Evaluation of urinary incontinence and prolapse: an evidence-based critique

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Disclosures

- None

Objectives

- At the conclusion of this lecture, participants should be able to:

1. Review epidemiology of incontinence and prolapse
2. Summarize office evaluation techniques and appraise evidence of their utility
3. Evaluate validity of urodynamic testing

Urinary Incontinence - Prevalent and Costly

- Affects >17 million people[1]
- Total annual costs over $26 billion in patients >65
  - $3600 annually per person[2]
- Significantly impacts QOL[3]
  - Mental health
  - Physical functioning
  - Social functioning
- 20-40% of women in mid-life and beyond have some incontinence

1. Abrams P et al. *Am J Managed Care.* 2000;6(suppl):S580-90.
2. Wagner TH, Hu T-W. *Urology*. 1998;51:355-361.
3. Liberman JN et al. *Urology*. 2001;57:1044-1050.

Pelvic Organ Prolapse - Background

- 16% of women in US have prolapse
  - Pannu et al. Radiographics 2000;20(6):1567-82
- Lifetime prevalence 30-50%, of which 2% symptomatic
  - Samuelsson EC et al, AJOG 1999;180:299-305
- 7% lifetime risk of surgery for prolapse
  - Olsen et al., Obstet Gynecol 1997;89:501
- 29% require re-operation
  - Olsen et al., Obstet Gynecol 1997;89:501

Quiz Time!

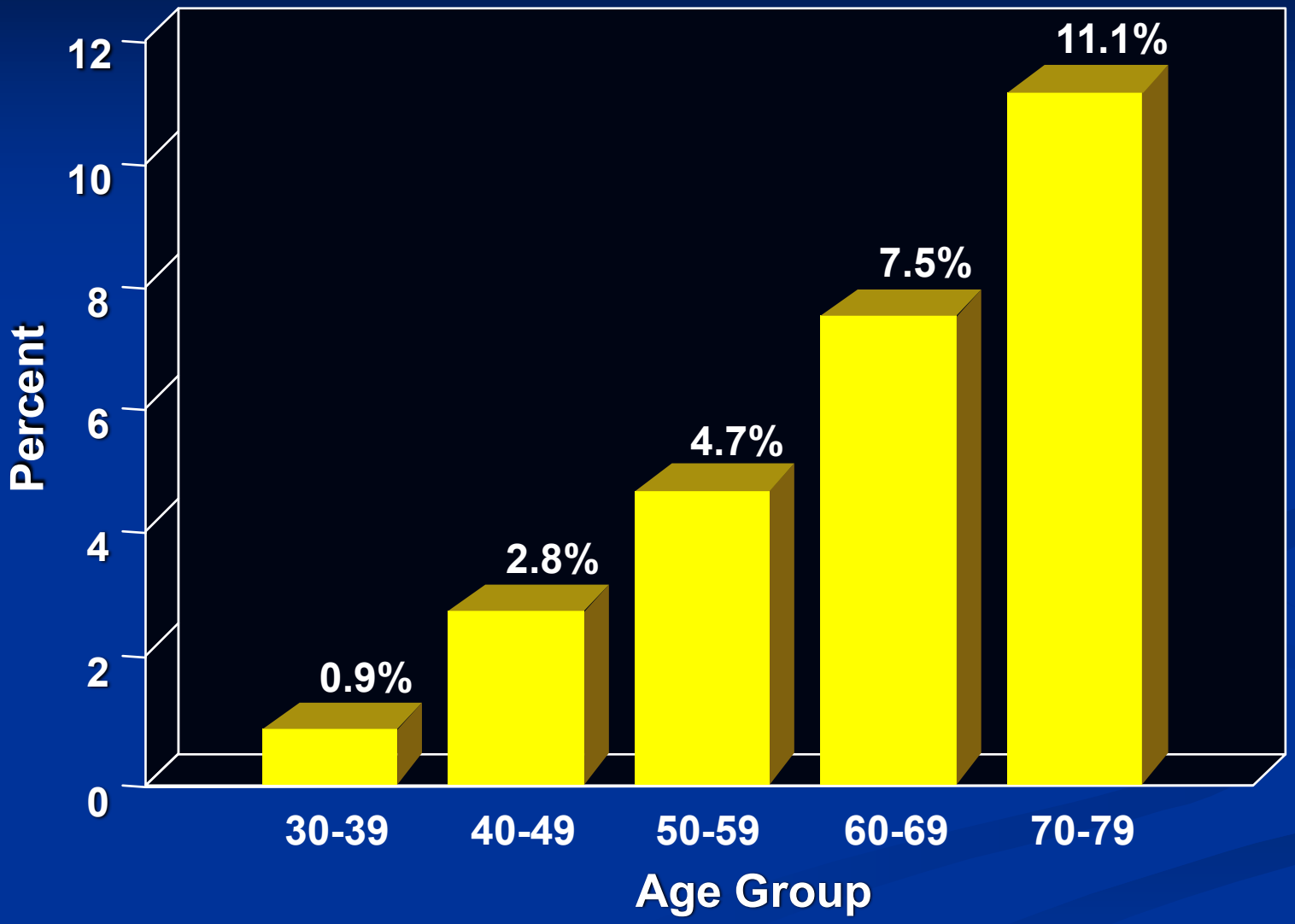
The Women's Preventative Services Initiative recommends that doctors screen women of all ages for urinary incontinence yearly by using a questionnaire.

1. True
2. False

Answer

- TRUE

Lifetime Risk of Single Operation for POP/UI



Olsen et al., Obstet Gynecol 1997;89:501

Available assessments

- H&P
  - POP-Q
- Voiding diary
- Post-void residual
- Urine culture
- Stress test
- Q-tip test
- Uroflow
- Single channel cystometrogram
- Multichannel urodynamics
- Cystoscopy

Evaluation

- Match symptoms to signs
- Treat symptoms
  - Pay attention to what bothers patient most!

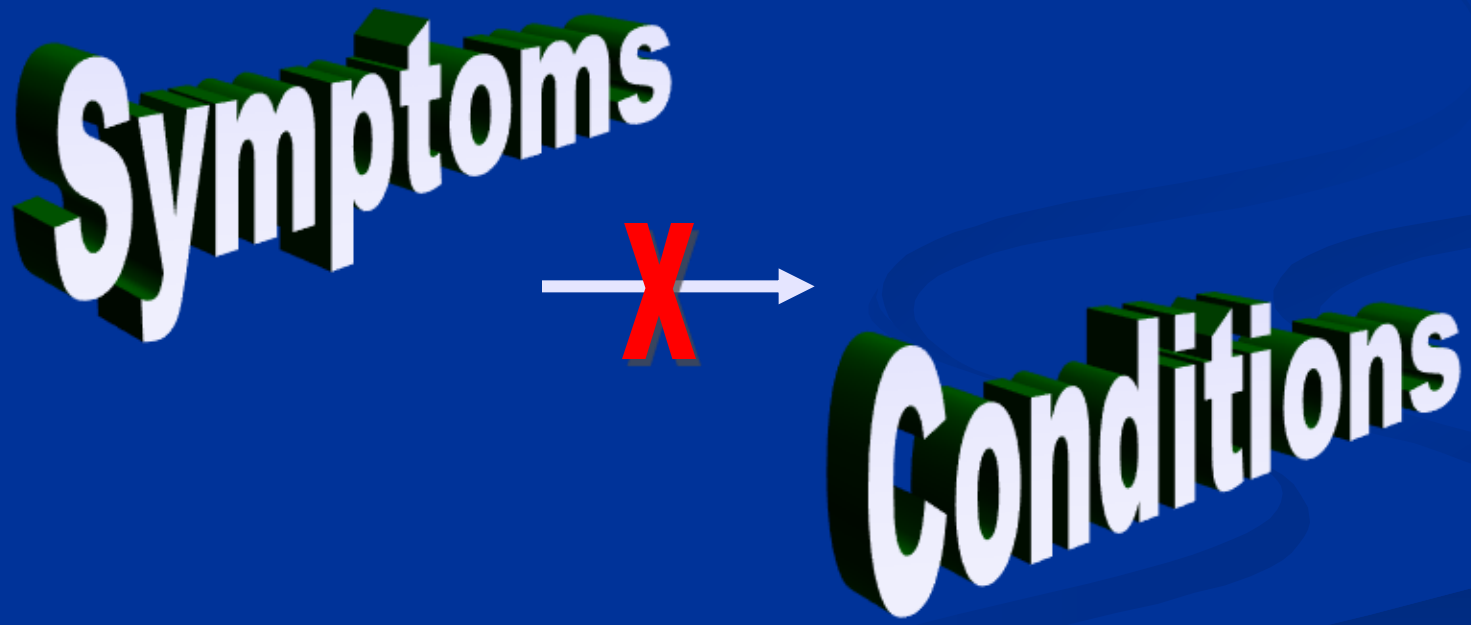
Female incontinence made simple

Stress	Urge	Mixed	Overflow
Cough	Urgency	Stress + urge	Hesitancy
Sneeze	Frequency	Which worse?	Interrupted flow
Laugh	Nocturia		Poor stream
Exercise	Dysuria		Incomplete void
Position change			

History: .pelvicfloor

- Focus on main symptom
  - Length of problem
  - What makes her leak?
  - # of pads / day
  - # of incontinent episodes
- QoL impact
  - Use validated tools
- Hormonal status
- Prior surgery
- Neuro disorders
- Medications
- Other symptoms

Problem



Why is “History” not enough?

- Bladder is poor historian
  - In diagnosis of urodynamic stress incontinence
    - Sensitivity 0.82
    - Specificity 0.57
  - In diagnosis of detrusor overactivity
    - Sensitivity 0.69
    - Specificity 0.60
  - In diagnosis of mixed incontinence
    - Sensitivity 0.51
    - Specificity 0.66

Colli E et al. Eur Urol 2003;43:63-9

3-Day Voiding Diary

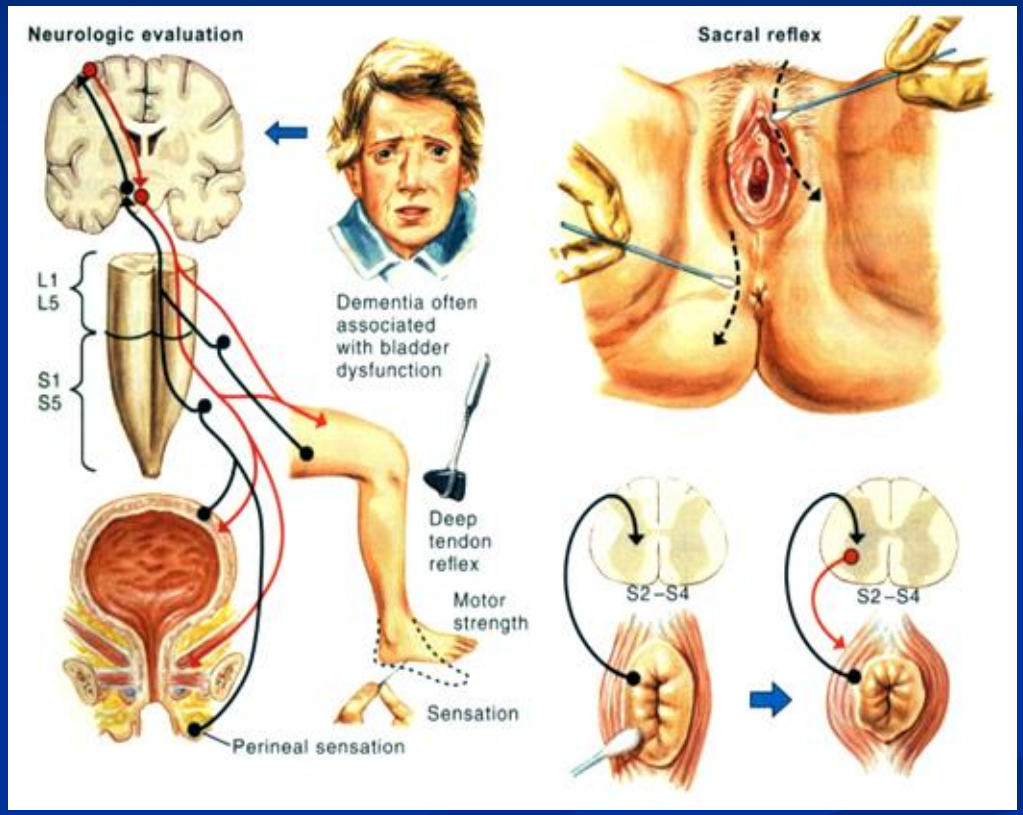
- Intake
  - Type of fluids
  - Amount of fluids
- Output
- Frequency of urination
  - Day (frequency > 8 voids/day)
  - Night (nocturia > 0 voids/night)
- Activities associate with incontinence

3-Day Voiding Diary

- Intake
  - Type of fluids
  - Amount of fluids
- Output
- Frequency of urination
  - Day (frequency > 8 voids/day)
  - Night (nocturia > 1 voids/night)
- Activities associate with incontinence

Physical Examination

- Estrogen status
- Screening neuro exam
  - Strength / reflexes
  - S2-4 dermatomes
  - Bulbocavernosus and anal wink reflexes
  - Levator ani strength
- Anatomical defects resting and straining
  - POP-Q

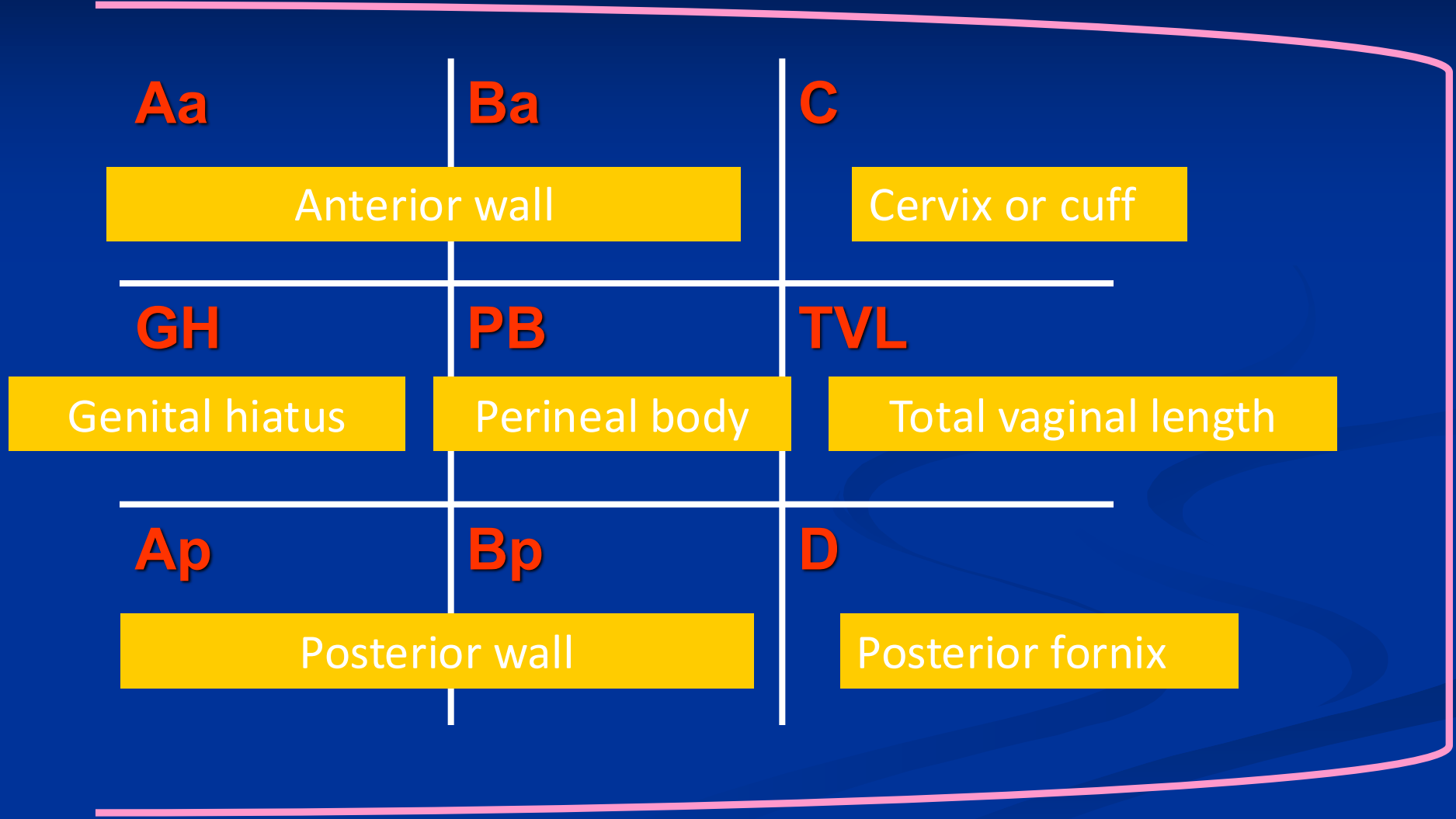


Pelvic Organ Prolapse

Uterine prolapse

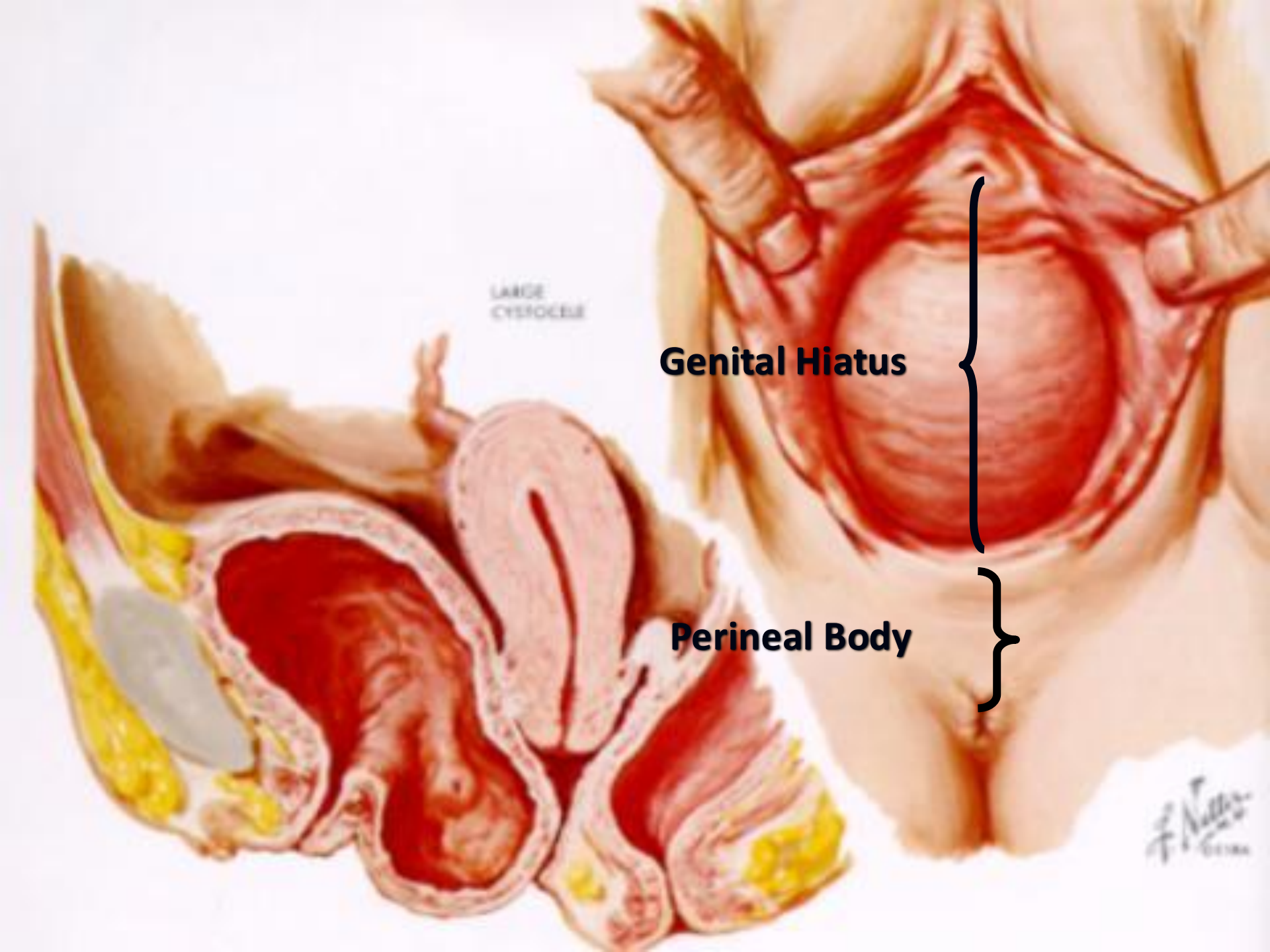
Anterior vaginal prolapse

Vaginal vault prolapse


Aa
Ba
C
Anterior wall
Cervix or cuff
GH
PB
TVL
Genital hiatus
Perineal body
Total vaginal length
Ap
Bp
D
Posterior wall
Posterior fornix

Pelvic Organ Prolapse Quantification System (POP-Q)

- Adopted by ICS, AUGS and SGS
- Objective, site-specific system
  - Documenting
  - Comparing
  - Communicating
- Allows for:
  - Precise description of pelvic support without assigning severity value
  - Accurate observation of stability or progression of prolapse over time by same or different observers


Genital Hiatus
Perineal Body

POP-Q Staging

- Stage 0 normal
- Stage I
  - < -1 cm from (above) hymen
- **Stage II**
  - **±1 cm from hymen**
- Stage III-IV
  - >+1 cm to complete prolapse

Stage 0	Points Aa, Ap, Ba, & Bp are all at -3 cm and Either Point C or D is at ≤ - (X - 2) cm
Stage I	The criteria for Stage 0 are not met and The leading edge of prolapse is < -1 cm
Stage II	Leading edge of prolapse is ≥ -1 cm but ≤ +1 cm
Stage III	Leading edge of prolapse is > +1 cm but < +(X-2) cm
Stage IV	Leading edge of prolapse is ≥ + (X-2) cm

X – Total Vaginal Length in centimeters in Stages 0, III, and IV

Stages I through IV can be subgrouped according to which portion of the lower reproductive tract is the leading edge of the prolapse using the following qualifiers: a – anterior vaginal wall, p – posterior vaginal wall, C – vaginal cuff, Cx – cervix, and Aa, Ba, Ap, Bp, and D for the defined points of measurement. (e.g., IV-Cx, II-a, or III-Bp)

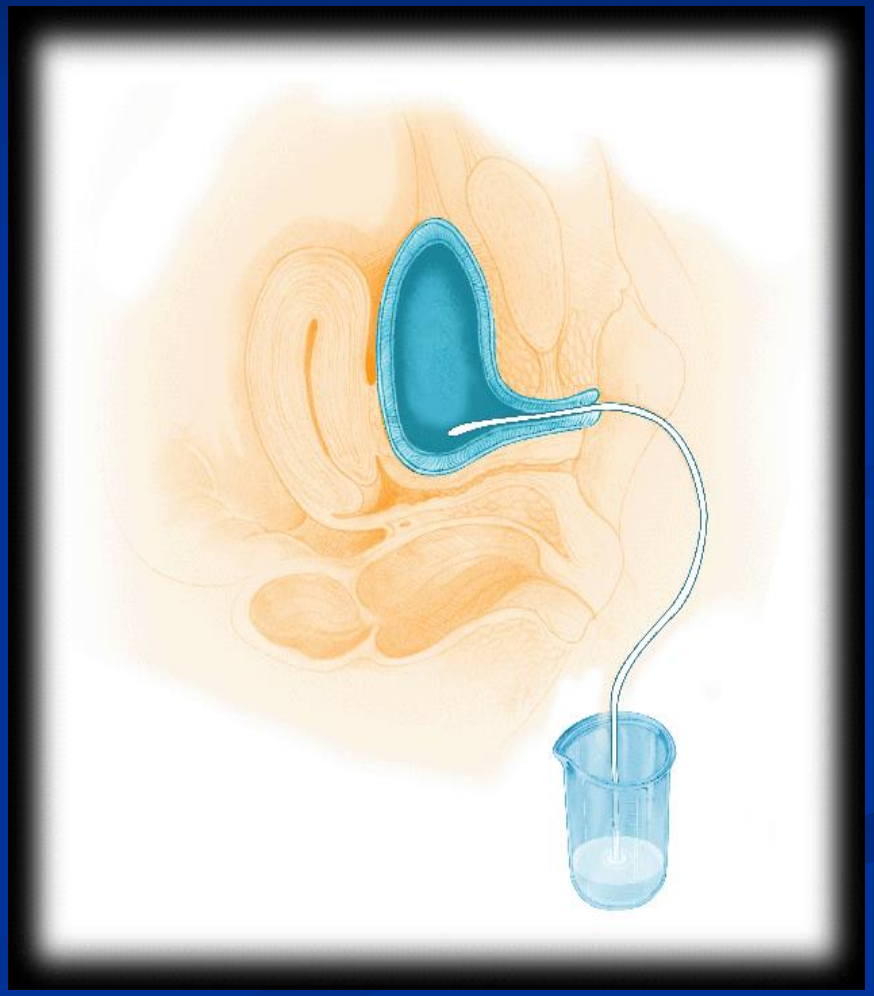
Cough Stress Test (CST)

- Observation of leakage on coughing
- For urodynamic SUI
  - 92% sensitivity
  - 56% specificity
  - 62% PPV
  - 89% NPV

Weidner 2001

Postvoid residual (PVR)

- Consensus is that PVR <50cc normal
- AHCPR recommends multichannel urodynamics for >100cc
- Most experts consider >200cc definitely abnormal



Quiz Time

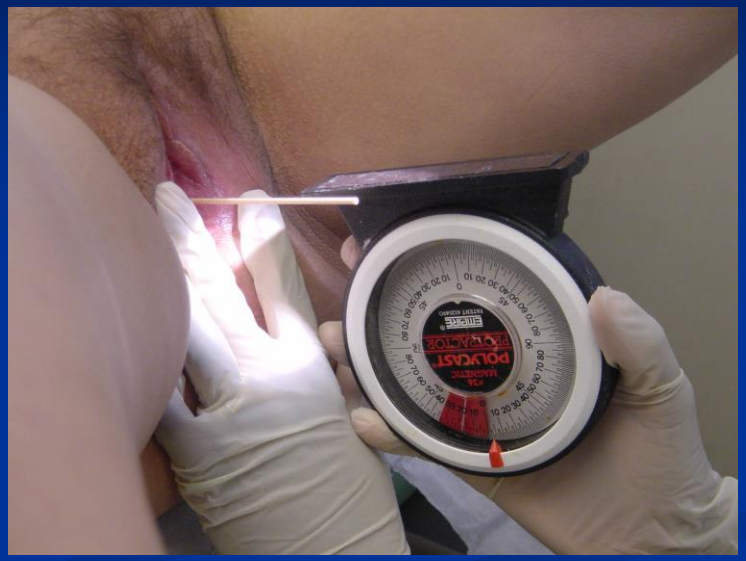
- What post-void residual is widely considered abnormal?

A. 50 ml
B. 100 ml
C. 150ml
D. >= 200 ml

- >= 200 ml is an abnormal post-void residual.

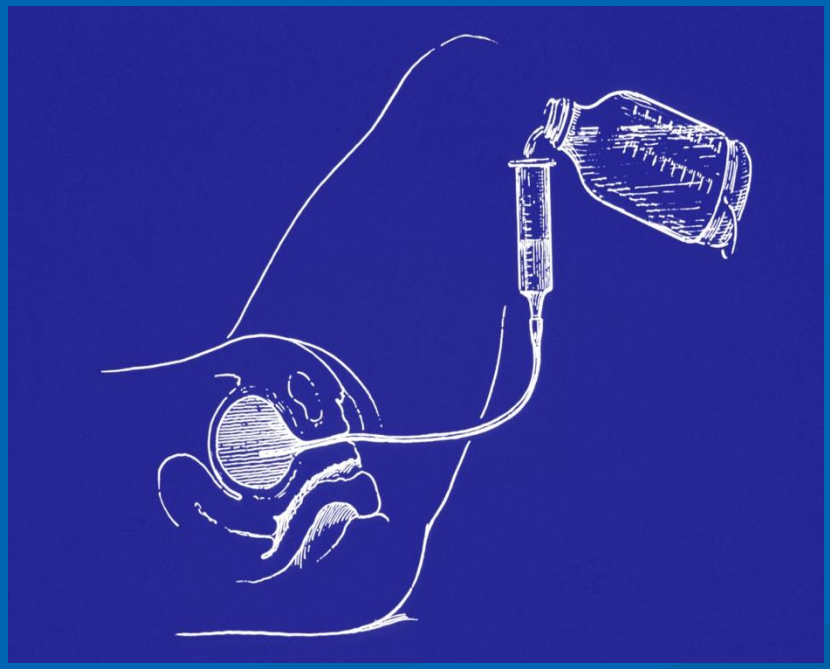
Q-tip Test

- Documents urethral hypermobility
- Most consider >30° change positive
  - Sensitivity for Stress incontinence – 80%
  - Specificity for Stress incontinence– 42%
- Fixed urethra concern for surgical failure
- “Eyeball” vs measured
- Not predictive of outcome



Urodynamic Testing

- "Eyeball" cystometry
  - Detects detrusor contractions and compliance, residual urine, and determines bladder capacity
- Cystometrogram (CMG)
  - Measures pressure/ volume relationships within bladder



Simple Cystometry

- Timed, measured void
- Catheterized PVR
- Urinalysis
- First sensation
- Bladder capacity
- OAB provocation
- Cough stress test

Equipment for Simple Cystometry

- 500cc sterile saline (body temp)
- Foley catheter
- 60cc Foley tipped syringe
- Stop watch
- “Hat” insert for commode

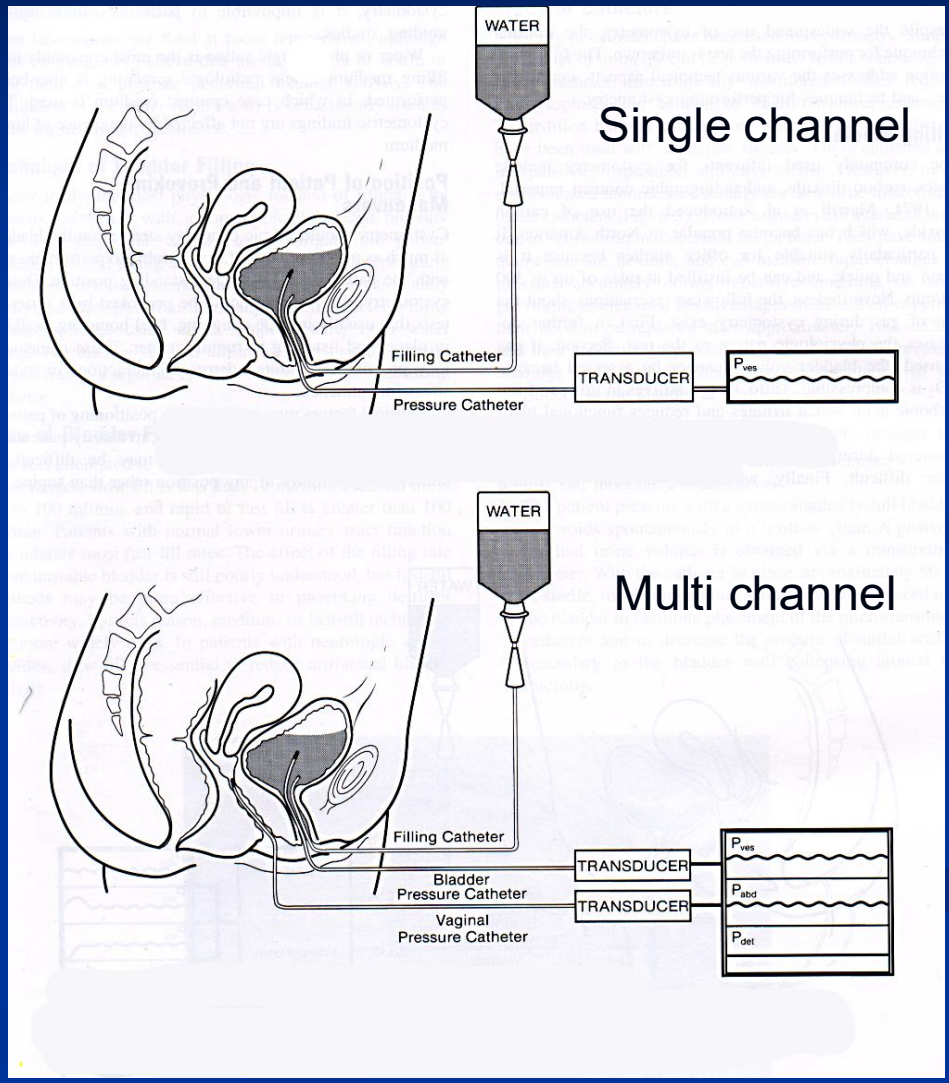
Are urodynamics really necessary?

- Probably not always…...
- Cost analysis of basic office evaluation vs urodynamics for women with prolapse and stress incontinence
  - Basic office evaluation and multichannel UDS had same cure rate of incontinence (96%)
  - If surgery is preferred treatment, then urodynamic testing not cost-effective

Weber AM and Walters M, AJOG 2000

Multichannel Urodynamics (UDS)

- Uses instruments to measure and display physiologic functions of lower urinary tract
- Pressure catheter in bladder and vagina or rectum
- P_{det} calculated



Walters & Karram, Urogynecology and Reconstructive Pelvic Surgery, 1999

Urodynamic testing vs clinical symptoms

- Sensitivity of UDS vs clinical history
  - Stress incontinence – .80-.91
    - 1316 pts [6 studies]
  - Urge incontinence – .45-.72
    - 870 pts [4 studies]
  - Mixed incontinence – .20-.45
    - 649 pts [4 studies]
- 10% with urinary symptoms have normal CMG
- 18-61% of normals have abnormal CMG

Colli, Eur Urol, 2003

Indications for multichannel urodynamics

- Uncertain diagnosis
  - Findings **don't** match complaint
- Complex history
- Previous surgery
- Patient not satisfied with initial treatment
- Surgery planned in a complicated patient
- Comorbid conditions

Expert opinion

Treatments

- Do nothing
- Avoid coffee, soda, tea
- Pelvic floor physical therapy – Ok to refer
- Pessary
- Medications
- Tibial nerve stimulation
- Surgery

Quiz Time

- Pessaries are recommended for:

A. Urge incontinence
B. Stress incontinence
C. Mixed incontinence

Answer

- Pessaries are recommended for stress incontinence.

Quiz Time

- Percutaneous tibial nerve stimulation is an intervention for:

A. Urge incontinence
B. Stress incontinence
C. Mixed incontinence

Answer

- Urge Incontinence

Medications for Incontinence

- Medications are for urge incontinence
- Anticholinergics are for patients <65 years old due to dementia risks
  - oxybutynin 5 mg po TID
  - fesoterodine 8 mg po q day
- Beta-3-agonist are best!
  - mirabegron 25 mg po q AM
  - Contraindication is BP >160/110

Medications for Incontinence

- Vaginal Dryness = Vaginal estrogen cream

Quiz Time

Duloxetine can improve stress urinary incontinence symptoms.

1. True
2. False

Answer

- True.

Best Resources

- Yourpelvicfloor.org
  - Leaflets in 10+ languages about urogyn topics

Summary

- Match symptoms to signs of incontinence
- Obtain thorough H+P
  - PVR, diary, CST, and POP-Q
- Treat symptoms and determine what is most important to patient
- Urodynamics if:
  - Unsure of incontinence type
  - Symptoms and signs do not match
  - Prior surgery
  - If results will change management

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