

Case Based Urology Learning Program

Resident's Corner: *UROLOGY*

Case Number 21

Case Based Urology Learning Program

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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?

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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)

What is detrusor sphincter
dyssynergia?

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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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Urodynamics (pressure flow study) with EMG and fluoroscopy (imaging is valuable in this setting to allow visualization of the outlet).

Cystoscopy

Fluro Urodynamics

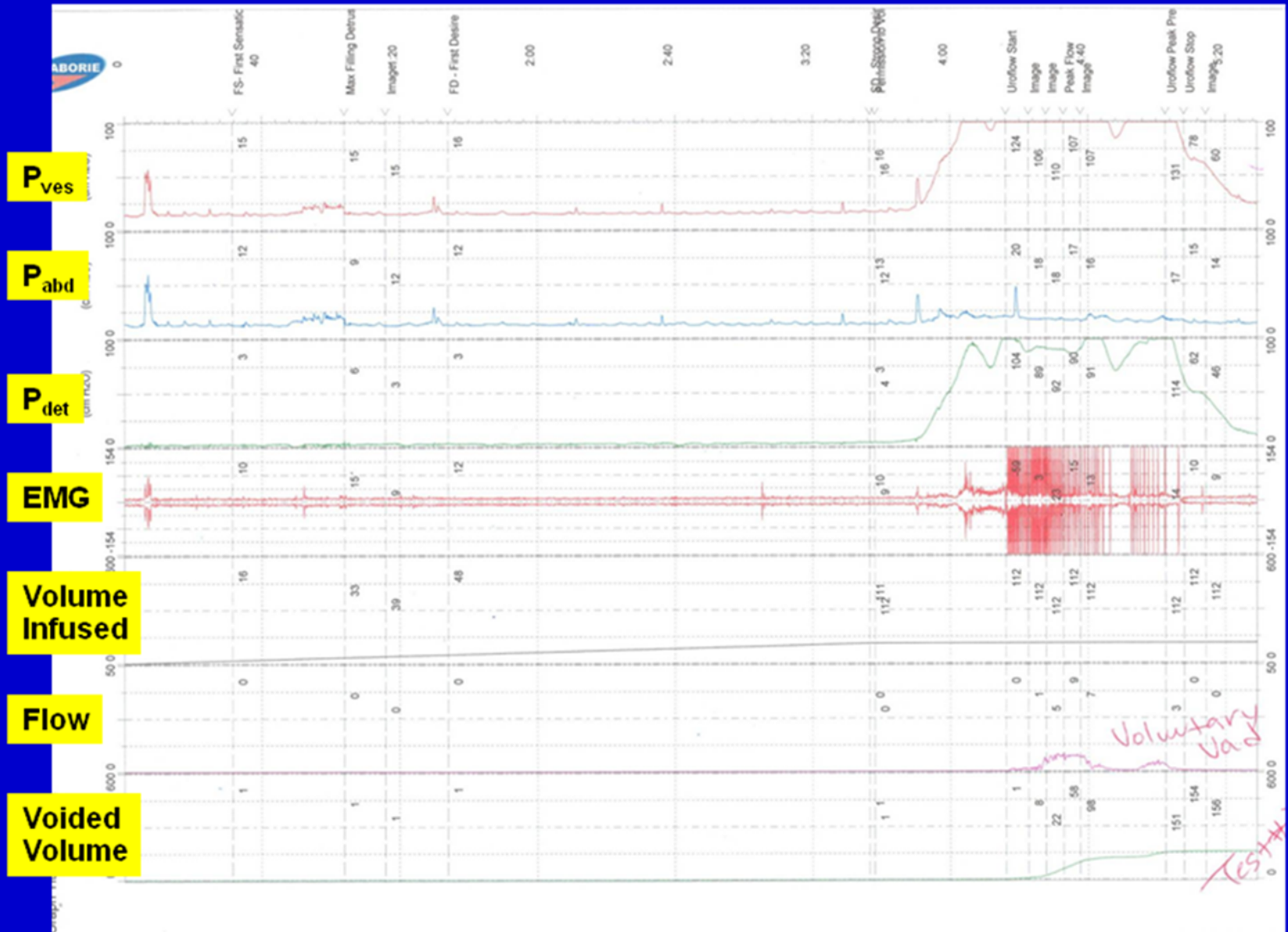
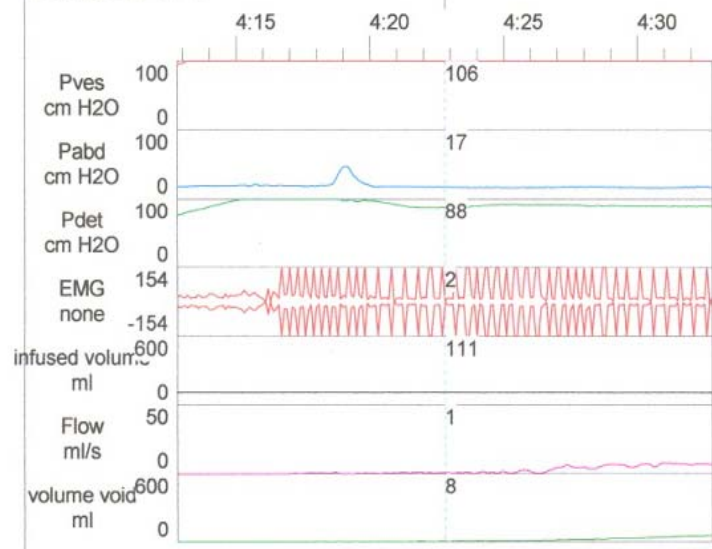


Image 2 of 5



Event Type: Image

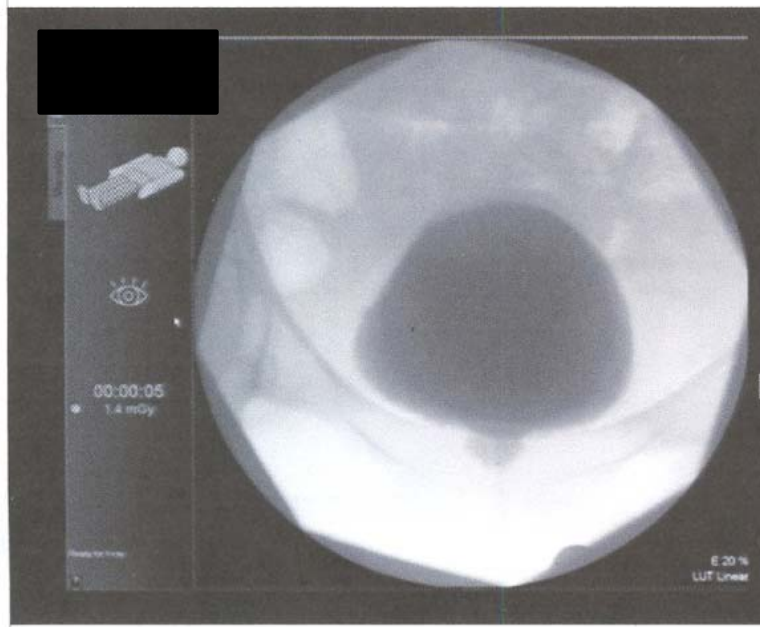
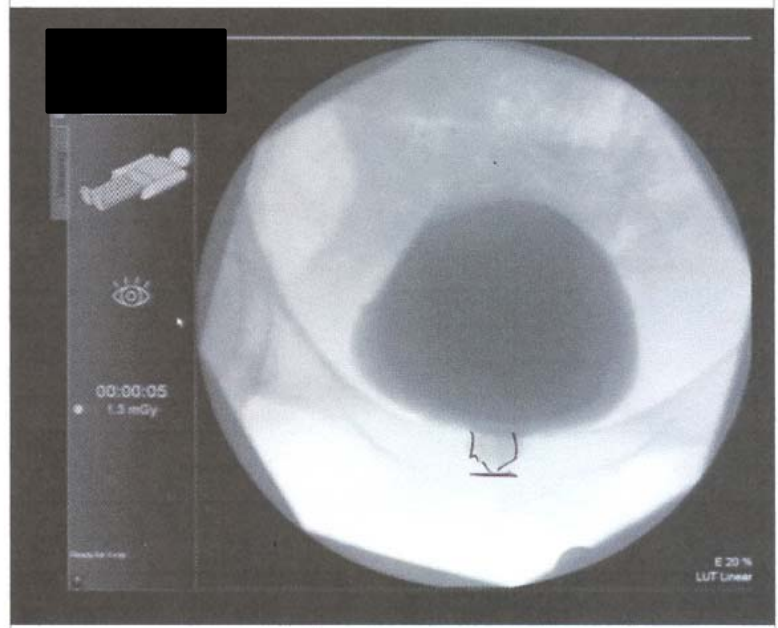
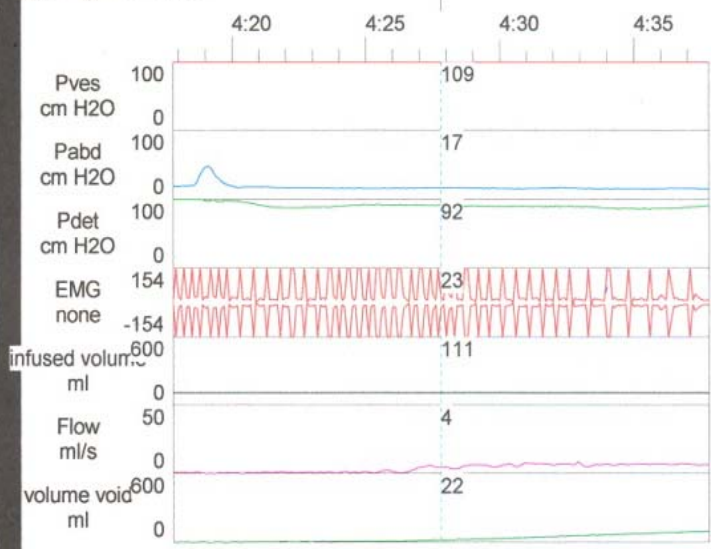


Image 3 of 5



Event Type: Image

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
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Pharmacotherapy

Skeletal muscle relaxants: e.g., benzodiazapenes, 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

Stoffel JT. Contemporary management of the neurogenic bladder for multiple sclerosis patients. *Urol Clin N Am* 2010;37:547-57.

Phelan MW, Franks M, Somogyi GT, Yokoyama T, et al. Botulinum toxin urethral sphincter injection to restore bladder emptying in men and women with voiding dysfunction. *J Urology* 2001;165:1107-10.

Gobbi C, Digesu GA, Khullar V, El Neil S, et al. Percutaneous posterior tibial nerve stimulation as an effective treatment of refractory lower urinary tract symptoms in patients with multiple sclerosis: preliminary data from a multicentre, prospective, open label trial. *Multiple Sclerosis J* 2011;0(00):1-6.

Topic:

Female Urology/Neurourology

Subtopics:

Multiple sclerosis and detrusor sphincter
dyssynergia