

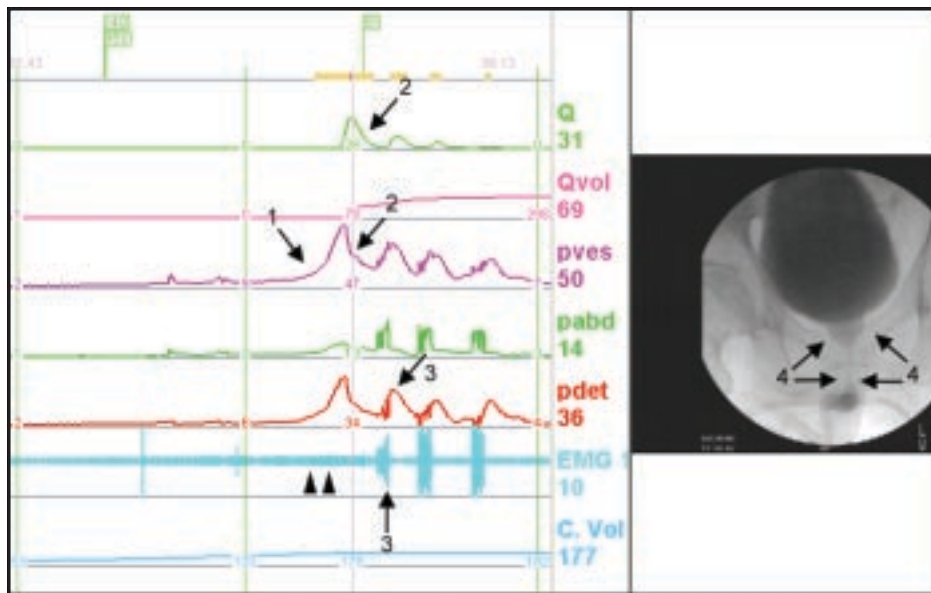
Type 1 Detrusor Sphincter Dyssynergia in a Man with a Spinal Cord Injury

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BRIEF HISTORY

A 32-year old man had a traumatic spinal cord injury (SCI) for 5 years. The level of the SCI was T9-10 and caused complete paraplegia classified American Spinal Injury Association grade A. He had urinary incontinence without an urge sensation in recent years. He was taught to empty his urinary bladder periodically by lower abdominal tapping and prevent urine soiling by wearing an external condom catheter. Nevertheless, he never had any urinary tract infections. Antimuscarinic agents failed to eradicate his urinary incontinence and he was annoyed by the adverse effects of treatment, such as dry mouth, blurred vision, and constipation. Therefore, videourodynamic study was done to investigate the vesicourethral dysfunction in preparation for detrusor botulinum toxin injection.

CLINICAL INVESTIGATION

Except for paraplegia, the patient was quite healthy in appearance. The bulbocavernosus reflex was intact but sensation was absent in the lower limbs. Aurinalysis showed no abnormalities and renal sonography revealed no hydronephrosis.

URODYNAMIC FINDINGS

Videourodynamic study revealed uninhibited detrusor contractions at a small bladder capacity (150 mL) (arrow 1). The external sphincter

electromyographic activity increased as the detrusor contracted (arrowheads). At maximal detrusor pressure, the urethral sphincter relaxed, detrusor pressure decreased and urine started to flow (arrows 2). Repeated detrusor contractions were elicited by lower abdominal tapping (arrows 3) and the detrusor pressure amplitude decreased as the bladder capacity decreased. Cinefluoroscopy revealed a wide open bladder neck and proximal urethra, and a narrow urethral sphincter during voiding (arrows 4).

CLINICAL DIAGNOSIS AND MANAGEMENT

The urodynamic findings and voiding cystourethrography showed typical type 1 detrusor sphincter dyssynergia. The narrow urethral sphincter during voiding indicated a dyssynergic urethral sphincter causing functional bladder outlet obstruction in a patient with SCI. Because the urethral sphincter cannot relax adequately, detrusor contraction is also inhibited after the initial contraction. Therefore, the patient urinates intermittently and has to void by lower abdominal tapping. An alpha-blocker and skeletal muscle relaxant such as baclofen may benefit by relaxing the urethral sphincter activity and facilitating spontaneous voiding. Antimuscarinics may also reduce detrusor contractility and improve the grade of incontinence. If the patient wishes to be completely dry, detrusor botulinum toxin A injections would be the best choice to resume continence. However, a large post-void residual may occur and clean intermittent self-catheterization would be necessary to empty his bladder.