

URODYNAMIC FINDINGS BEFORE AND AFTER PUBOVAGINAL FASCIAL SLING FOR FEMALE STRESS URINARY INCONTINENCE: PREDICTION OF POSTOPERATIVE VOIDING DYSFUNCTION

Hypothesis / aims of study

Previous studies on surgical treatment for female stress urinary incontinence (SUI) showed a good long-term outcome of urethral sling surgery irrespective of types of SUI (anatomical incontinence and/or intrinsic sphincter deficiency). However, postoperative urinary retention occurred in 2 to 6 % of patients who underwent pubovaginal fascial sling or TVT. In this study we analyzed urodynamic findings before and after pubovaginal fascial sling to examine predictive value of urodynamics in the occurrence of postoperative voiding dysfunction.

Study design, materials and methods

This was a prospective study and included 26 women (age 43 to 79 years, median 60 years) who underwent pubovaginal fascial sling for SUI during the past 5 years at our institution. Anterior rectus fascia of 2 cm in width and 5 cm in length was harvested as free fascia and fixed around the bladder neck and proximal urethra. Non-absorbable sutures placed at the both ends of the fascia were tied over anterior rectus fascia in a tension-free fashion. Simultaneous procedures included vaginal hysterectomy and anterior colporrhaphy in 6 patients and anterior colporrhaphy in other 9 patients. All patients underwent urodynamic studies (free uroflowmetry, filling cystometry and pressure-flow study) before and 3 months after surgery. Incidence of postoperative voiding dysfunction, operative outcome in SUI, changes in urodynamic parameters after surgery, and predictive value of preoperative urodynamic findings in the occurrence of postoperative voiding dysfunction were analyzed. Postoperative voiding dysfunction was defined as development of urinary retention or voiding difficulty that required intermittent catheterization for more than 1 month after surgery.

Results

Postoperative voiding dysfunction was noted in 8 patients (31%), of whom 5 regained normal voiding by 3 months after surgery. The other 3 patients underwent urethrolisis because of persistent urinary retention. SUI was cured in 22 patients (85%), improved in 2 (8%) and unknown in the remaining 2 who underwent urethrolisis soon after surgery. On free uroflowmetry, mean Q_{max} decreased from 25.6 to 18.4 ml/sec (n.s.) and postvoid residual urine (PVR) increased from 47 to 88 ml (p<0.05) after surgery. Filling cystometry revealed no significant change in mean bladder capacity (from 401 to 396 ml) or incidence of detrusor overactivity (8% in each). On pressure-flow study, mean Q_{max} decreased from 20.2 to 13.8 ml/sec, mean detrusor opening pressure increased from 14.2 to 24.1 cmH₂O (p<0.05), and mean maximum detrusor pressure (P_{det.max}) increased from 18.5 to 29.3 cmH₂O (p<0.05). Among preoperative urodynamic parameters, if P_{det.max} less than 12 cmH₂O, Q_{max} on free uroflowmetry less than 20 ml/sec, and PVR more than 100 ml were defined as cut-off values to predict the occurrence of postoperative voiding dysfunction, only PVR had a significant predictive ability. Sensitivity, specificity, positive and negative predictive value of PVR was 57%, 94%, 80% and 84%, respectively.

Interpretation of results

Incidence of postoperative voiding dysfunction (8 of 26, 31%) was relatively high in this study, although more than 60% (5 of 8) of those patients regained normal voiding by 3 months after surgery. Changes in urodynamic parameters indicate an obstructive nature of pubovaginal urethral sling. Only PVR (more than 100 ml) before surgery had a significant predictive value in the occurrence of postoperative voiding dysfunction.

Concluding message

Among candidates of urethral sling surgery for SUI, those who have PVR more than 100 ml should be informed of the possibility of postoperative voiding dysfunction due to the obstructive nature of the surgery.