

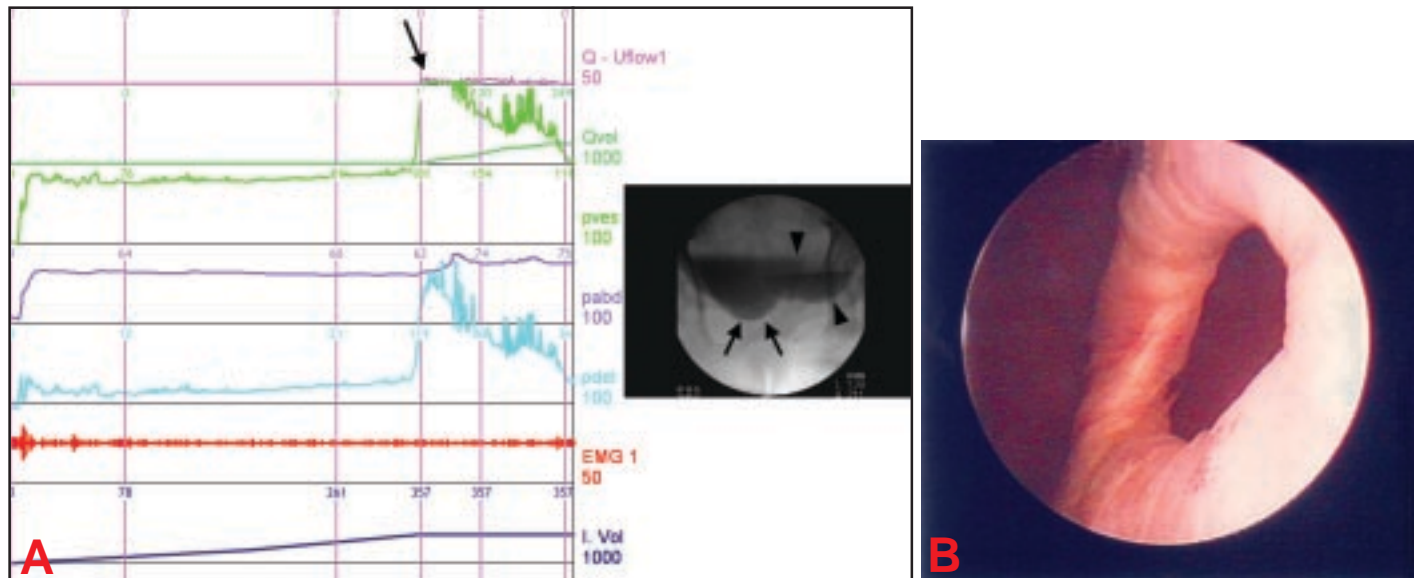
Bladder Diverticulum in a Man with Bladder Neck Dysfunction

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BRIEF HISTORY

A 48-year old man had had difficulty and intermittency in urination since he was a teenager. In addition, he had had frequency and urgency symptoms for more than 3 years. In the last year, difficulty in urination was exacerbated and acute urination retention developed whenever he took medicine for a common cold. Other than voiding symptoms he was quite healthy and had never had any severe disease before. He was treated with alpha-blocker for a benign prostatic hyperplasia for a long time in China but the lower urinary tract symptoms persisted.

LABORATORY FINDINGS

The urinalysis result was negative. Transrectal sonography of the prostate revealed a total prostatic volume of 26.9 mL with a transition zone index of 20%. Maximum flow rate (Q_{max}) was 14.7 mL/s, voided volume was 375 mL and postvoid residual volume (PVR) was 342 mL. The flow pattern showed a constrictive obstructive pattern. During trans-abdominal sonography to measure PVR, a cystic dilatation left lateral to the bladder was noted. Bladder diverticulum was suspected.

VIDEOURDYNAMIC STUDY

A videourodynamic study was arranged to investigate the underlying bladder and urethral dysfunction (A). During the study, the patient perceived the first sensation of filling at 261 mL, full sensation at 332 mL and urge sensation at 357 mL. The voiding pressure was 139 cmH₂O, Q_{max} was 3 mL/s and PVR was 200 mL. During the bladder filling phase, a bladder diverticulum was noted at the left lateral wall. The diverticulum increased in size as the bladder started to become full. During the voiding phase, the bladder neck and prostatic urethra were narrow (arrows) and the diverticulum further enlarged (arrow heads). Patient voided slowly and had to strain to empty his bladder intermittently as urine in the diverticulum kept returning to the bladder.

DIAGNOSIS AND MANAGEMENT

Bladder diverticulum due to primary bladder neck dysfunction is likely. Cystoscopy further confirmed the diagnosis (B). Because a high bladder outlet resistance has existed for a long time, the diverticulum increased in size and produced an “energy stealing effect” during micturition. Transurethral incision of the bladder neck is indicated to relieve outlet resistance. Concomitant diverticulectomy or electrocoagulation of the diverticulum can be performed in order to excise the diverticulum or reduce the capacity, thereby the PVR can be decreased after voiding.