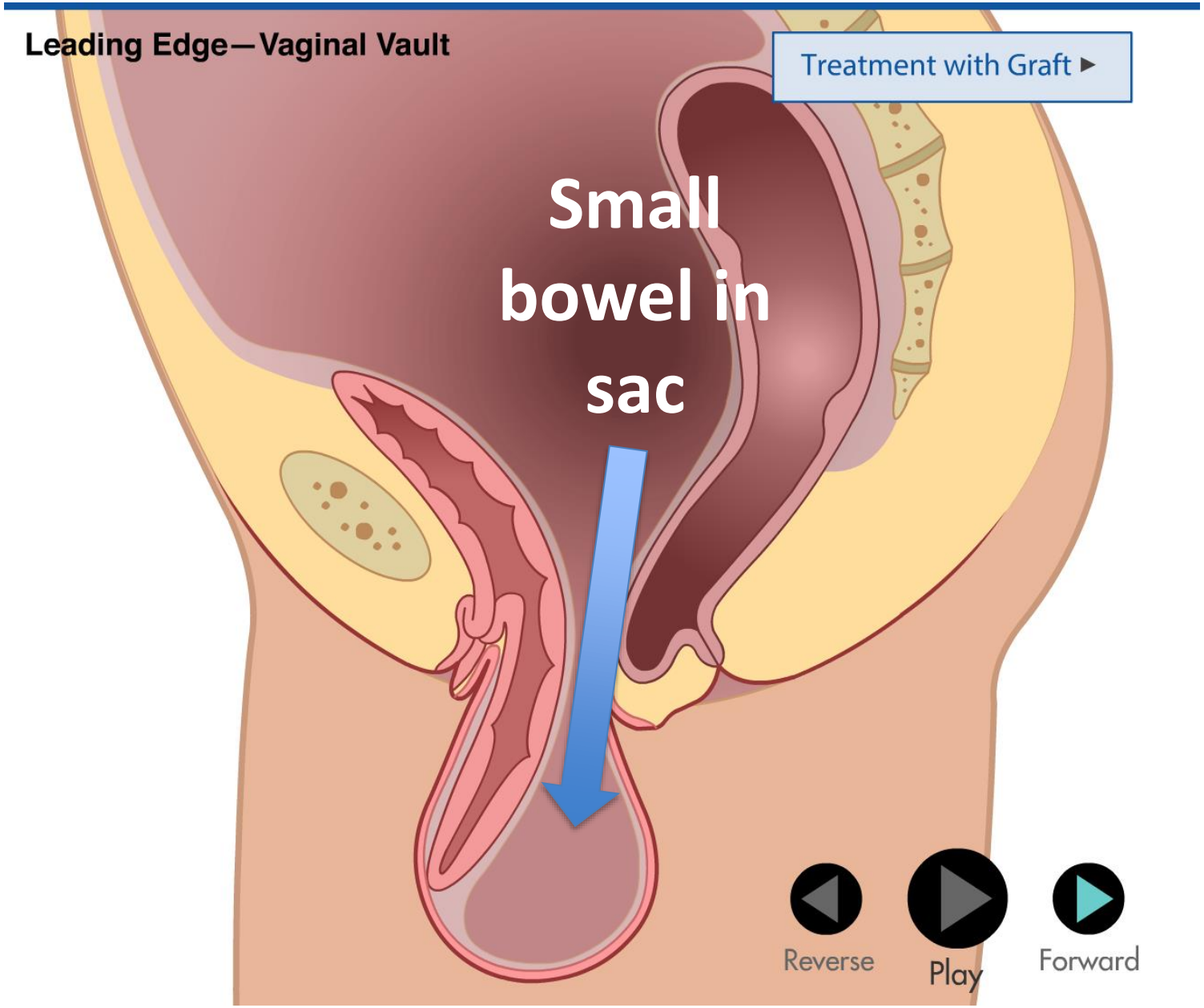
AUGS POP-Q Interactive Tool

Types of POP: Rectocele



AUGS POP-Q Interactive Tool

Types of POP: Enterocele



AUGS POP-Q Interactive Tool

- https://www.augs.org/patient-services/pop-q-tool-interactive/

AUGS POP-Q Interactive Tool

EVALUATION - SYMPTOMS

- urinary or fecal loss or retention;
- vaginal pressure or heaviness;
- abdominal, low back, vaginal, or perineal pain or discomfort;
- a mass sensation;
- difficulty walking, lifting, or sitting;
- difficulty with sexual relations;
- and anxiety or fear related to the condition.

Beckmann Chapter 30, pp 262-270

EVALUATION - SYMPTOMS

- urinary or fecal loss or retention;
- vaginal pressure or heaviness; (BULGE)
- abdominal, low back, vaginal, or perineal pain or discomfort;
- a mass sensation;
- difficulty walking, lifting, or sitting;
- difficulty with sexual relations;
- and anxiety or fear related to the condition. (CANCER)

Beckmann Chapter 30, pp 262-270

EVALUATION - EXAMINATION

- Evaluation of specific anatomic sites with measurements that define the severity of prolapse

- Evaluate
  - urethra,
  - vagina (including the anterior and posterior vaginal walls, paravaginal wall, and vaginal apex),
  - perineum,
  - and anal sphincter.

Beckmann Chapter 30, pp 262-270

PELVIC ORGAN PROLAPSE QUANTIFICATION (POP-Q)

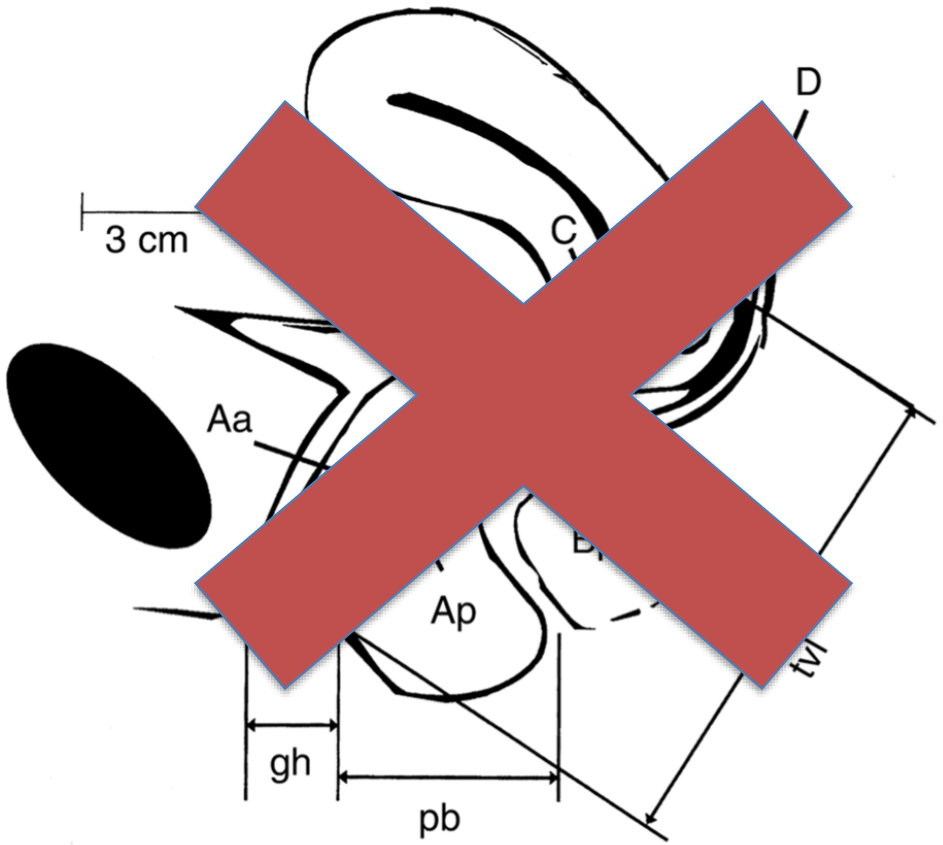
- a classification of pelvic support that measures six specific points in the vagina relative to the hymen
- Define stages of prolapse

Beckmann Chapter 30, pp 262-270

PELVIC ORGAN PROLAPSE QUANTIFICATION (POP-Q)

- Stage 0: No prolapse.
- Stage I: leading edge is >1 cm above the hymen.
- Stage II: leading edge is ≤1 cm above or below the hymen.
- Stage III: leading edge is >1 cm beyond the hymen, but less than or equal to the total vaginal length.
- Stage IV: Complete eversion.

Beckmann Chapter 30, pp 262-270



Anterior wall **Aa**	Anterior wall **Ba**	Cervix or cuff **C**
Genital hiatus **gh**	Perineal body **pb**	Total vaginal length **tvl**
Posterior wall **Ap**	Posterior wall **Bp**	Posterior fornix **D**

ACOG Practice Bulletin No. 214 Pelvic Organ Prolapse

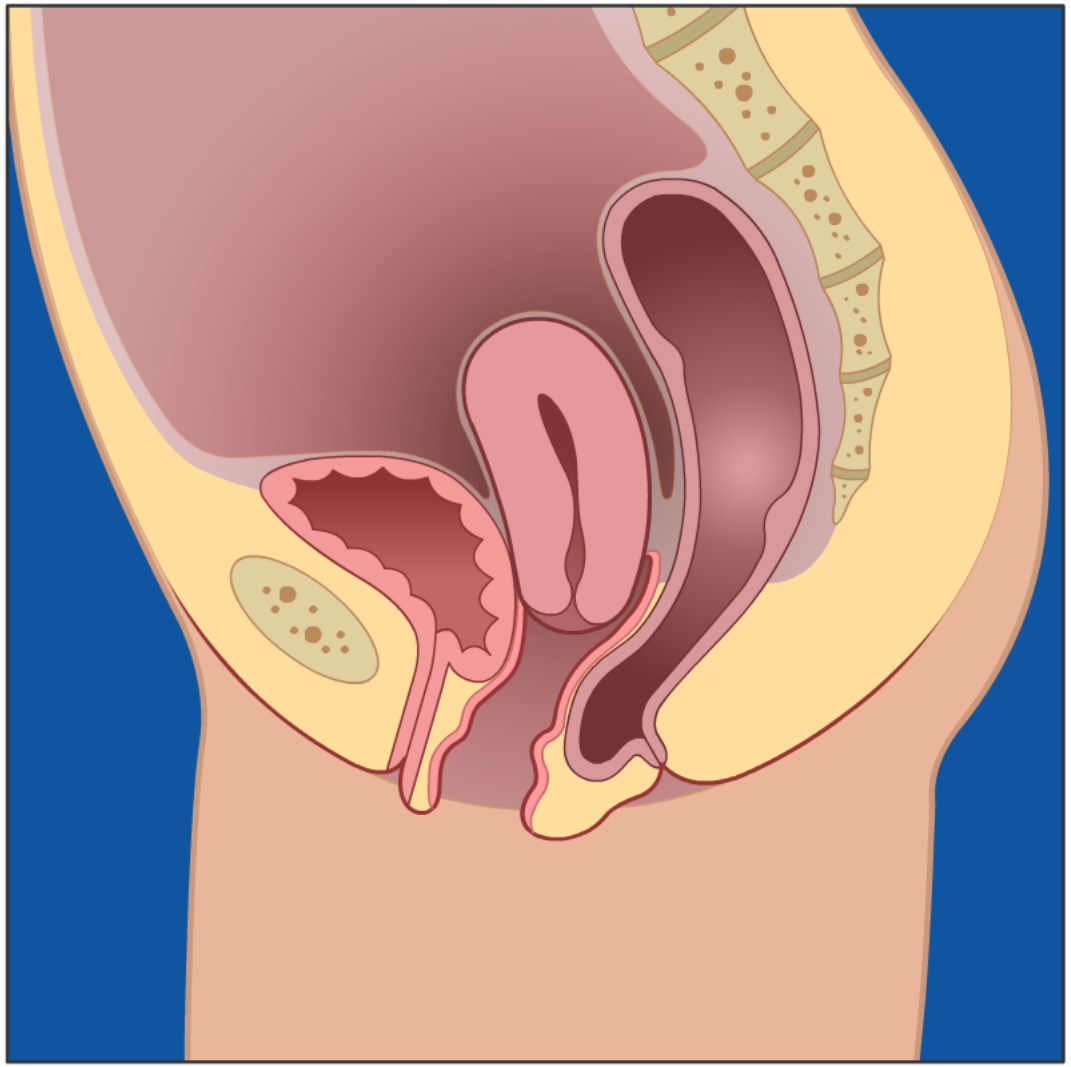
anterior wall -2 Aa	anterior wall -2 Ba	cervix or cuff -6 C
genital hiatus 3 gh	perineal body 3 pb	total vaginal length 10 tvl
posterior wall -2 Ap	posterior wall -2 Bp	posterior fornix -8 D

Aa	Ba	C
GH	PB	TVL
Ap	Bp	D

anterior wall -2 Aa	anterior wall -2 Ba	cervix or cuff -6 C
genital hiatus 3 gh	perineal body 3 pb	total vaginal length 10 tvl
posterior wall -2 Ap	posterior wall -2 Bp	posterior fornix -8 D

Aa	Ba	C
GH	PB	TVL
Ap	Bp	D

Sample Staging Using POP-Q System

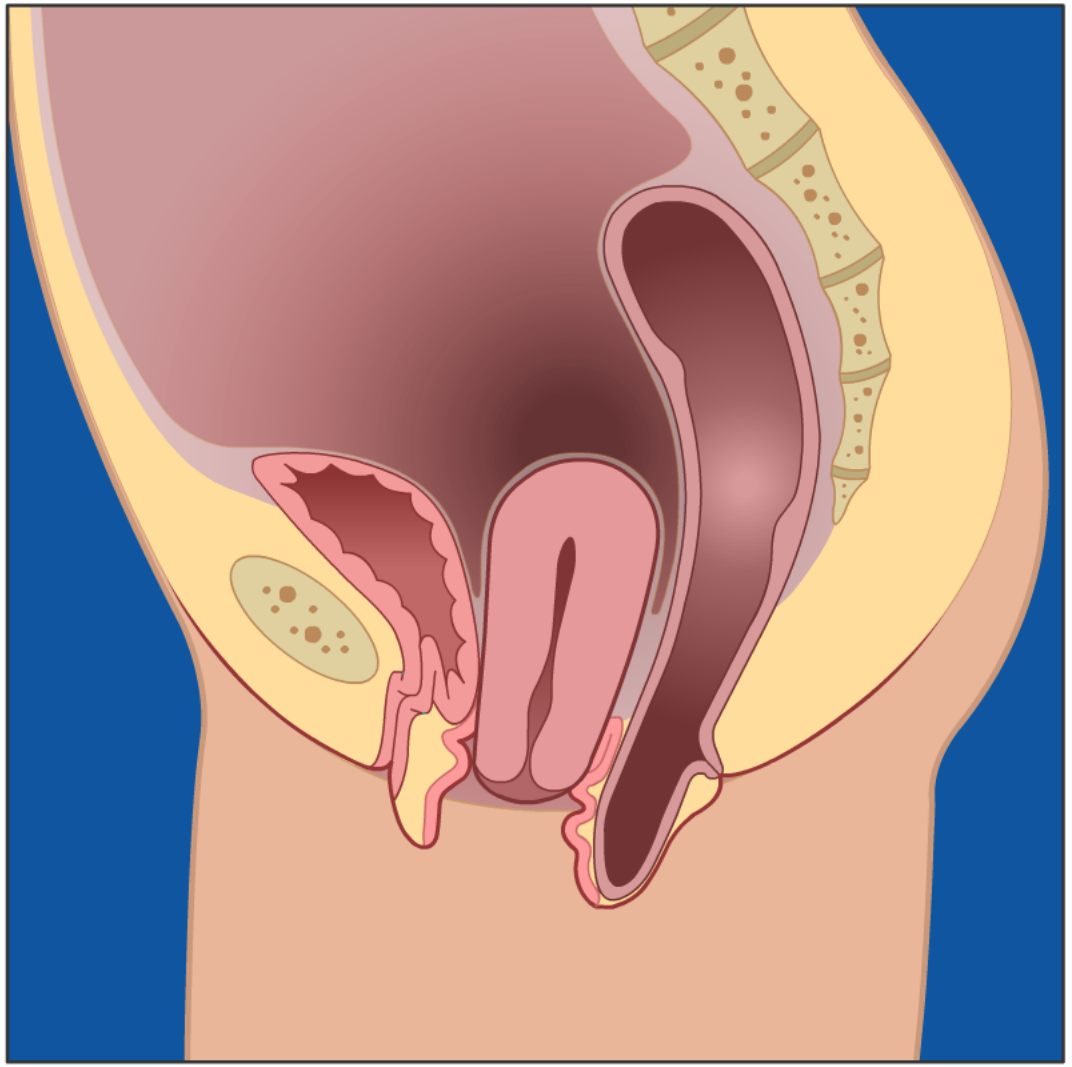


Stage 1 Uterine Prolapse

anterior wall -2 Aa	anterior wall -2 Ba	cervix or cuff -6 C
genital hiatus 3 gh	perineal body 3 pb	total vaginal length 10 tvl
posterior wall -2 Ap	posterior wall -2 Bp	posterior fornix -8 D

AUGS POP-Q Interactive Tool

Sample Staging Using POP-Q System



Stage 2 Uterine Prolapse

anterior wall 1 Aa	anterior wall 1 Ba	cervix or cuff 0 C
genital hiatus 1 gh	perineal body 4 pb	total vaginal length 10 tvl
posterior wall 1 Ap	posterior wall 1 Bp	posterior fornix -2 D

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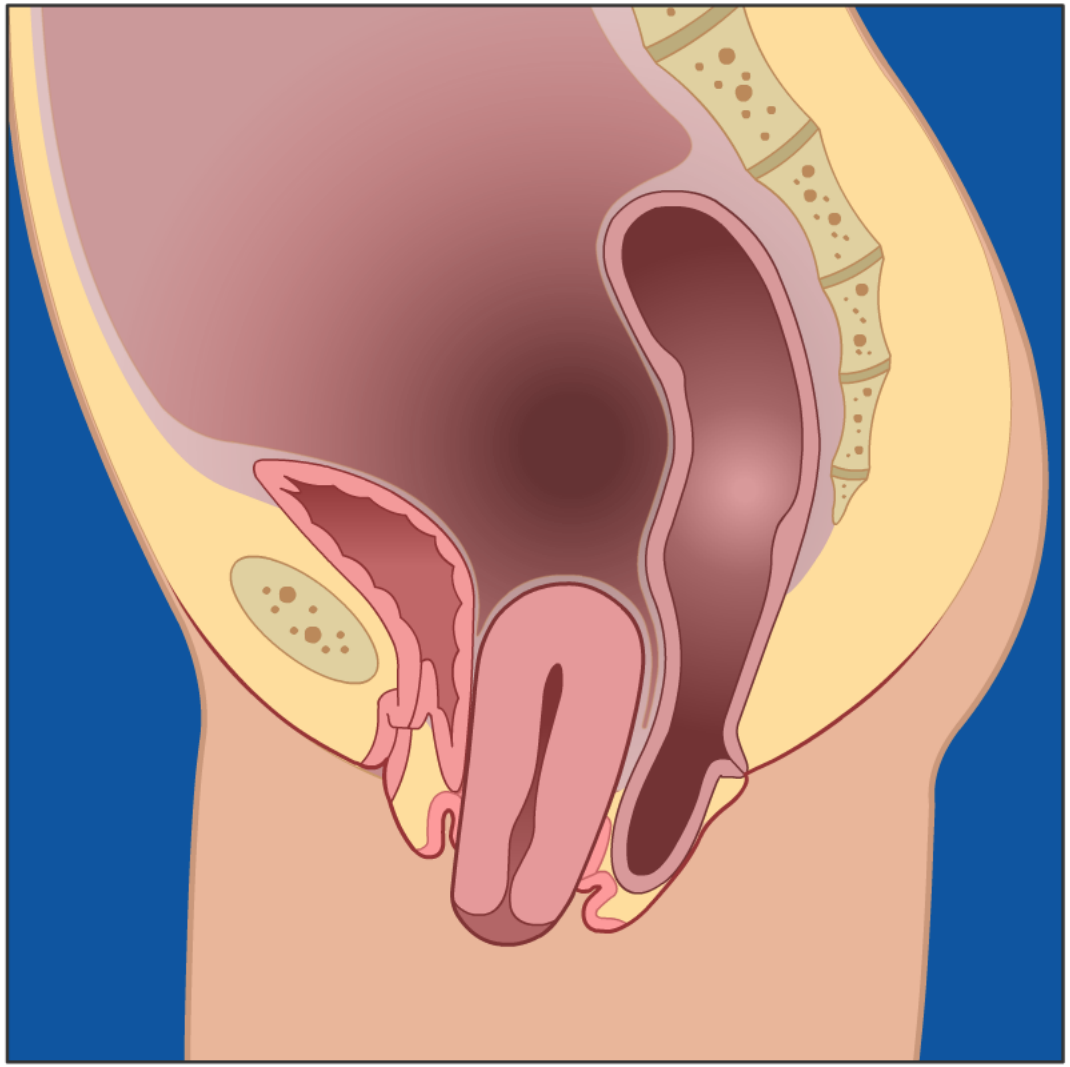
Sample Staging Using POP-Q System

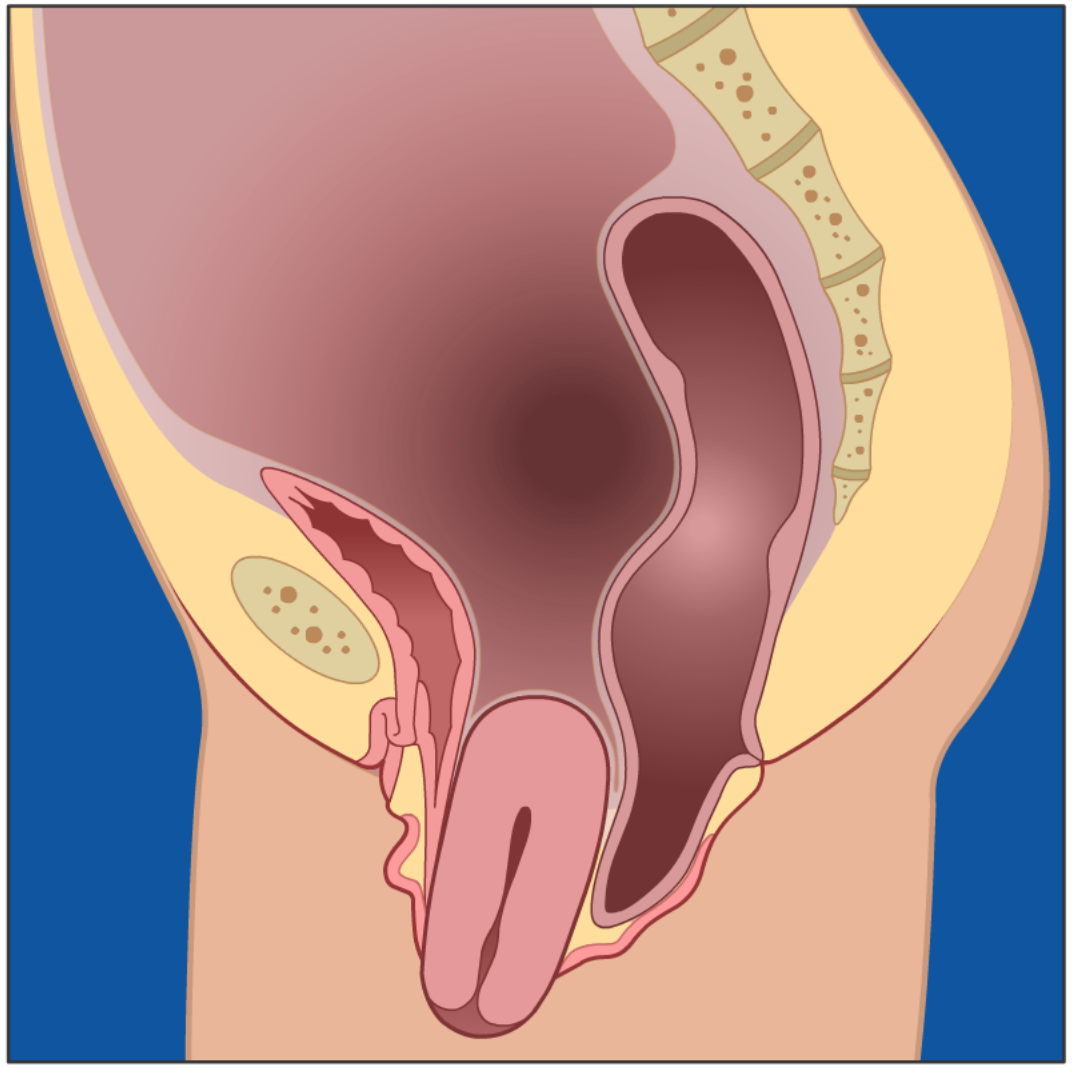


Stage 3 Uterine Prolapse

anterior wall 2 Aa	anterior wall 3 Ba	cervix or cuff 4 C
genital hiatus 1 gh	perineal body 5 pb	total vaginal length 10 tvl
posterior wall 2 Ap	posterior wall 2 Bp	posterior fornix 1 D

AUGS POP-Q Interactive Tool

Sample Staging Using POP-Q System



Stage 4 Uterine Prolapse

anterior wall 3 Aa	anterior wall 5 Ba	cervix or cuff 8 C
genital hiatus 1 gh	perineal body 6 pb	total vaginal length 10 tvl
posterior wall 3 Ap	posterior wall 5 Bp	posterior fornix 5 D

AUGS POP-Q Interactive Tool

- https://www.augs.org/patient-services/pop-q-tool-interactive/

AUGS POP-Q Interactive Tool

?

HISTORY

- Has there been a change in intra-abdominal pressure? If yes, what is the cause?
- Does the patient have a chronic cough or constipation that has precipitated her symptoms?
- Is a neurologic process (such as diabetic neuropathy) complicating the patient's presenting complaint?

Beckmann Chapter 30, pp 262-270

DIFFERENTIAL DIAGNOSIS

- Based on exam
- Vaginal masses
  - Diverticulum
  - Gartner's duct cyst
  - Skene gland abscesses
  - occasionally difficult to differentiate between a high rectocele and an enterocele
    - rectal examination
    - or the identification of the small bowel in the hernia sac
    - Commonly diagnosed at time of surgery

Beckmann Chapter 30, pp 262-270

TREATMENT

- Observation
- Non-Surgical
- Surgical

Beckmann Chapter 30, pp 262-270

TREATMENT

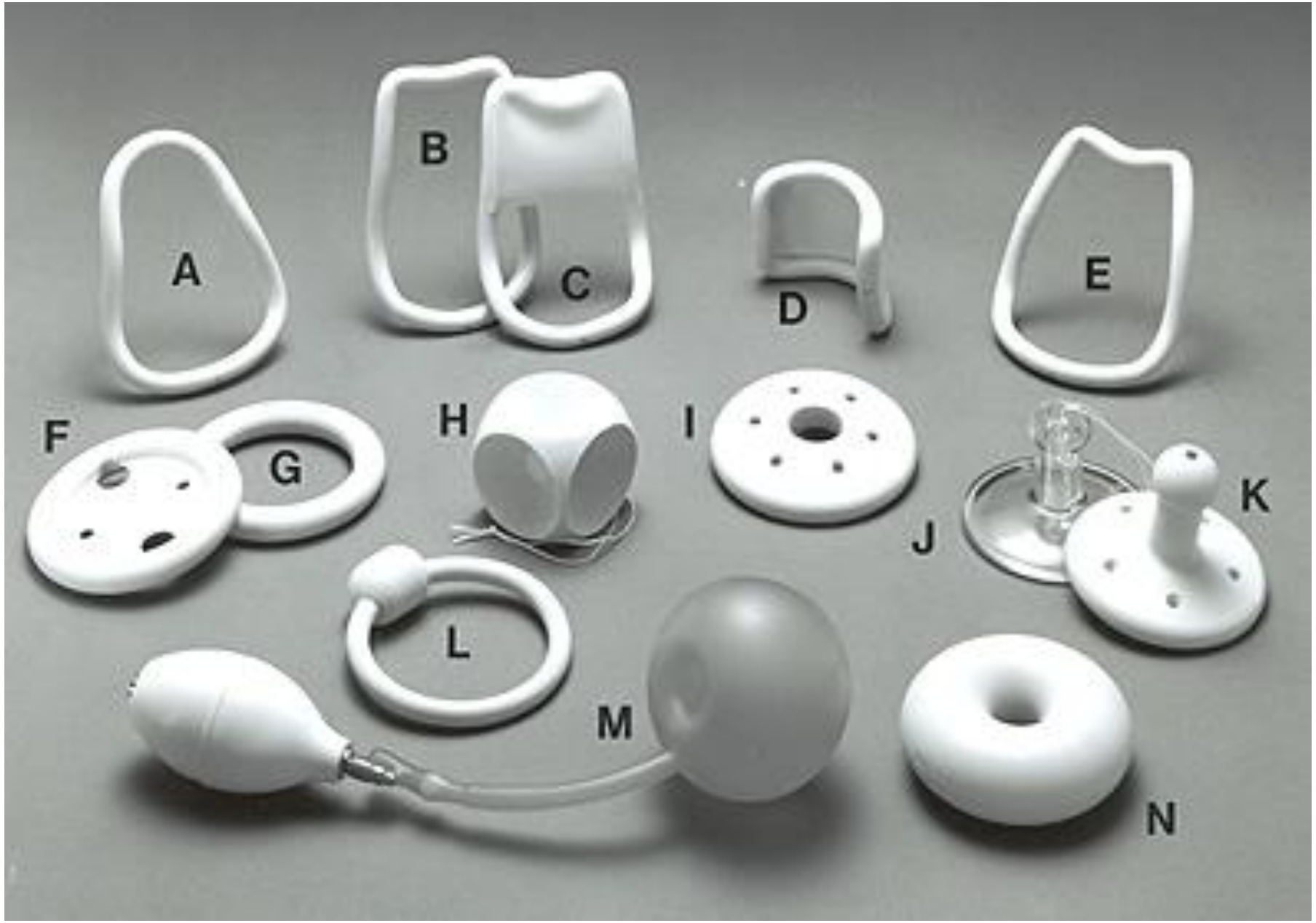
- Observation
- Non-Surgical
- Surgical

Beckmann Chapter 30, pp 262-270

TREATMENT – NONSURGICAL

- Pessaries
- Pelvic Floor Physical Therapy

Beckmann Chapter 30, pp 262-270



UpToDate Vaginal pessaries: Indications, devices, and approach to selection

- https://www.augs.org/patient-services/pop-q-tool-interactive/

AUGS POP-Q Interactive Tool

TREATMENT

- Observation
- Non-Surgical
- Surgical

Beckmann Chapter 30, pp 262-270

TREATMENT - SURGICAL

- Vaginal approach
- Abdominal approach
- Obliterative

Beckmann Chapter 30, pp 262-270

Table 1. Types of Pelvic Organ Prolapse Surgery

Surgical Technique	Aim	Indication
Abdominal sacral colpopexy	To correct upper vaginal prolapse	Most commonly used in women with recurrent cystocele, vault, or enterocele
Uterosacral ligament suspension	To correct upper vaginal prolapse	Performed at the time of hysterectomy or in patients with posthysterectomy vaginal vault prolapse
Sacrospinous fixation	To correct upper vaginal prolapse	Performed at the time of hysterectomy or in patients with posthysterectomy vaginal vault prolapse
Anterior vaginal repair (anterior colporrhaphy)	To correct anterior wall prolapse	May be used for the treatment of prolapse of the bladder or urethra (bladder, urethra, or both, herniates downward into the vagina)
Posterior vaginal repair (posterior colporrhaphy) and perineorrhaphy	To correct posterior wall prolapse	May be used for the treatment of rectocele (rectum bulges or herniates forward into the vagina), defects of the perineum, or both
Vaginal repair with synthetic mesh or biologic graft augmentation	To correct anterior wall prolapse, apical vaginal prolapse, or both	Depending on the specific defect, the mesh augmentation can either be anterior, apical, or both. This repair is not routinely recommended.

Adapted from Maher C, Feiner B, Baessler K, Christmann-Schmid C, Haya N, Marjoribanks J. Transvaginal mesh or grafts compared with native tissue repair for vaginal prolapse. Cochrane Database Syst Rev. 2016 Feb 9;2:CD012079.

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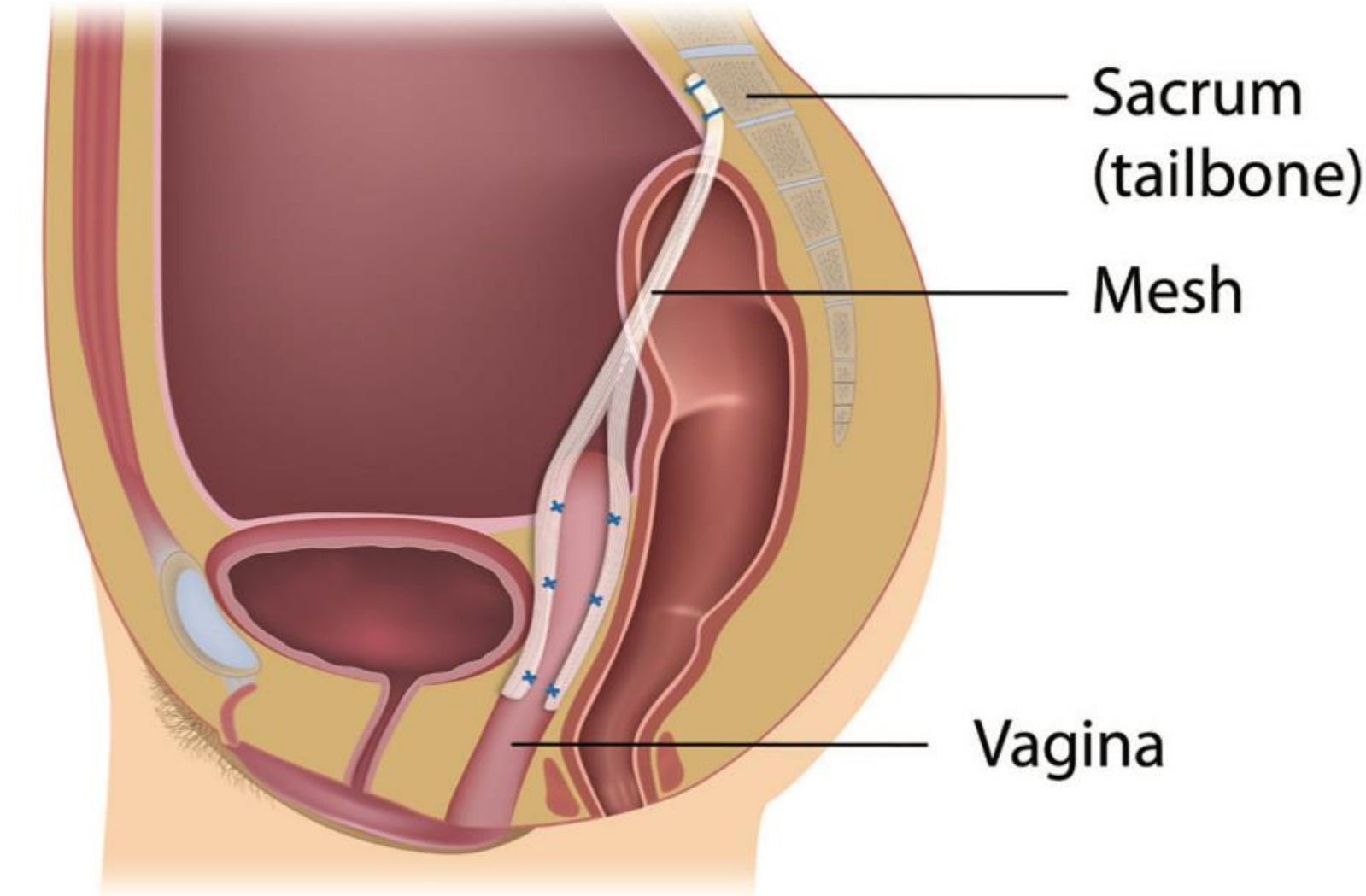
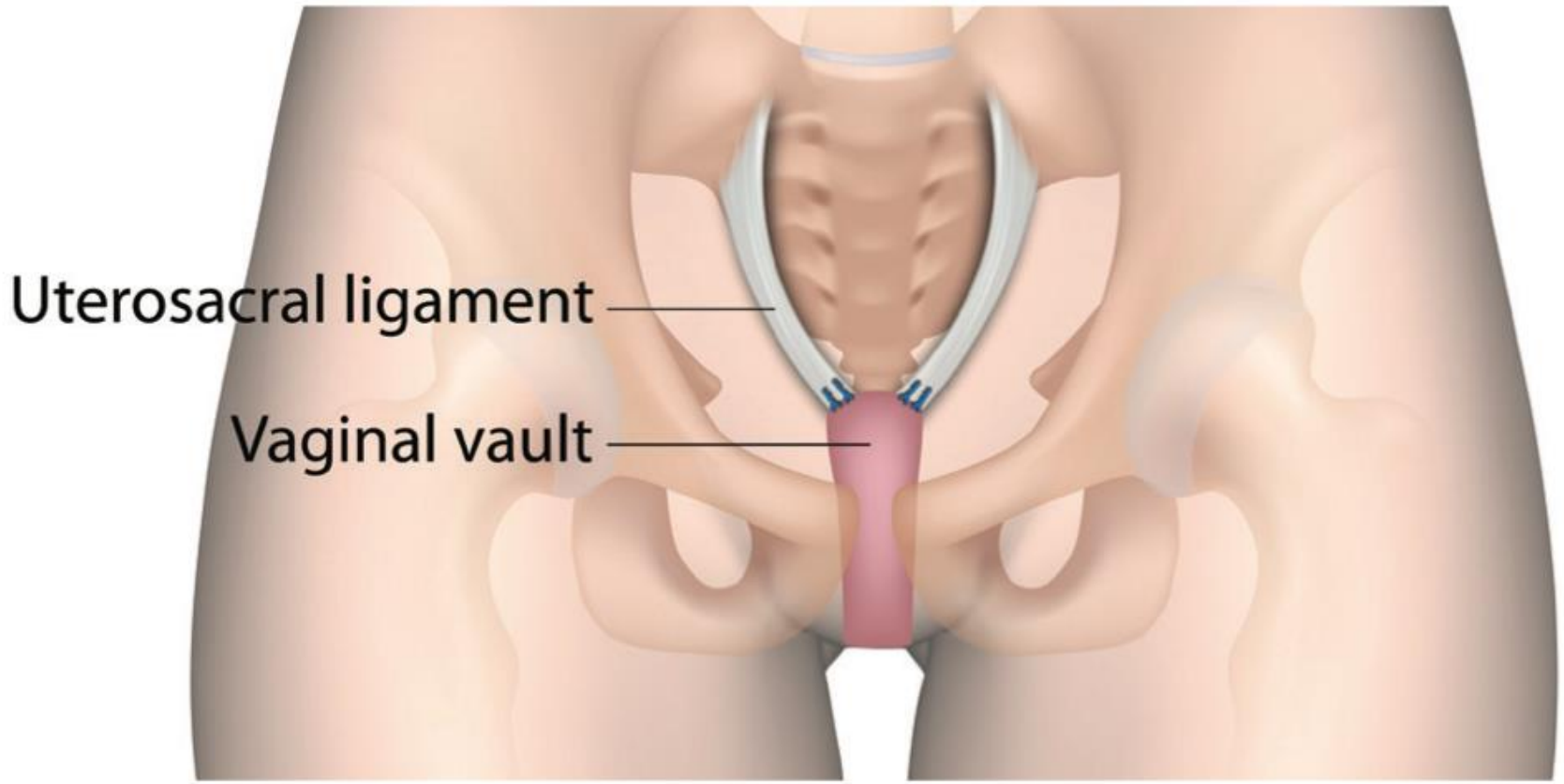


AFTER HYSTERECTOMY AND SACROCOLPOPEXY

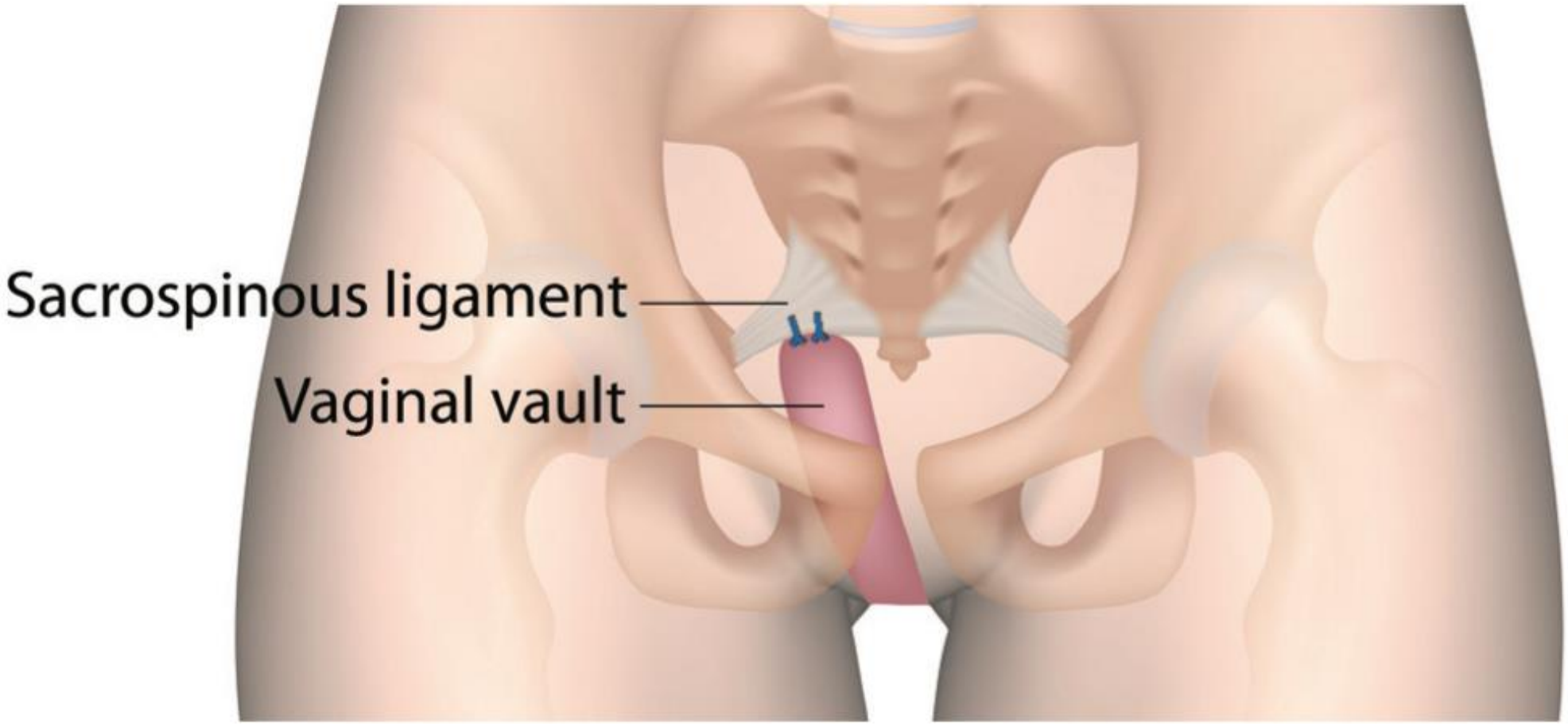
AUGS Patient Handout: Sacrocolpopexy

UTEROSACRAL LIGAMENT SUSPENSION



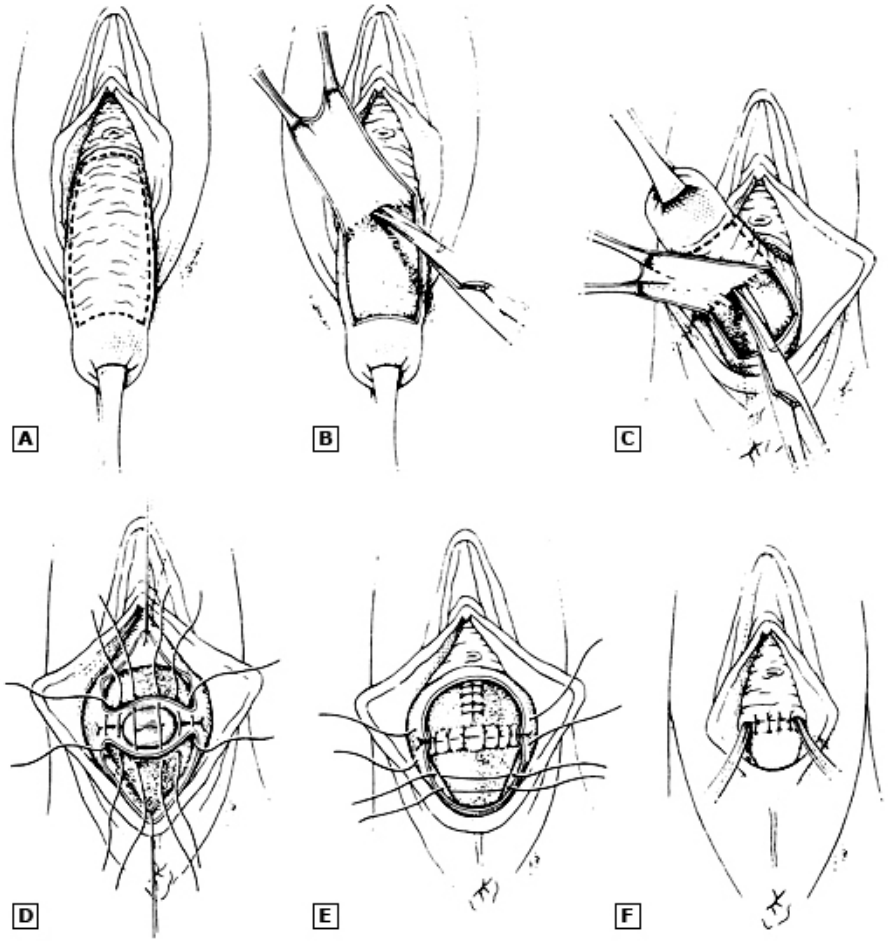
AUGS Patient Handout: Vaginal Suspension Surgery

SACROSPINOUS FIXATION



AUGS Patient Handout: Vaginal Suspension Surgery

Le Fort partial colpocleisis



(A-C) In Le Fort colpocleisis, rectangles of vaginal mucosa are removed from the anterior and posterior vaginal walls.
(D, E) The denuded areas are then sutured together, leaving (F) channels on each side open.

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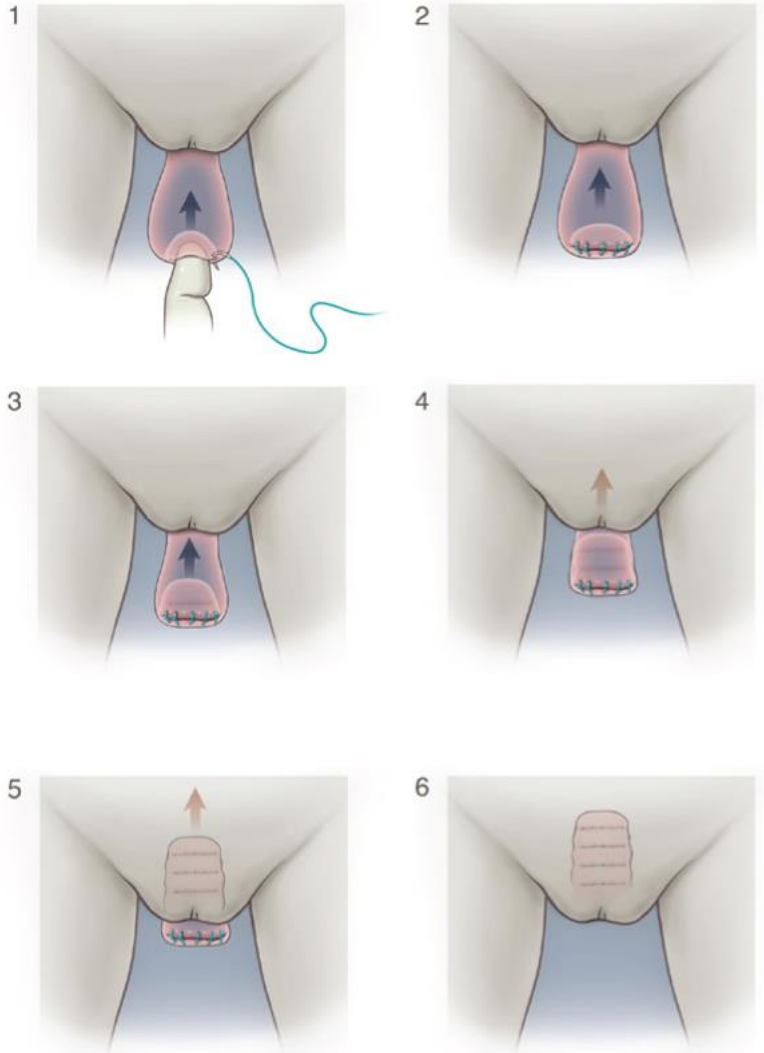

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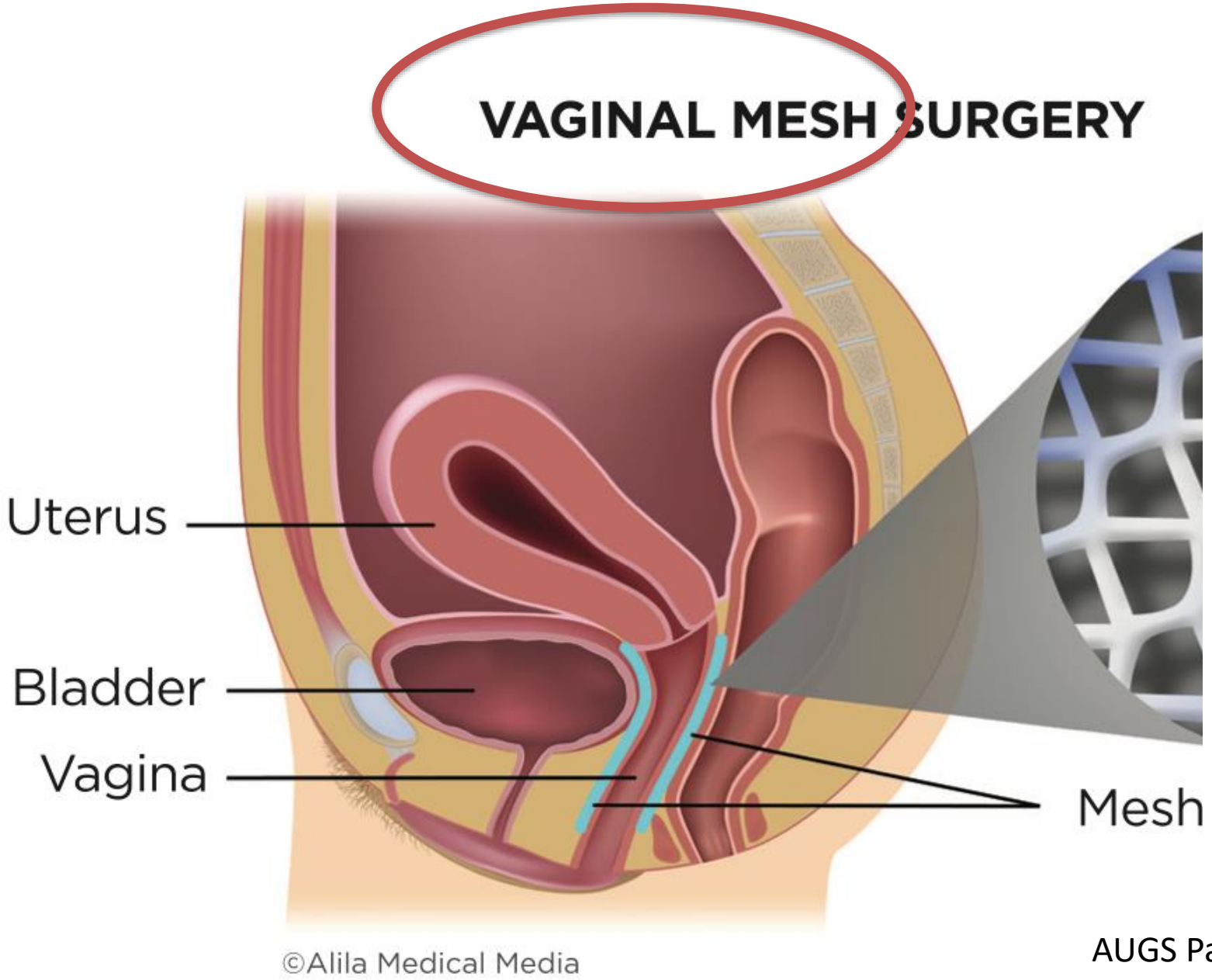

April 2019, the FDA ordered the manufacturers of all remaining surgical mesh products indicated for the transvaginal repair of POP to stop selling and distributing their products in the United States

AUGS Patient Handout: Vaginal Prolapse Repair Surgery using Mesh/Biological Grafty

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QUESTIONS?

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