Detrusor Ultrastructural Study Predicts Long-Term Voiding Outcomes in Male Patients with Detrusor Underactivity Who Underwent Transurethral Resection of Prostate (TURP)

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Abstract

INTRODUCTION AND OBJECTIVES

Patients with detrusor underactivity (DU) and chronic retention have a variable voiding outcome after TURP which may not be predicted by urodynamics. We report the largest ultrastructural study on DU and correlate detrusor ultrastructure features with long term voiding outcomes.

METHODS

Patients with urodynamic diagnosis of DU or bladder outlet obstruction (BOO) who underwent TURP were studied. Detrusor biopsies were obtained and ultrastructural features including the 'myohypertrophy pattern' were assessed using a simplified protocol. Postoperative voiding outcomes were correlated with ultrastructural features and urodynamic parameters.

RESULTS

27 patients (mean 78 yrs) were recruited(23 DU, 4 BOO). Postoperatively all BOO patients voided, 9 DU patients (39%) were catheter-free at 3 months and 29% catheter-free long-term (mean 16yrs FU). Functional parameters (PVR bladder contractility index) did not correlate with voiding outcomes. Ultrastructural studies showed voiding outcome was significantly associated with myocyte irregularity/derangement (p=0.034) and collagenosis (p=0.041). Overall, moderate to severe changes of the ‘myohypertrophy pattern' (myocyte size variation, increased cell separation, increased intercellular collagen, degeneration) predicted poor long-term voiding outcomes (p=0.029, OR of catheter-dependence 5.5).

CONCLUSIONS

Detrusor ultrastructural features of the ‘myohypertrophy pattern’ predicted long term catheter dependence after TURP. Ultrastructural analysis can be a useful prognostic tool in men with DU considering surgery.

References