

## THE MALE SLING FOR STRESS URINARY INCONTINENCE: URODYNAMIC AND SUBJECTIVE ASSESSMENT WITH 24 MONTH FOLLOW-UP

### Hypothesis / aims of study

Stress urinary incontinence (SUI) following prostate surgery can be a bothersome problem, adversely affecting quality of life. The male perineal sling has recently been added to the surgical armamentarium for treating this disorder. Early subjective results have been promising. However, high rates of bladder dysfunction and the phenomenon of valsalva voiding in men with post-prostatectomy incontinence raise concerns over the potential effects of a fixed urethral resistance that characterizes male sling operation. This is a report of a prospective study of the male sling for treatment of stress urinary incontinence with a minimum 1 year follow-up. This study utilized a validated questionnaire to assess efficacy, and urodynamics to examine whether the sling causes significant bladder outlet obstruction or *de novo* bladder dysfunction.

### Study design, materials and methods

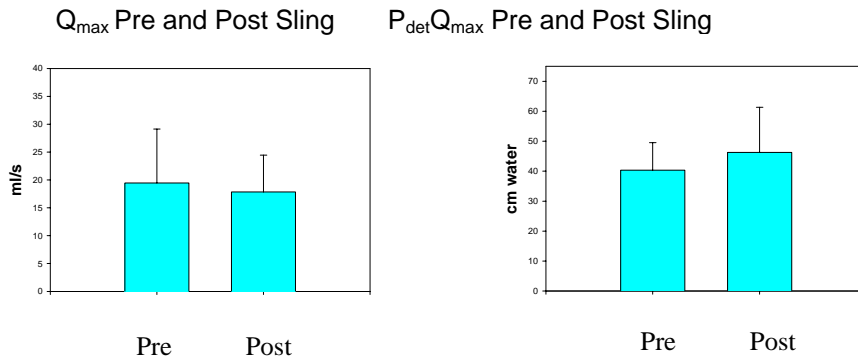
37 patients (average age = 67 years) underwent male sling surgery. Through a perineal incision, 4 bone anchors were placed in the descending pubic rami. A 4x7 cm sling made of silicone-coated polyester was placed over the bulbar urethra. Tension was adjusted via perfusion sphincterometry to achieve a retrograde leak point pressure of 60 cm water. Patients were evaluated pre-operatively and post-operatively with the urinary function section of the self-administered validated University of California Los Angeles Prostate Cancer Index (UCLA PCI), and by pad score. Urodynamic evaluation was performed pre- and post-operatively, including filling cystometry to assess vesical compliance and to detect bladder overactivity, abdominal leak point pressure (ALPP) and retrograde leak point pressure (RLPP) to assess and quantify intrinsic sphincteric function, and pressure-flow study to rule out bladder outlet obstruction (BOO). Cystourethroscopy was performed to identify anatomic abnormalities such as anastomotic or urethral strictures.

### Results

Median follow-up was 27 months (range: 12-42 months). Pre-operatively, 36/37 patients (97%) used 3 or more pads per day, and 1 used 2 pads daily. All rated their incontinence as a big problem. Post-operatively, 25 (68%) patients were pad-free, 5 (14%) use 1 pad, 4 (11%) use 2 pads, and 3 (8%) continue to use 3 or more pads daily. Overall, mean pad usage declined from  $4.6 \pm 2.5$  pads to  $0.64 \pm 1.0$  pads daily ( $p < 0.001$ ). Thirty (83%) patients reported a small to no bother from urine leakage post-operatively, and 3 (8%) considered their leakage a moderate problem, while 3 (8%) continued with a big problem. Overall, 34/37 (92%) were improved subjectively and objectively. The median UCLA PCI urinary function score was improved from a median of 34 pre-operatively to 34 post-operatively ( $p < 0.001$ , Mann Whitney test).

Mean RLPP increased from  $30.4 \pm 15.7$  cm water pre-operatively to  $59.9 \pm 9.7$  cm water post-operatively ( $p < 0.001$ ). However, those individuals requiring more than 3 pads per day had post-operative RLPP  $< 50$  cm water, with an average increase in RLPP of only 17 cm water.

Two demonstrated detrusor overactivity and none had bladder outlet obstruction on pre-operative urodynamics. No patients developed urodynamic obstruction following sling surgery. Average maximum flow rate ( $Q_{max}$ ) following surgery ( $17.7 \pm 6.5$  ml/s) did not significantly differ from pre-operative  $Q_{max}$  ( $19.2 \pm 9.7$  ml/s). Nor was there a significant change in detrusor pressure at  $Q_{max}$  ( $P_{det} Q_{max}$ ), averaging  $45.8 \pm 14.7$  cm water pre-, and  $40.3 \pm 9.2$  cm water post-operatively. Average post-void residual urine was  $17 \pm 26$  ml. No patient developed *de novo* urgency or urge incontinence. However, three patients, all scoring a moderate to big problem with urine leakage had urodynamic detrusor overactivity post-operatively, whereas only 2 patients scoring a very small to no problem had overactivity. There were no instances of erosion, infection, or prolonged retention.



### **Interpretation of results**

Medium-term results for the male sling demonstrate a success rate comparable to that reported for the artificial urinary sphincter (68% pad-free rate and 92% improvement). Both pad usage and the UCLA PCI urinary function section scores are improved after male sling surgery. Urodynamic evidence proves that the male sling operation does not cause iatrogenic bladder outlet obstruction. The intra-operative improvement in RLPP was durable and reproducible at an average of 24 months follow-up. A RLPP less than 50 cm H<sub>2</sub>O and urodynamic detrusor overactivity were both associated with increased pad usage and bother from urine leakage following male sling surgery.

### **Concluding message**

The male sling for SUI has established a very low morbidity, and has not been associated with any significant complications. Longer follow-up will ultimately establish whether this technique represents a viable long-term alternative to artificial urinary sphincter for the treatment of bothersome SUI in the male.