

## VALSALVA VOIDERS ARE AT INCREASED RISK OF URINARY RETENTION AFTER MID-URETHRAL SLING PLACEMENT FOR STRESS URINARY INCONTINENCE

### Hypothesis / aims of study

Mid-urethral slings (MUS) are the gold standard therapy for female stress urinary incontinence (SUI). The development of postoperative urinary retention following MUS placement is a common complication. The rates of urinary retention after the procedure range from two to 40% depending on definition utilized, duration of retention and the presence of concomitant pelvic surgery.

Up to 20% of neurologically normal women empty their bladder by efficient Valsalva and not with a detrusor contraction. Limited data exist which specifically examine the risk of urinary retention following MUS placement in women who void by Valsalva compared to women who void by detrusor contraction. As a result, we retrospectively compared the rates of postoperative urinary retention following MUS placement for treatment of SUI in women that void by detrusor contraction versus Valsalva.

### Study design, materials and methods

Retrospective chart review of all patients undergoing MUS insertion from 2002 to 2007 for the treatment of SUI was performed. Women with concomitant pelvic surgery, previous anti-incontinence procedures or elevated (>75cc) preoperative post void residual urine volume were excluded. Patients were divided into two cohorts based on preoperative urodynamic findings - those that voided with a detrusor contraction >10cm of water without abdominal strain and those that voided by Valsalva. Valsalva voiding was defined as bladder emptying via abdominal strain and a detrusor contraction  $\leq$ 10cm of water.

All patients underwent MUS placement under general anesthesia on an outpatient basis. Postoperative urinary retention was defined as either the inability to void prior to discharge or a post void residual urine volume greater than 150mL as measured by either bladder ultrasound or straight catheterization. Retention patients were given the choice of either performing clean intermittent catheterization or having a Foley catheter placed. Symptom updates and post void bladder ultrasound were performed for all patients at 1 and 6 weeks postoperatively. Urinary retention patients were followed weekly until resolution.

Information abstracted from medical records included method of MUS placement (retropubic or transobturator), previous or concomitant pelvic surgery as well as preoperative and postoperative post void residual urine volumes. Both cohorts were then evaluated and compared with regard to the development of urinary retention following MUS placement. Fisher's exact test was used to determine statistical significance.

### Results

Three-hundred and six women underwent MUS placement for SUI. Two-hundred and eighteen patients were excluded, mostly secondary to concomitant pelvic surgery or previous SUI procedures. Of the 88 remaining patients, 60 (68%) women voided by detrusor contraction and 28 (32%) emptied their bladder by efficient Valsalva. Mean age for each cohort was 53 years. Urinary retention was reported in 4/60 (7%) detrusor contraction and 6/28 (21%) Valsalva voider patients ( $P < 0.05$ ). In the detrusor contraction cohort, MUS placement that resulted in urinary retention was performed retropubically in three (5%) patients and via the obturator foramen in one (2%) patient. Of the women in the Valsalva voider group with postoperative urinary retention, five (18%) received retropubic MUS and one (4%) underwent a transobturator MUS.

Average duration of urinary retention was 3 weeks in both cohorts (range 1-6). Sling lysis was required in two (3%) patients that voided with detrusor contraction and two (7%) Valsalva voiders.

### Interpretation of results

Our results indicate that women who void by efficient Valsalva may have a 3x higher incidence of postoperative urinary retention following MUS surgery for the management of SUI. Most (67%) patients in this cohort were able to efficiently void within an average of three weeks following surgery. Multiple factors including postoperative edema and incomplete pelvic floor relaxation may contribute to retention in these patients. It is conceivable that the use of preoperative pelvic floor physical therapy may decrease the risk of urinary retention in Valsalva voiders undergoing MUS placement.

### Concluding message

Valsalva voiders appear to have a significantly increased risk of urinary retention following MUS surgery when compared to women who void with a detrusor contraction. Most cases are self-limited and do not require further surgical intervention. However, patients who void by Valsalva should be counselled about the increased risk of urinary retention after MUS surgery.

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<b>Is this a clinical trial?</b>	<b>No</b>
<b>What were the subjects in the study?</b>	<b>HUMAN</b>
<b>Was this study approved by an ethics committee?</b>	<b>No</b>
<b>This study did not require ethics committee approval because</b>	<b>the study design was a retrospective chart review</b>
<b>Was the Declaration of Helsinki followed?</b>	<b>Yes</b>
<b>Was informed consent obtained from the patients?</b>	<b>No</b>

