Postoperative Voiding Dysfunction

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Objectives

• Define postoperative voiding dysfunction

• Describe how to evaluate postoperative voiding

• Discuss how to perform a retrograde voiding trial

• Discuss how to perform a spontaneous voiding trial
• Postoperative voiding dysfunction
  – The inability to void with fluid in the bladder during the postoperative period
  – Commonly occurs after pelvic organ prolapse (POP) and urinary incontinence surgery
  – Occurs in 43% of POP surgery that included placement of a midurethral sling
Background

• Wang, K.H., et. al.
  – 2002 Int Urogynecol J Pelvic Floor Dysfunction
  – 59 women undergoing a transvaginal tape procedure
  – Postoperative voiding dysfunction associated with
    • Abnormal preoperative uroflow pattern and configuration
    • Preoperative low peak flow rate <15 ml/s
    • Preoperative vault prolapse or enterocele
    • Concurrent vault suspension surgery
    • Postoperative urinary tract infection (UTI)
Background

- Undetected voiding dysfunction can lead to:
  - Overdistention
  - Urinary tract infections
  - Damage to the detrusor muscle
Evaluation

• Method of evaluating voiding dysfunction post operatively is based largely on practice patterns with no consensus to best method

• Methods include
  – Retrograde filling (active trial)
  – Spontaneous filling (passive technique)
  – Bladder scanning
Supplies Needed

- 10 mL syringe
- 60 mL catheter-tipped syringe
- Nonsterile gloves
- 300 mL of sterile saline
- Commode-mounted urine measurement container
- Clamp
Retrograde Filling

- Confirm that all urine is drained from the bladder with the indwelling Foley catheter in place
- Give 300-mL bolus of saline instilled into the bladder through the indwelling catheter
Retrograde Filling

- Clamp catheter where water was inserted
- After removing the catheter, the patient was asked to void within **30 minutes**
- Voided volume is recorded
Did she pass the voiding trial?

- Postvoid residual (PVR) is indirectly determined by subtracting the voided volume from the 300 mL of instilled fluid.
  - Example:
    - 300 mL instilled
    - Patient voids 220 mL
    - 300 mL instilled – 220 mL voided = 80 mL PVR
    - 2/3 of 300 = 200
    - So since 220 voided > 200 → patient passed voiding trial
Spontaneous Filling

- Remove foley catheter

- Allow the patient's bladder to fill spontaneously over no more than 4 hours
Spontaneous Filling

• Patient to void on desire
• Immediately after void, a straight catheterization is performed to assess the PVR
• Two consecutive spontaneous tests were performed for complete assessment using this technique
• Both must be passed to pass the spontaneous method.
Pros and Cons

Spontaneous Filling

**Advantages**
- Faster performance
- Fewer catheterizations
- Allows for accurate measurement of postvoid residual (PVR)

**Disadvantages**
- Operator dependent
- Done at patient’s leisure
- Requires more time
- Possibly more catheterizations
Studies

• Foster, R. T., et al.
  – 2007 American Journal of Obstetrics and Gynecology
  – 55 patients- randomized to retrograde fill or spontaneously voiding
  – Urinary retention in 47% of patients
  – Subjects randomized to backfill were more likely to adequately empty their bladders and be discharged home without catheter drainage than the spontaneous voiding group (61.5% vs 32.1%, respectively, $P = .02$)
• Geller, E. J., et al.
  – 2011 Obstetrics and Gynecology
  – Randomly assigned to retrograde first or spontaneous first
  – 50 patients
  – Review of the preference questionnaire found that patients preferred the retrograde method 51.1% vs 44.4%
  – Both methods have a low positive predictive value → more false-positive diagnoses of voiding dysfunction → more women sent home self-catheterizing
Studies

• Pulvino, J.Q., et al.
  – 2010 Journal of Urology
  – The back fill void trial correlated better with a successful voiding trial than the spontaneous fill trial

• Ferrante, K., et al.
  – 2013 AUA abstract
  – Most women (454/597 (76%)) passed the first voiding trial (self-voiding group) and 143 (24%) needed a repeat voiding trial
So what if they fail the voiding trial?

- Notify on call resident
- Typically, the catheter can be replaced and patient scheduled for follow up visit in 24-48 hours to have the voiding trial repeated
- Patient can be taught self-intermittent catheterization, but this is typically taught in the outpatient setting
When to Use a Bladder Scan

- Bladder scan is typically a specific order placed by the physician.
- Often performed in conjunction with the spontaneous voiding trial, rather than performing the catheterization.
- More commonly used by the Urologists.
Bladder Scanning

• Turn machine on
• Have patient lie in supine position with abdominal muscles relaxed
• Place gel on patient’s abdomen at the midline approximately 3 cm above the pubic bone
Bladder Scanning

• Aim towards the bladder
• Press the scan button
  – Make sure the ultrasound bladder image is the biggest and centered
• When done, the results of the urine volume will be displayed
References


