Cervical Spinal Cord Injury with Nocturnal Enuresis

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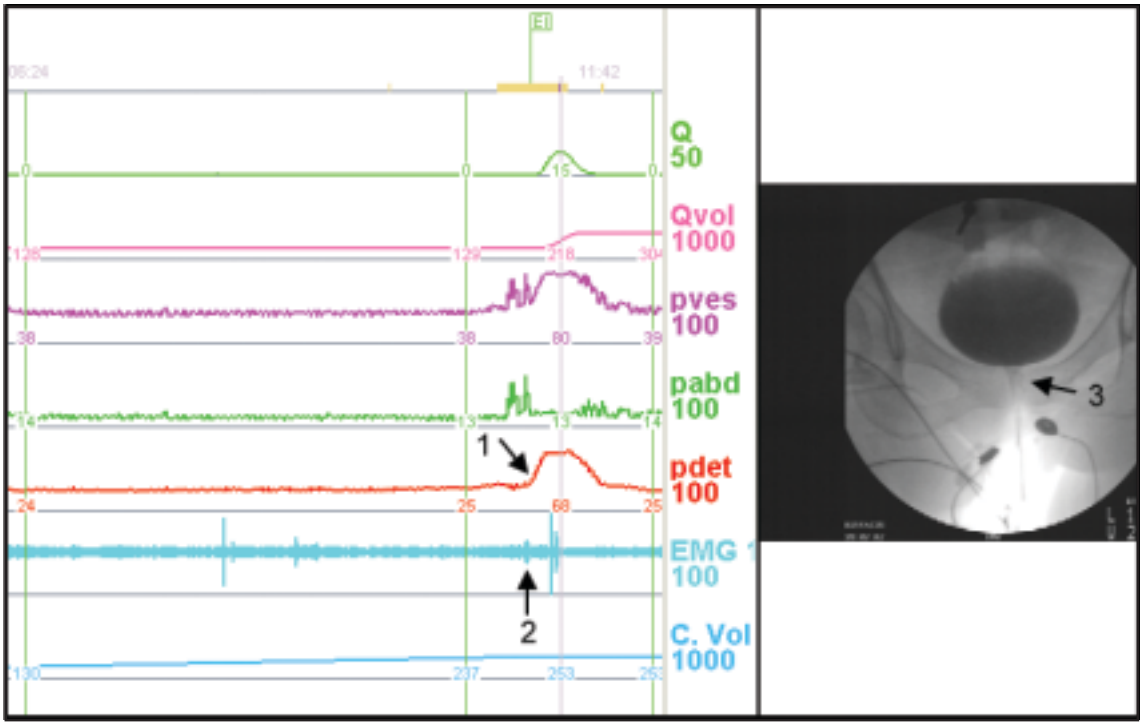

BRIEF HISTORY

A 68 year-old woman had an incomplete cervical spinal cord injury for 15 years. She had quadriparesis but was able to walk with crutches. In the past year she had nocturnal enuresis, which was refractory to antimuscarinics and desmopressin. Daytime frequency and urgency were also noted but she could tolerate the symptoms and only pad protection was needed.

CLINICAL INVESTIGATION

The patient had quadriparesis and limitation of ambulation. Urinalysis and renal sonography showed no abnormalities.

URODYNAMIC FINDINGS

Videourodynamic study revealed first sensation of filling at 101 mL, and an urge sensation at 123 mL. Uninhibited detrusor contractions occurred when she had an urge sensation. The voiding pressure was 51 cm water, maximum flow rate (Qmax) was 18 mL/s, and postvoid residual was 30 mL (arrow 1). During bladder filling, urethral sphincter activity increased with increases in the bladder volume, and further increased during initiation of voiding. The sphincter electromyographic activity decreased at the highest voiding pressure where the Qmax was reached (arrow 2). Voiding cystourethrography revealed a wide open bladder neck and narrow urethral sphincter during voiding (arrow 3).

CLINICAL DIAGNOSIS AND MANAGEMENT

This case demonstrated detrusor urethral sphincter dyssynergia in a cervical spinal cord injury. A high cervical lesion causes poor inhibition of detrusor contractions and poor regulation of urethral sphincter coordination, resulting in detrusor sphincter dyssynergia. In the daytime she could hold urine through strong contraction of the pelvic floor muscles. However at nighttime, when cortical control of the pelvic floor disappeared, detrusor overactivity caused urinary incontinence. Since the patient was refractory to antimuscarinics and desmopressin, intravesical botulinum toxin A might be helpful in decreasing detrusor overactivity and treating her nocturnal enuresis.