GYNECOLOGY

Assessment of voiding after sling: a randomized trial of 2 methods of postoperative catheter management after midurethral sling surgery for stress urinary incontinence in women

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OBJECTIVE: The objective of this study was to compare the backfill standard voiding trial (SVT) that relies on the assessment of voided volume to subjective patients' evaluation of their voiding based on the assessment of the force of stream (FOS) after an outpatient midurethral sling surgery.

STUDY DESIGN: This double-blinded randomized trial included patients undergoing an outpatient midurethral sling surgery without any other concomitant surgery. Participants were randomized to either the SVT group or to the FOS group. The primary outcome was the rate of catheterization any time up to 6 weeks after surgery. Both groups underwent the same backfill voiding trial protocol postoperatively. Measurements of the voided amount, postvoid residual, and the response to the FOS visual analog scale were collected. The criteria for passing the voiding trial in the SVT group was voiding at least two-thirds of the instilled amount; while the criteria for passing the trial in the FOS group was assessment of FOS at least 50% of the baseline, regardless of the voided volume. Participants were interviewed preoperatively and 2-4 days, 7-9 days, and 6 weeks postoperatively. All postoperative interviews included assessments of pain, tolerance of physical activity, urinary FOS, as well as satisfaction with the surgery. Validated questionnaires (Incontinence Severity Index and Urinary Distress Inventory, short form) before the surgery and 6 weeks after were used to evaluate urinary symptoms.

RESULTS: A total of 108 patients were enrolled and randomized, and 6-week follow-up data were available for 102 participants (FOS 50, SVT 52). The 2 groups were similar with respect to demographic characteristics and urinary symptoms. The incidence of catheterization was also similar between the groups (FOS 13 [26%], SVT 13 [25.5%]; $P = .95$). Amount voided had a moderate correlation with FOS assessment (Spearman rho 0.5; $P < .001$). There was no significant difference in mean catheter days, pain scores, Incontinence Severity Index, and Urinary Distress Inventory, short form scores between the 2 groups. Of the patients who were discharged home without a catheter in either group none required catheter reinsertion within 6 weeks after the surgery.

CONCLUSION: Patient's subjective assessment of the urinary FOS correlated well with the measured voided amount and no difference in catheterization days was noted between the subjective and objective assessment of voiding. Thus subjective evaluation of the FOS is a reliable and safe method to use after outpatient midurethral surgery.

Key words: force of stream, midurethral sling, postoperative catheter, voiding trial

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Midurethral sling (MUS) surgeries are among the most common procedures performed in the United States.[1] MUS are less invasive than the Burch colposuspension and the autologous rectus fascia sling procedures and as such are associated with less blood loss and shorter recovery time without compromising the efficacy of treatment.[2-4] Despite numerous advantages of these surgeries, 25-35% of patients are discharged home with indwelling catheters.[5,6]

The challenge for surgeons performing antiincontinence procedures is to avoid postoperative urinary retention and minimize the need for postoperative catheterization and its associated risks. In addition to being the leading cause of hospital-acquired urinary tract infections (UTIs),[7] indwelling catheters are also a source of discomfort, embarrassment, and inconvenience, particularly if patients desire to return to work or daily activities immediately. Additionally, many women are distressed by the idea of going home with a catheter. Elkadry et al[8] evaluated how patients perceive surgical outcomes and found that 9% of women believed that being discharged with a catheter was a surgical complication and 15% named "catheter" as the worst aspect of their surgery.

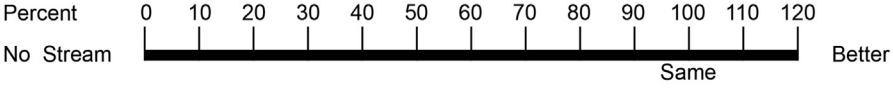
After antiincontinence surgery, an assessment of voiding function (voiding trial) is often performed to determine who can be safely discharged without a catheter. A commonly described voiding trial technique is the backfill-assisted voiding trial, which involves filling the bladder with 300 mL of sterile fluid via the catheter while in the recovery room, removing the catheter, and allowing the patient to void. The patient is discharged with an indwelling catheter if the voided amount is less than two-thirds the infused volume.[9] When utilizing this protocol, approximately 35% of patients require catheterization after a sling.[5] This backfill-assisted voiding trial technique has been shown to be more efficient than the alternative of simply removing the catheter, waiting for a patient to void after parenteral or oral hydration, and then measuring a postvoid residual (PVR).[9] Despite being widely used in multiple randomized trials,[9,10] the precise requirements for volume voided or PVR volumes have not been critically evaluated, particularly for outpatient minimally invasive sling surgeries.

An alternative method of voiding evaluation, which utilizes a visual analog scale (VAS) ascertaining the urinary force of stream (FOS) after surgery relative to the force prior to surgery has been reported.[11] This method specifies the criteria for discharge without a catheter as a subjective report by the patient of her FOS that is >50% of her baseline FOS using a VAS (Figure 1). In this study, 94.6% of patients were discharged home without a catheter and with no incidence of acute voiding dysfunction necessitating recatheterization. While subjective patient evaluation of voiding appears to be safe, it is not known how patient's subjective perception of voiding correlates with the measured voided volume or the PVR volume. The objective of this study was to compare the backfill standard voiding trial (SVT) to the FOS voiding trial in a double-blind randomized controlled trial and to determine if subjective patient evaluation is a safe method to determine the need for indwelling catheterization after an outpatient sling surgery. Our hypothesis was that the rate of catheterization would be significantly lower when using the FOS technique as compared to the backfill voiding trial.

Materials and Methods

In this double-blinded randomized trial, patients undergoing an outpatient MUS surgery for female stress urinary incontinence were eligible for participation. Participants were excluded if the surgery involved any concomitant urinary tract or pelvic reconstructive procedure or if the procedure, in itself, necessitated postoperative catheterization, as in the event of a cystotomy. Participants with a history of neurologic conditions affecting the urinary tract system, pelvic organ prolapse beyond the hymen during straining (any compartment), or previous antiincontinence procedure were also excluded. Eligible patients were recruited preoperatively and all participants signed an institutional review board–approved research informed consent form. All participants received a single prophylactic dose of intravenous antibiotics at the time of the procedure. All participants underwent the same standardized postoperative protocol in the recovery room that included backfilling the bladder with 300 mL of normal saline solution through the transurethral catheter, removing the catheter, and allowing the participant to void within 30 minutes. PVR was measured using bedside ultrasound. All participants were asked to assess their voiding using FOS VAS, by comparing the postoperative FOS with the preoperative FOS on a scale of 0-120%, given that preoperative FOS is 100% (Figure 1).[11] Participants were randomly assigned using a 1:1 allocation ratio to 2 different criteria for catheter management. Participants randomized into the SVT group were discharged with a catheter if the voided amount was <200 mL and the PVR was greater than one third of the total amount. The participants in the FOS group were discharged with the catheter if they reported the FOS to be <50% of their baseline FOS, regardless of the voided amount and the PVR (Figure 2).

FIGURE 1
Force of stream visual analog scale



100% = Urinary force of stream at baseline, presurgery; 50% = Cutoff for passing voiding trial, discharge home without catheter.

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