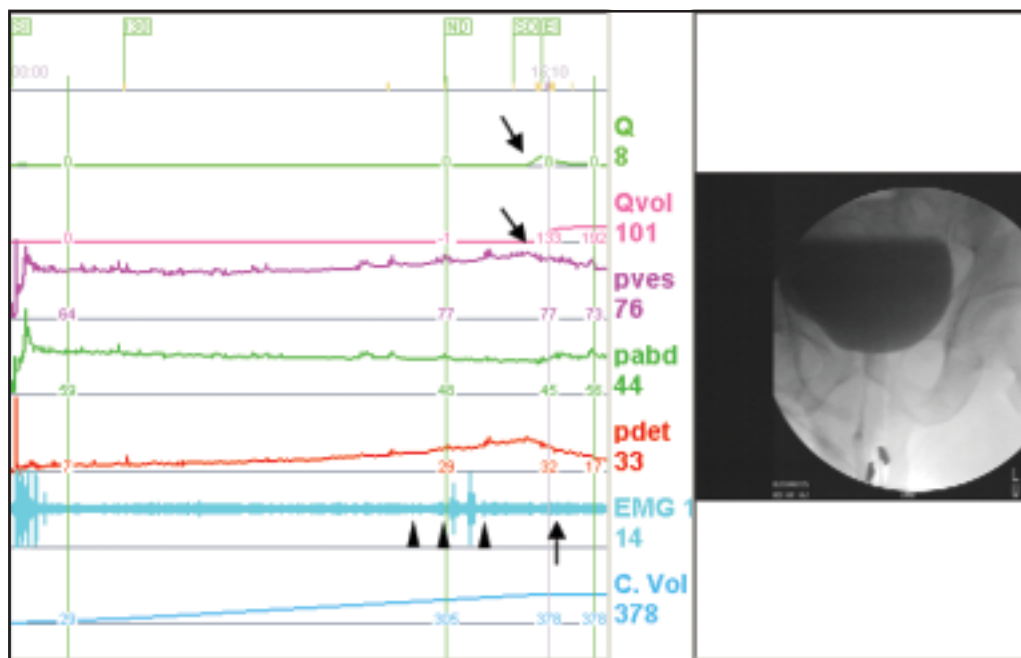


Detrusor Underactivity without Bladder Outlet Obstruction

Hann-Chorng Kuo, M.D.

Department of Urology, Buddhist Tzu Chi General Hospital and Tzu Chi University, Hualien, Taiwan; E-mail: hck@tzuchi.com.tw



BRIEF HISTORY

An 82-year old man had a history of difficult urination with frequency and urgency for 1 year. He had a history of diabetes mellitus and hypertension for which he was under regular treatment. The lower urinary tract symptoms (LUTS) were not responsive to an alpha-adrenergic blocker or 3 months of therapy with antimuscarinics.

CLINICAL INVESTIGATIONS

Transrectal sonography revealed the prostate was not enlarged. The total prostate volume was 20.4 mL and the transition zone index was 0.2. The maximum flow rate (Q_{max}) was 3.5 mL/s with a voided volume of 109 mL and the postvoid residual (PVR) was 70 mL. He was scheduled for a videourodynamic study for his LUTS.

VIDEOURODYNAMIC FINDINGS

Videourodynamic study (VUDS) was performed using a 6 Fr transurethral double-lumen catheter and 8 Fr rectal tube with surface patch electromyography (EMG). The infusion rate was 30 mL/min. The first sensation of filling occurred at 305 mL, full sensation at 378 mL. The patient felt a strong urgency at the bladder capacity. The bladder com-

pliance was fair (378 mL/25 cmH₂O), however, there was no detrusor overactivity detected. Urethral sphincter EMG showed concomitantly increased activity associated with bladder fullness (arrow heads). When the patient was allowed to void, there was no detrusor contraction, instead, the intravesical pressure decreased with concomitant urethral sphincter EMG relaxation and uroflow appeared (arrows). Q_{max} was 8 mL at a voided volume of 192 mL with a PVR of 200 mL. During the voiding phase, the bladder neck and prostatic urethra were wide open and no definite urethral obstruction was found.

CLINICAL DIAGNOSIS AND MANAGEMENT

This VUDS revealed a fair bladder compliance might elicit a sensation of urgency when the bladder was full without detrusor overactivity. When the bladder capacity was reached, the intravesical pressure increased as a hypertonic condition, due to increased urethral sphincter activity. When the patient voided, the urethral sphincter was relaxed and intravesical pressure turned to uroflow in face of a decreased urethral resistance. Detrusor contractility was low and generated a low Q_{max} without an elevated detrusor pressure. The hypertonic detrusor condition might be due to increased muscle tone or presence of minute detrusor overactivity. Since antimuscarinics failed to relieve LUTS, intravesical resiniferatoxin or botulinum toxin might be helpful.