

COMPARISON OF ULTRASTRUCTURAL FEATURES IN FEMALE AND MALE BLADDER OUTLET OBSTRUCTION – A POTENTIAL ROLE FOR DIAGNOSTIC DETRUSOR MUSCLE BIOPSY

Hypothesis / aims of study

Our previous ultrastructural studies in men with bladder outlet obstruction (BOO) have demonstrated that features of myohypertrophy (muscle fascicle derangement, collagenosis and variation in myocyte shape and size) are associated with worse voiding outcomes following transurethral resection of the prostate. The aim of this study was to compare ultrastructural features using the same standardised protocol in female and male patients with BOO to assess if detrusor biopsy has a role in the diagnosis of female BOO.

Study design, materials and methods

Detrusor muscle biopsies were obtained at cystoscopy from 10 patients (4 females and 4 males with urodynamically proven BOO and 2 female controls with normal urodynamics). Of the four female BOO patients, 2 had urethral strictures, 1 had obstruction following a sling procedure and 1 with Fowler's syndrome. The muscle biopsies were processed for transmission electron microscopy. Previously established diagnostic criteria were used for ultrastructural analysis (muscle fascicle derangement, myocyte irregularity, myocyte cell separation, collagenosis, normal and abnormal intercellular junctions). Severity of the 'myohypertrophy pattern' was assessed by 3 observers blinded to the clinical diagnoses and then correlated with clinical features.

Results

Features of myohypertrophy were identified on electron microscopy in all female and male patients with BOO but absent in the controls. However all subjects showed features of degeneration of varying degrees, in keeping with our previous studies demonstrating that degeneration correlates with age but not necessarily obstruction. The myohypertrophy changes were less marked in females with BOO compared to males with BOO. These changes are evident even in one patient with an obstructed sling for 4 months. Semi-quantitative analysis of ultrastructural features showed that the severity of myohypertrophy correlated with degree of obstruction in female BOO.

Concluding message

We have demonstrated similar ultrastructural features in detrusor biopsies from female and male patients with BOO. The myohypertrophy pattern is present in female BOO correlates with the severity of obstruction but appears less marked than in male BOO. Given the uncertainty in the diagnosis of female BOO based on urodynamic parameters, the detrusor biopsy may have a potential role in the diagnosis of female BOO.

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<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	The Sydney South West Area Health Service Human Research Ethics Committee
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes