Pelvic Organ Prolapse and Urinary Incontinence

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FEMALE PELVIC MEDICINE & RECONSTRUCTIVE SURGERY
WOMEN’S HEALTH SPECIALTY CARE
FARMINGTON, CT

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Objectives

- Review the epidemiology of pelvic organ prolapse
- Review POP Q Examination
- Discuss further evaluation of the prolapse patient
  - Relationship with Urinary incontinence
    - Stress Urinary Incontinence
    - Overactive Bladder Syndrome
- Discuss surgical treatment options available for prolapse
Case Presentation-LC

- CC: Vaginal bulge, pressure
- HPI: 52 yo P3 with 1 year history of feeling like she is sitting on an egg. She reports splinting for voiding, but not for bm. She reports minimal interference with intercourse. She does not like the idea of a pessary and would like surgical treatment of her prolapse. She denies leakage with cough, sneeze, laugh, or urgency.
- Ob/Gyn: NSVD x3, largest baby 9lbs, Menopause age 50, no vaginal bleeding since, no HRT
- PMH: Hyperlipidemia
- PSH: Laparoscopic BTL
- Meds: None
- All: NKDA
- FH: NC
- SH: No TAD
The PFDI-20 has 20 items and 3 scales. All items use the following format with a response scale from 0 to 4.

Do you _______________?

☐ No;  ☐ Yes

0

If yes, how much does it bother you?

☐ 1  ☐ 2  ☐ 3  ☐ 4

Not at all  Somewhat  Moderately  Quite a bit
Pelvic Organ Prolapse Distress Inventory 6 (POPDI-6):

1. Usually experience *pressure* in the lower abdomen?
2. Usually experience *heaviness or dullness* in the pelvic area?
3. Usually have a bulge or something falling out that you can see or feel in your vaginal area?
4. Ever have to push on the vagina or around the rectum to have or complete a bowel movement?
5. Usually experience a feeling of incomplete bladder emptying?
6. Ever have to push up on a bulge in the vaginal area with your fingers to start or complete urination?

Colorectal-Anal Distress Inventory 8 (CRADI-8):

7. Feel you need to strain too hard to have a bowel movement?
8. Feel you have not completely emptied your bowels at the end of a bowel movement?
9. Usually lose stool beyond your control if your stool is well formed?
10. Usually lose stool beyond your control if your stool is loose?
11. Usually lose gas from the rectum beyond your control?
12. Usually have pain when you pass your stool?
13. Experience a strong sense of urgency and have to rush to the bathroom to have a bowel movement?
14. Does part of your bowel ever pass through the rectum and bulge outside during or after a bowel movement?

Urinary Distress Inventory 6 (UDI-6):

15. Usually experience frequent urination?
16. Usually experience urine leakage associated with a feeling of urgency, that is, a strong sensation of needing to go to the bathroom?
17. Usually experience urine leakage related to coughing, sneezing, or laughing?
18. Usually experience small amounts of urine leakage (that is, drops)?
19. Usually experience difficulty emptying your bladder?
20. Usually experience *pain or discomfort* in the lower abdomen or genital region?
Physical exam

- PE: 120/60, 70, BMI=27.4
  - General: Appears well, no distress, flushed
  - Abdomen: non-obese
  - External Genitalia: General appearance; normal
  - Introitus normal
  - External urethral meatus appearance: normal
  - Uterus: Small, anteverted
  - Vagina: Normal appearance
    - Estrogenized
  - Cervix: Cervix is surgically absent
  - Adnexa: Normal
Physical exam
Based on the photo of the exam, what is the most likely diagnosis?

1. Cystocele
2. Rectocele
3. Vaginal vault prolapse
4. Cystocele and apical prolapse
5. Likely prolapse, but you can’t tell which vaginal compartment is affected based on the photo
Based on the photo of the exam, what is the most likely diagnosis?

1. Cystocele
2. Rectocele
3. Vaginal vault prolapse
4. Cystocele and apical prolapse
5. Likely prolapse, but you can’t tell which vaginal compartment is affected based on the photo
Prolapse in Our Populations

- A woman’s lifetime risk of surgery for either prolapse or stress urinary incontinence is 20% by the age of 80 years.
  - Cumulative risk for POP surgery 12.6%
- Weighted prevalence of at least 1 pelvic floor disorder = 23.7%
  - POP 2.9%
  - FI 9%
  - UI 15.7

Emotional

- Emotions experienced: minimal, annoyance, frustration, irritation
- Emotions communicated: sense of shame, range of opinions regarding who (the physician or patient) and if emotions should be addressed
- Emotions about seeking treatment: depression/anxiety are hindering
- Emotions after receiving treatment: sense of hopefulness, negative-recurrence of sx, fear of recurrence, postoperative recovery

Ghetti, et al. 2015
What is the POP-Q

Image from: http://themidwifeisin.com/post/129104350186/i-think-that-i-might-have-a-polyp-in-my-uterus-i
How is Prolapse Quantified?

Bump, et al. 1996
Physical Exam

- Gynecologic Exam: Rectovaginal exam

Rectovaginal examination, standing - An enterocele is detected during standing rectovaginal examination by palpating small bowel between thumb and index finger. Reproduced with permission from: LifeART. Copyright © 2010 Lippincott Williams & Wilkins. All rights reserved.
### Interpreting POP-Q

<table>
<thead>
<tr>
<th>Aa-fixed</th>
<th>Ba</th>
<th>C</th>
</tr>
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<tbody>
<tr>
<td>GH</td>
<td>PB</td>
<td>TVL-no valsalva</td>
</tr>
<tr>
<td>Ap-fixed</td>
<td>Bp</td>
<td>D-n/a if hyst</td>
</tr>
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</table>

### POP-Q Staging Criteria

<table>
<thead>
<tr>
<th>Stage</th>
<th>Criteria</th>
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<tbody>
<tr>
<td>Stage 0</td>
<td>Aa, Ap, Ba, Bp = -3 cm and C or D ≤ (TVL - 2) cm</td>
</tr>
<tr>
<td>Stage I</td>
<td>Stage 0 criteria not met and leading edge &lt; -1 cm</td>
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<tr>
<td>Stage II</td>
<td>Leading edge ≥ -1 cm but ≤ +1 cm</td>
</tr>
<tr>
<td>Stage III</td>
<td>Leading edge &gt; +1 cm but &lt; + (TVL - 2) cm</td>
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<tr>
<td>Stage IV</td>
<td>Leading edge ≥ + (TVL - 2) cm</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>+2</th>
<th>+2</th>
<th>-1</th>
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<tbody>
<tr>
<td>Aa</td>
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<td>Ap</td>
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<td>-4</td>
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<tr>
<td></td>
<td></td>
<td>Bp</td>
<td>D</td>
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</table>
What stage of prolapse does LC have?

1. Stage 0
2. Stage I
3. Stage II
4. Stage III
5. Stage IV
What stage of prolapse does LC have?

1. Stage 0
2. Stage I
3. Stage II
4. Stage III
5. Stage IV
Masqueraders of pelvic organ prolapse

- Vaginal cyst
  - Urethral diverticulum
  - Gardner’s duct cyst
  - Bartholin’s gland/cyst
- Ectopic ureter
- Rectal mass
• 52 yo P3 with Stage III Anterior compartment prolapse and Stage II uterovaginal prolapse, desiring surgical management. She has no urinary leakage

• What is the next best step in her evaluation?
Urodynamic Evaluation

- Cystometrogram (CMG/ UDE)
- Indications:
  - Evaluation of complex disorders of bladder filling and voiding (comorbid disease)
  - Further therapy is indicated after failed trials of medical, or more conservative therapy for UUI, enuresis
  - Surgical treatment of SUI is planned (previous surgery, incompatible findings, complicated history)
  - Diagnose occult SUI

CARE Trial

Colpopexy and Urinary Reduction Efforts Randomized Surgical Trial

Main outcome: to determine the effect of concomitant Burch with Abdominal Sacrocolpopexy on postoperative SUI and urge sx at 3 mo postoperatively.

- Describe the results of reduction testing in stress-continent women undergoing Sacrocolpopexy
- 2 methods of POP reduction used:
  - Manual, cotton swabs, ring forceps, pessary, split speculum
- Reduction caused 27% of subjects to leak (vs. 4% without reduction)


Slide courtesy of Dr. Alexandra McPencow
<table>
<thead>
<tr>
<th>Prolapse reduction</th>
<th>Preoperative leakage with reduction(^{\text{a}})</th>
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<tbody>
<tr>
<td></td>
<td>(N)</td>
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<tr>
<td>All methods combined</td>
<td>112/584</td>
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<tr>
<td>Pessary</td>
<td>5/88</td>
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<tr>
<td>Manual</td>
<td>19/122</td>
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<tr>
<td>Swab</td>
<td>32/158</td>
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<tr>
<td>Forceps</td>
<td>21/98</td>
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<tr>
<td>Speculum</td>
<td>35/118</td>
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<tr>
<td>Preop leakage during reduction testing</td>
<td>Postoperative SUI</td>
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<td>------------------</td>
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<tr>
<td></td>
<td>N</td>
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<tr>
<td>All methods</td>
<td>Leakage</td>
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<td>Pessary</td>
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<td>No leakage</td>
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<td>Speculum</td>
<td>Leakage</td>
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<td>No leakage</td>
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Postoperative rates of stress urinary incontinence in the no Burch group by leakage and reduction method at 300-ml bladder volume.
Conclusions: Burch significantly reduced postoperative SUI w/o increasing lower urinary tract symptoms

Two Year Outcomes after SC With and Without Burch to Prevent SUI
- 95% Success (objective & subjective)

Brubaker, et al. 2008
OPUS Trial

- Outcomes following vaginal prolapse repair and midurethral sling trial

CONCLUSIONS

A prophylactic midurethral sling inserted during vaginal prolapse surgery resulted in a lower rate of urinary incontinence at 3 and 12 months but higher rates of adverse events. (Funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development and the National Institutes of Health Office of Research on Women’s Health; OPUS ClinicalTrials.gov number, NCT00460434.)
A retropubic midurethral sling
Her urodynamic evaluation shows occult SUI. Should she get a concomitant sling?

1. Yes
2. No
3. I’m not sure
• Her urodynamic evaluation shows occult SUI.
• Should she get a concomitant sling?
  1. Yes
  2. No
  3. I’m not sure
Her urodynamic evaluation shows Detrusor overactivity.

- How should she be counseled?
  - How would this counseling be different if she had subjective overactive bladder?
Does restoring “bladder” support improve bladder function??

- 2007, CCF & Duke University
- N=65
- Objective: to evaluate the impact of transvaginal prolapse surgery on overactive bladder symptoms in elderly women
  - Pelvic Floor Distress Inventory at baseline, 6 mo, and 12 mo postoperatively
- Results: Surgery for Stage III or IV POP resulted in a significant reduction of urgency and frequency
  - No reduction with SUI procedure
  - No difference between reconstructive and obliteratorive surgery

Foster et al, 2007
Concussion: The mechanism that is responsible for symptom relief after surgery is not clear.

- It is probable that OAB symptoms, which resolve with prolapse reduction, are derived from myogenic [as opposed to neurogenic or idiopathic] causes that result from outlet obstruction.
Further evaluation of UI

- Voiding diary
- Cystoscopy
# Voiding Diary

Your name ___________________________  Started on Date ______________________

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Measured amount of urine</th>
<th>Did you have leakage, yes or no?</th>
<th>Approximate amount of leakage</th>
<th>Time you went to bed/got up, drank coffee or soda, any other comments</th>
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Indications for Cystoscopy

- Patients with incontinence who have:
  - Sterile hematuria or pyuria
  - Irritative voiding sx (freq, urgency, UI)
  - Bladder pain
  - **Recurrent cystitis**
  - Suburethral mass
  - Suspected foreign body
  - UDE fails to demonstrate sx of UI

- Microscopic or Gross hematuria
Cystoscopes
Other causes of urinary incontinence

- **Gynecologic Exam:**
  - Urethral diverticulum
  - Urogenital fistula
Urethral Diverticulum

Image courtesy of Dr. Madeline Dick- Biascoechea
Urogenital fistula

1- Vesicouterine fistula
2- Vesicovaginal fistula
3- Urethrovaginal fistula
4- Rectovaginal fistula

http://www.opfistula.org/fistula/types-obstetric-fistula/
Making the Incontinence Diagnosis

- **Algorithm**
  - Seek and treat reversible causes of incontinence
  - Complex causes of incontinence
  - Conclude: Probable Urodynamic SUI or DO
Reversible Causes of UI

- Infection
  - UTI, urethritis, atrophic vaginitis, pregnancy
- Medication effects
- Polyuria
  - Metabolic, excess fluid intake, systemic volume overload
- Stool impaction
- Access to toilet
  - Mobility, delirium, psychological illness
## Medications and LUTS

<table>
<thead>
<tr>
<th>LUT Effect</th>
<th>Classes of Medication</th>
</tr>
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<tbody>
<tr>
<td>Urinary retention</td>
<td>- Narcotic analgesics</td>
</tr>
<tr>
<td></td>
<td>- Anticholinergics</td>
</tr>
<tr>
<td></td>
<td>- Alpha-adrenergic agonants &amp; antagonists</td>
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<tr>
<td></td>
<td>- Beta-adrenergic agonists</td>
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<td></td>
<td>- Ca-channel blockers</td>
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<tr>
<td>Incomplete bladder emptying</td>
<td>Anticholinergic actions, sedatives</td>
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<td></td>
<td>- Antidepressants, Antipsychotics</td>
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<tr>
<td>SUI</td>
<td>Alpha-adrenergic antagonists</td>
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<tr>
<td>Frequency, Urgency</td>
<td>Diuretics, caffeine, alcohol</td>
</tr>
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</table>
She additionally complaints of stool getting “stuck in a pocket.”

- Her POPQ point Bp was -2, no sign of rectocele or rectovaginal defect.
- What other tests can be done to compliment her evaluation for prolapse?
EVALUATION OF THE POSTPARTUM PELVIC FLOOR USING 2- AND 3-DIMENSIONAL MRI
from the article by Hoyte et al (pp 344–350)
MR Defacography

PCL Line

MPL Line
• MR defecography was normal, showing no sigmoidocele or peritoneocele.
• Which procedure for prolapse repair is best for her?
  ○ Stage III anterior vaginal prolapse → Colpopexy
  ○ Stage II apical prolapse → Anterior vaginal wall repair/Colporrhaphy
  ○ Occult SUI on urodynamic testing → Counselled. She declines concomitant sling.
  ○ No posterior vaginal prolapse → Consider biofeedback, anal manometry
Techniques for Colpopexy

- Uterosacral ligament suspension (vaginal, abdominal, MIS)
- Sacrospinous ligament fixation
  - Native tissue
  - Graft augmentation
- Sacrocolpopexy (abdominal, MIS)
- Hysteropexy
Supine

Lithotomy

Aronson, et al. 2005
Figure 2: To maintain device position, the dissection finger is placed firmly on the tip of the device.
Uphold-SSLF

Slide courtesy of: Dr. Richard Bercik
Sacrocolpopexy

https://www.austinurogynecology.com/what-is-transvaginal-mesh-or-tvm/
http://www.spineuniverse.com/anatomy/ligaments
Hysteropexy

Romanzi, et al. 2012;
www.bsuh.nhs.uk
Patient Factors to Consider for Prolapse Repair

- Age
- Past medical and surgical history
- Activity level
  - sexual activity
- Patient Expectations
- POP-Q Exam
- Risks-OR time and positioning, graft-related
- The surgical alternatives- obliterative repair, colpocleisis
Conclusions

- Thorough history and physical are critical to the evaluation of the urogynecology patient
- Office testing can be helpful in clarifying the diagnosis or directing treatment
- No standard radiologic criteria exist for diagnosis of POP
- Management of POP and UI is bother driven
- The choice of which surgery is best for the patient, is arguably best decided by the surgeon-patient team
References

References

Thank You!

- Dr. Jill Peters- Gee
- Dr. Adine Regan
The Mesh Controversy

VAGINAL, ABDOMINAL, AND SLINGS
Vaginal Mesh

- First FDA Notification - 10/20/2008
  - 1,000 reports of complications between 2005-2007
  - Mesh extrusion, infection, pain, urinary problems, dyspareunia, recurrences of prolapse and/or incontinence
- 2,874 additional reports of complications associated with surgical mesh devices
  - 1,503 POP repairs
  - 1,371 SUI repairs
- Second FDA Notification - 7/13/2011
  - Recommendations on how to improve informed consent and careful patient selection

http://www.fda.gov/MedicalDevices/Safety/AlertsandNotices/ucm262435.htm
Vaginal Mesh

- Second FDA Notification- 7/13/2011
  - Systematic review of the literature from 1996 – 2011
    - Abdominally < Vaginally placed mesh
    - Possibly no benefit over traditional non-mesh repair
    - Mesh erosion
    - Mesh shrinkage
  - Recommended health care provider & patient preparedness
    - “Recognize that in most cases, POP can be treated successfully without mesh thus avoiding the risk of mesh-related complications.”

http://www.fda.gov/MedicalDevices/Safety/AlertsandNotices/ucm262435.htm
Vaginal Mesh

  - Transvaginal surgical mesh products for POP reclassified from Class II (general, special controls) → Class III (requiring pre-market approval)
  - Manufacturers to conduct additional post-market surveillance studies, 522 studies
  - Surgical mesh devices for SUI remain in Class II

- Orders for postmarket studies- 1/3/2012
  - 88 orders to 33 manufacturers of POP mesh
  - 11 orders 7 manufacturers of mini-sling for SUI
Vaginal Mesh- Slings

- AUGS and SUFU - FAQ documents for Patients and Providers on Mesh Midurethral Slings for SUI- 3/12/2014
  - MUS procedure is the most studied surgery to treat stress urinary incontinence, over 2,000 articles published
    - 2 large [US] government funded studies have evaluated the mid-urethral sling’s safety and efficacy
      - low complication rate, high success rate
    - Other large scientific studies from around the world have supported the safety and efficacy of the mid-urethral sling.

http://www.augs.org/p/bl/et/blogaid=194
Stronger orders - 1/4/2016

- Require manufacturers to address safety concerns, including severe pelvic pain and organ perforation, through a rigorous PMA pathway to demonstrate safety and effectiveness
  - Only mesh devices marketed for the transvaginal repair of POP
  - Do not apply to surgical mesh for other indications
    - SUI or abdominal repair of POP