Force of Stream After Sling Therapy: Safety and Efficacy of Rapid Discharge Care Pathway Based on Subjective Patient Report

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Purpose: We evaluated the safety of a mid urethral sling postoperative care pathway using patient subjective reporting of force of stream to minimize length of stay and catheter placement.

Materials and Methods: Women undergoing solitary mid urethral sling surgery were prospectively enrolled in our study. Force of stream after the sling therapy protocol consisted of retrograde bladder filling with 300 ml fluid within 1 hour after surgery. Patients rated force of stream compared to baseline on a visual analog scale. Those with a force of stream of 50% or greater were immediately discharged home regardless of post-void residual urine volume. Only those unable to void and those rating force of stream less than 50% with post-void residual urine volume greater than 500 ml were discharged home with a catheter. Patients were telephoned within 1 week of surgery and seen 4 to 6 weeks postoperatively. The primary outcome was unexpected visits to the emergency room or office for voiding dysfunction or urinary retention.

Results: A total of 114 women were prospectively enrolled in our study, of whom 105 (92.1%) passed the protocol and were discharged home without a catheter. Of the patients 14 were discharged home with increased post-void residual urine volume (range 152 to 427 ml) but no catheter, representing those who would have been discharged with a catheter by many traditional voiding protocols. According to protocol 9 patients were discharged with a catheter. No patient presented to the emergency room or office in urinary retention or with voiding dysfunction before the scheduled visit.

Conclusions: Patients who report a force of stream of 50% or greater can be safely and rapidly discharged home after an uncomplicated mid urethral sling procedure regardless of post-void residual urine volume. Scanned post-void residual urine volume does not add much value in those who can void. By following the force of stream after sling therapy protocol patients can be discharged home less than 3 hours after mid urethral sling surgery.

Key Words: urethra; suburethral slings; urinary incontinence, stress; length of stay; catheterization

Abbreviations and Acronyms

AUA-SS = American Urological Association Symptom Score

FAST = force of stream after sling therapy

FOS = force of stream

IIQ-7 = Incontinence Impact Questionnaire

PVR = post-void residual urine volume

UDI-6 = Urogenital Distress Inventory

Submitted for publication June 16, 2010.

Study received institutional review board approval.

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† Financial interest and/or other relationship with Pfizer, Allergan, American Medical Systems and Boston Scientific.

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§ Financial interest and/or other relationship with Novartis, Pfizer, Astellas, Allergan, NDI Medical and Generic Medical Devices.

‖ Financial interest and/or other relationship with Johnson & Johnson, Allergan, Israel Biomed Industries, Pfizer, Astellas, Watson, American Medical Systems and Boehringer-Ingelheim.

CURRENTLY to our knowledge no universal protocol exists for voiding trials after mid urethral sling surgery. Voiding trials vary widely at most institutions. At many of them PVR is used after physiological filling and at others a fill and pull trial is done, in which a Foley catheter is filled in retrograde fashion with 250 to 300 ml saline or water. The amount voided or the ratio of amount voided to PVR is used to determine whether

0022-5347/11/1853-0993/0
THE JOURNAL OF UROLOGY®

Vol. 185, 993-997, March 2011
Printed in U.S.A.
DOI:10.1016/j.juro.2010.10.050

a patient has passed the trial and should be discharged home without a catheter. These definitions, which have been used in multiple clinical trials, lead to a catheterization rate of up to 39%.[1–4]

Some surgeons are hesitant to discharge patients without a catheter after sling surgery, fearing that urinary retention may develop and they may require emergency intervention. In a recent study of American urologists who perform sling surgery more than 25% routinely discharged patients with a catheter after sling surgery.[5] Also, 31% of urologists who performed sling surgery admitted their patients to the hospital overnight for 23 hours or more postoperatively. When questioned about the indication for postoperative hospitalization, 42% of practitioners answered that the rationale was to facilitate a voiding trial the following day.

Minimizing the urethral catheterization rate and postoperative length of stay is essential to prevent hospital acquired infection and other complications.[6,7] Thus, a rapid discharge care pathway was developed at our institution that is designed to send patients home based on subjective reporting of FOS. We previously reported single surgeon results of this protocol.[8] In the current study we determined whether our method of determining adequate voiding based on patient subjective reporting is safe and effective.

MATERIALS AND METHODS

After obtaining institutional review board approval we prospectively recruited women older than 18 years who were undergoing solitary mid urethral sling surgery and enrolled them in our FAST voiding trial protocol. Excluded from study were those who could not perform a voiding trial immediately after surgery, for example those undergoing concomitant surgery for prolapse and those requiring an overnight stay.

Preoperative urodynamics were done at surgeon discretion. Generally patients with pure stress incontinence symptoms, a positive cough stress test and no prior anti-incontinence surgery were not routinely offered urodynamics. At the preoperative visit all patients underwent PVR measurement and urinalysis. In those with urinalysis suspicious for infection urine culture was done. Patients also completed UDI-6, IIQ-7 and AUA-SS before the date of surgery.

Mid urethral slings were placed by urologists who were fellowship trained in female pelvic medicine and reconstructive surgery at 4 operative sites, including 2 hospitals and 2 ambulatory surgical centers. The choice of sling was entirely surgeon dependent and included various slings, commercially available transobturator and retropubic slings, and self-cut retropubic polypropylene slings. The latter involves placement using retropubic needle passers with an 11 mm wide polypropylene mesh, similar to commercially available kits, and it was described previously.[9] Patients were administered general anesthesia or intravenous sedation with monitored anesthesia care. No spinal anesthesia was used.

Figure 1 shows the FAST voiding protocol. Within 1 hour of arrival to the recovery room 300 ml 0.9% normal saline or the maximum tolerated amount were instilled into the patient bladder. Patients undergoing surgery under intravenous sedation had the bladder filled at the end of surgery before arrival to the recovery room and did not have a catheter left in place. Patients were instructed to void within 20 minutes of filling and rate urinary FOS compared to baseline on a 12-point visual analog scale, including 0%—no stream, 100%—same as baseline and 120%—better than baseline. PVR measurements were recorded by the nursing staff via a portable 3-dimensional ultrasound bladder scanner. Patients voiding with FOS greater than 50% of baseline were discharged home immediately regardless of PVR. Those able to void and who rated FOS less than 50% but with PVR less than 500 ml were also discharged without a catheter. Any patient with FOS less than 50% and PVR greater than 500 ml, and those unable to void after 60 minutes of the first attempted void had a catheter placed and were discharged. Those with a catheter were scheduled for a repeat voiding trial in 48 to 72 hours.

Patients were instructed to notify their physician if they had any postoperative problems, specifically difficult voiding, or signs or symptoms of urinary tract infection. All patients were telephoned within 1 week of surgery and were asked about any problems with voiding, or signs or symptoms of infection. Any additional phone calls or patient encounters were documented. All patients were scheduled for a followup visit with the surgeon 4 to 6 weeks postoperatively, when another PVR and urinalysis were done and patients were readministered UDI-6, IIQ-7 and AUA-SS.

Primary study outcomes were any unexpected emergency room or office visit for voiding dysfunction or urinary retention. Secondary outcomes were length of

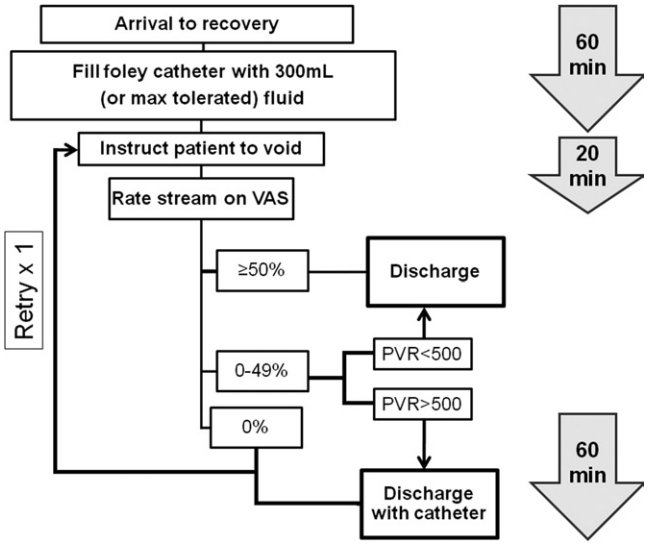

Figure 1. FAST protocol. *VAS*, visual analog scale.