DEPARTMENTS OF OB/GYN AND UROLOGY

BASICS OF PELVIC ORGAN PROLAPSE

Marian Acevedo Alvarez, MD
April 23, 2020
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

“Many women are saying, ‘Hey, wait a second, there are all these people who are having problems. Why isn’t anybody talking about this?’”

John DeLancey, M.D.
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
PELVIC SUPPORT DEFECTS

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

Figure 1

Ashton-Miller, 2009
What's new in the functional anatomy of pelvic organ prolapse?

DeLancey, John


DOI: 10.1097/GCO.0000000000000312
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
WHEN TO TREAT?

• medical and social implications

• Signs
  – cervical hypertrophy,
  – excoriation,
  – ulceration,
  – and bleeding

Discuss with your patient!
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.
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).
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.
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.
Delivery

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

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Support - INJURY!

Ashton-Miller, 2009
MRI Findings After Vaginal Birth

No Tear, Edema
3wks PP

+ Tear
6wks PP
What's new in the functional anatomy of pelvic organ prolapse?
DeLancey, John
DOI: 10.1097/GCO.0000000000000312
What’s new in the functional anatomy of pelvic organ prolapse?
DeLancey, John

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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.
iPOP: A Simple Interactive Pelvic Organ Prolapse Model For Medical Learners and Patients

YUFAN BRANDON CHEN MD, HAYLEY BARNES MD, LAUREN WESTBAY MD
MARIAN ACEVEDO ALVAREZ MD, ELIZABETH R. MUELLER MD, THYTHY PHAM MD

https://youtu.be/J-nay3xOcCw
Types of POP: Uterine Prolapse
Types of POP
Cystocele
Types of POP: Rectocele
Types of POP: Enterocele
https://www.augs.org/patient-services/pop-q-tool-interactive/
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)
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.
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
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.
ACOG Practice Bulletin No. 214 Pelvic Organ Prolapse
<table>
<thead>
<tr>
<th>anterior wall</th>
<th>anterior wall</th>
<th>cervix or cuff</th>
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<td>-2</td>
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<th>perineal body</th>
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<tr>
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<td>pb</td>
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Sample Staging Using POP-Q System

### Stage 1 Uterine Prolapse

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<td>-2 (Bp)</td>
<td>-8 (D)</td>
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Sample Staging Using POP-Q System

Stage 2 Uterine Prolapse

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<td>Bp</td>
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Sample Staging Using POP-Q System

**Stage 3 Uterine Prolapse**

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<td>5 pb</td>
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<td>posterior fornix</td>
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<td>1 D</td>
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Sample Staging Using POP-Q System

Stage 4 Uterine Prolapse

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<th>Posterior Formix</th>
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<tbody>
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• https://www.augs.org/patient-services/pop-q-tool-interactive/
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?
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
TREATMENT

- Observation

- Non-Surgical

- Surgical
TREATMENT – NONSURGICAL

- Pessaries
- Pelvic Floor Physical Therapy
Vaginal pessaries: Indications, devices, and approach to selection
https://www.augs.org/patient-services/pop-q-tool-interactive/
TREATMENT

- Observation
- Non-Surgical
- Surgical
TREATMENT - SURGICAL

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

AFTER HYSTERECTOMY AND SACROCOLPOPEXY
UTEROSACRAL LIGAMENT SUSPENSION

Uterosacral ligament

Vaginal vault

AUGS Patient Handout: Vaginal Suspension Surgery
SACROSPINOUS FIXATION

Sacrospinous ligament
Vaginal vault
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.

Reprinted with permission from UVA Health System and illustrator Anita Impagliazzo.
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.
References


3. Beckmann Chapter 30, pp 262-270

QUESTIONS?