Case Based Urology Learning Program

Resident’s Corner: UROLOGY

Case Number 21
# Case Based Urology Learning Program

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What are common causes of urinary hesitancy and weak stream in a woman?

A 22 year old woman with a two year history of multiple sclerosis presents with a complaint of urinary hesitancy and weak stream over the past 6 months.
What are common causes of urinary hesitancy and weak stream in a woman?

**Outlet:**
- Dysfunctional voiding
- Primary bladder neck obstruction
- Detrusor sphincter dyssynergia
- Obstructive periurethral mass (e.g., Urethral diverticulum)
- Pelvic organ prolapse

**Bladder:**
- Detrusor underactivity
- Acontractile detrusor
What elements of the office exam are most critical when evaluating urinary hesitancy and weak stream in a woman?
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**Abdominal exam:**
- Signs of poor emptying—distended lower abdomen, palpable bladder

**Pelvic exam:**
- Fluctuance or mass on anterior vaginal wall
- Inspection of meatus
- Pelvic organ prolapse
- Exclude urethral cancer or other obstructive mass

**Post-void residual**
Her abdomen is soft and non-distended. Her pelvic exam is normal with no periurethral mass or prolapse. Her PVR is 171 mL.

What is your leading diagnosis for this young woman with multiple sclerosis?
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Detrusor sphincter dyssynergia (DSD)
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Detrusor sphincter dyssynergia (DSD): incoordination between detrusor and external sphincter during voiding due to involuntary contraction or lack of relaxation of the sphincter in the setting of a neurologic abnormality.
What neurologic diagnoses are associated with DSD?
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Multiple sclerosis
Spinal cord injury
Transverse myelitis
What type of testing will allow you to make a definitive diagnosis?
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Urodynamic (pressure flow study) with EMG and fluoroscopy (imaging is valuable in this setting to allow visualization of the outlet).

Cystoscopy
Fluro Urodynamics Findings

Fluid infused at 30 mL/min.

Filling phase: first sensation at 16 mL, strong desire at 111 mL, capacity 112 mL, no detrusor overactivity.

Voiding phase: voluntary void, voided 104 mL, high Pdet at Qmax of 95 cm H₂O, Qmax 7 mL/sec, +++EMG activity during void

Fluoroscopy during void: clear proximal urethral dilation to level of external sphincter.
Cystoscopy reveals a normal urethra and a mildly trabeculated bladder.

Based on the clinical scenario, the urodynamics testing and the cystoscopy, what is your diagnosis? What are the key elements that support your diagnosis?
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Dx: **Detrusor sphincter dyssynergia**

**Multiple sclerosis as a predisposing factor**
**Urinary hesitancy and weak stream** in the history
**Elevated PVR**
**Cystoscopy: mild trabeculation**
**UDS: elevated detrusor pressure (>20 cm H₂O), low flow (<12 cm H₂O)** and increased EMG activity during voiding phase
**Fluoro: open bladder neck, dilation of proximal urethra to level of external sphincter during voiding**
What other studies should be considered for this patient with DSD?
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Upper-tract imaging to rule out upper-tract changes may be considered. Given the low resting detrusor pressures, it is debatable whether the kidneys are at much risk. Although the literature is mixed on this topic, many would obtain at least a baseline renal ultrasound.

Serum chemistry to confirm normal renal function.
What are the treatment options for this patient with DSD?
What are the treatment options for this patient with DSD?

**Pharmacotherapy**
- Skeletal muscle relaxants: e.g., benzodiazepines, baclofen (these medications are frequently ineffective)
- Alpha blockers: often tried, may be effective in some cases

**Clean intermittent catheterization**

**Indwelling catheter** (not ideal for obvious reasons)

**Injection of botulinum toxin A into the external urethral sphincter** (THIS IS CURRENTLY AN OFF LABEL USE OF BOTOX)

**Neuromodulation**
- Sacral nerve stimulation: successfully utilized, but it can be problematic implanting an SNS device into a patient who may need future MRIs
- Percutaneous tibial nerve stimulation: recent reports indicate good outcomes with this

**Sphincterotomy**: would potentially leave this patient totally incontinent (not a good idea)

**Urinary diversion**: last resort
She underwent treatment with transurethral injection of 100 units of botulinum toxin A into her external urinary sphincter. A total of 100 units was diluted in 10 mL saline (10 µ/mL). Using a transurethral technique, 2.5 mL (25 units) was injected in each quadrant of her external sphincter in the office.

After the procedure, she experienced less urinary hesitancy and improved force of stream. Her PVR was 57 mL during a follow-up visit. Botulinum toxin A injected into skeletal muscle is generally efficacious for 5-6 months.

Further treatments are performed based on recurrence of symptoms.
Selected Reading


Topic:
Female Urology/Neurourology

Subtopics:
Multiple sclerosis and detrusor sphincter dyssynergia