

THE URODYNAMIC EVALUATION OF SURGICAL OUTCOME IN PATIENTS WITH URINARY RETENTION DUE TO CENTRAL LUMBAR DISC PROLAPSE

Aims of Study

Acute urinary retention, a part of the so-called cauda equina syndrome typically occurs in central lumbar disc prolapse, although voiding dysfunction due to detrusor areflexia is also noted in lateral lumbar disc prolapse or lumbar spondylosis. It has been reported that early diagnosis and surgical decompression are important to minimize neural damage and promote recovery. However, whether, or not, the impairment of the voiding function is reversible has been debated and the timing of surgical decompression for cauda equina syndrome is controversial. There have been little reports on sophisticated urodynamic assessment both before and after the surgery. The present study investigates whether, or not, the lower urinary tract function is reversible after the emergency spinal surgery in patients with acute urinary retention due to central lumbar disc prolapse.

Methods

8 patients (2 males, 6 females) with a mean age of 28.6 years (range 18-42) with acute urinary retention due to central lumbar disc prolapse were studied. The affected spinal lesion was L4/5 in 5 patients and L5/S1 in 3. An emergency surgery was performed within 48 hours (mean 41 hours) after the onset of urinary retention. Urological and neurological examinations as well as urodynamic studies were performed before and after the operation in all patients.

Results

The initial symptom was urinary retention in one patient, urinary retention and sciatica in 2 and low-back pain in 5. The neurological examination at presentation revealed that both light touch and pinprick perineal sensation was absent or decreased in all patients. Patellar tendon reflex was increased in 3 patients and decreased or absent in 5. Achilles tendon reflex was normal in 1 and decreased or absent in 7. Babinski's sign was not found in any patient. Anal reflex and bulbocavernosus reflex were present in 3 patients and absent in the remaining 5 patients. At presentation, all patients had detrusor areflexia without bladder sensation in urodynamic study. External sphincter was inactive in 5 of 7 patients, normal in 1, and one patient demonstrated denervation potentials on electromyogram. Following surgery, clean intermittent catheterization was performed in all patients until micturition was recovered with postvoid residuals less than 50ml.

Two patients were unable to void up to 1 and 5 months after surgery, and was then lost follow-up. The remaining 6 patients could void by straining, changing their voiding postures (bending forward) or using an alpha-blocker postoperatively. Followup urodynamic study was performed in all patients up to 1- 48 months (mean 22.5 months) postoperatively. On cystometrograms all patients demonstrated detrusor areflexia. On external sphincter electromyogram, four patients had normal activities. The remaining four patients recovered electromyogram activities, but 2 of them had denervation motor unit potentials and 2 had low activities. On urethral pressure profile in 4 patients, mean maximum urethral closure pressure was 57.0 cmH₂O and mean functional length was 2.7cm. Maximum urethral closure pressure was considered to be low in only one male patient.

Conclusions The recovery of bladder function after spinal surgery was irreversible while urethral function showed a better recovery in patients with urinary retention due to central lumbar disc prolapse. However most of the patients could empty their bladder with straining or changing their voiding postures, postoperatively.