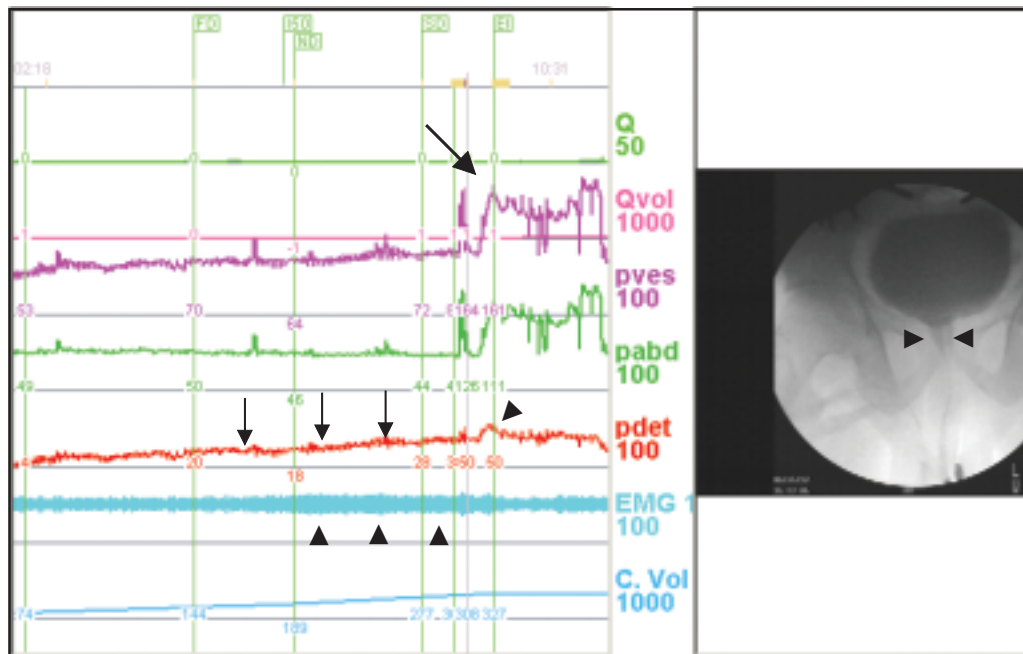


Cauda Equina Lesion with Urinary Incontinence and Difficult Urination

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BRIEF HISTORY

A 30 year-old man had a spinal cord injury due to a bursting fracture of the lumbar spine. He suffered from difficult urination and urinary incontinence for 5 years. Medical treatment failed to restore normal voiding function. He also had severe constipation.

CLINICAL INVESTIGATION

The patient had a mild gait disturbance. The genitalia were normal in appearance. The anal tone was loose and the bulbocavernosus reflex was absent. He could not contract his anal sphincter voluntarily.

URODYNAMIC FINDING

Videourodynamic study was performed using a 6 Fr double-lumen catheter, 8 Fr intra-rectal balloon catheter, and perineal surface patch electromyography (EMG) at an infusion rate of 30 mL/min. During the filling phase, the bladder sensation was impaired. The first sensation of bladder filling was perceived at 144 mL, full sensation at 277 mL and urge sensation at 327 mL. Bladder compliance was fair, and the intravesical pressure increased gradually with increased bladder

volume (small arrows). However, EMG coordination was good when the bladder was almost full (arrow heads). At bladder capacity, abdominal pressure was generated to induce urinary leakage, and the leak point pressure was 84 cm water (large arrows). Cystourethrography revealed a dilated prostatic urethra and incompetent urethral sphincter (arrow heads). The patient used abdominal straining when attempting to void. Detrusor contractility was weak and he could void only a small amount of urine (arrow heads).

CLINICAL DIAGNOSIS AND MANAGEMENT

A cauda equina lesion results in destruction of the micturition reflex center, but the bladder sensation from the trigone and proximal urethra are usually intact. This patient had detrusor underactivity and a loose urethral sphincter, indicating the sympathetic nucleus in the high level spinal cord was also impaired. A fairly compliant bladder caused high intravesical pressure when the bladder was full, and therefore, urinary overflow incontinence ensued. Management of this case should aim at increasing urethral resistance either by urethral sphincter injection of a bulking agent or a suburethral sling procedure. Careful adjustment of intraurethral resistance is necessary to prevent chronic urinary retention.