Suprapubic Cystostomy May Potentiate Bleeding Complications after Transvaginal Mesh Repair

Ming-Ping Wu, M.D., Ph.D.[1,2]*, Steven Kuan-Hua Huan, M.D.[3]

Division of Urogynecology and Pelvic Floor Reconstruction[1], Department of Obstetrics and Gynecology, Chi Mei Foundation Hospital, Tainan, Taiwan; College of Medicine[2], Taipei Medical University, Taipei, Taiwan; Department of Urology[3], Chi Mei Foundation Hospital, Tainan, Taiwan

**Correspondence: Division of Urogynecology and Pelvic Floor Reconstruction, Department of Obstetrics and Gynecology, Chi Mei Foundation Hospital, 901, Chung-Hwa Road, Yung-Kang District, Tainan, Taiwan*
E-mail: mpwu@mail.chimei.org.tw

INTRODUCTION

Postoperative urinary retention (PUR) is the inability to void with a full bladder during the postoperative period. The incidence of voiding dysfunction after pelvic reconstruction surgery ranges widely from 2.5% to 24% [1] and up to 34% [2]. It is even higher after concomitant anti-incontinence surgery, especially after placement of a retropubic sling (odds ratio [OR] 3.6, 95% confidence interval (CI) 1.3-9.8) [2]. Although PUR or voiding dysfunction is a transient problem, the recovery time, which is considered the duration of indwelling catheterization, ranged from 3 hours to 7 days in one study [3]. In another study, the duration of bladder drainage varied considerably among PUR patients from 3 to 28 days postoperatively [2]. Patients are sometimes discharged from the hospital with an indwelling catheter because of PUR.

Suprapubic catheters are commonly placed intra-operatively to monitor for PUR or voiding dysfunction with a delay of normal voiding following pelvic reconstructive surgery. They are thought to improve patient comfort and ease of nursing care. The catheters are inserted using either an open or closed technique. Closed insertion can be performed using a variety of catheters and is commonly done after vaginal procedures, such as transvaginal mesh (TVM) repair. However, it may potentiate the risk of postoperative bleeding due to inadvertent bladder injury. Herein, we present a case of suprapubic trocar cystostomy-induced post-operative bleeding after TVM surgery.

CASE PRESENTATION

A 64-year-old, G4P4A0 woman, who had been in menopause for more than 10 years, visited the urogenecologic clinic because of a sensation of bearing down with a solid mass protruding from vagina for 9 months. She had hypertension with regular medication, and no history of diabetes mellitus, alcohol intake, or smoking. She also complained of urinary frequency, urgency, and incomplete voiding. There were no other associated symptoms and signs, such as lower leg edema, constipation or gastrointestinal problems. Pelvic organ prolapse quantification was scored Aa +3, Ba +7, C +7/ GH 5, PB 2, TVL 6/ Ap +3, Bp +7, D +7. Urodynamic study revealed bladder outlet obstruction, which resolved after prolapse reduction. Uroflowmetry showed an initial low maximal flow rate (Qmax: 6 mL/sec) with a prolonged and interrupted pattern. The voided volume and postvoidal residual were 158 and 344 mL, respectively. After prolaspe reduction, the flow rate was 19 mL/sec with a normal flow pattern. There were no detrusor overactivity and no urodynamic stress incontinence after a cough provocative test. After informed consent, she received TVM repair with a total Prolift System (Gynecare, J & J, Ethicon Inc, Summerville, NJ, USA). The detailed procedure was described as our previous report [4]. Before completion of the TVM, a 70 degree cystoscopy was used to check the integrity of the bladder mucosa and no mesh or cannula-related bladder injury was detected. A suprapubic cystostomy was created with a 10 Fr Cystofix (B. Braun Medical Inc, Bethlehem, PA, USA). The patient was placed in Trendenlenburg position to facilitate cephalad movement of the bowel, and the bladder was filled with 400 mL of normal saline until it could be palpated abdominally. Cystofix was inserted 3 cm above the pubic symphysis and directed retropubically through the fascia and into the bladder. Once a return of clear fluid was noted, the trocar sheath was removed. The Cystofix was secured in place.

However, postoperative hematuria with Foley catheter obstruction was noted. A large Foley catheter was inserted with heparin irrigation for temporary improvement of symptoms. Sonography revealed an intravesical echo-complex shadow next to the Foley catheter balloon (Fig. 1). Bladder tamponade with a hematoma was highly suspected. The patient was place in the lithotomy position, and a transurethral resectoscopy (TUR) was done. A 24 Fr resectoscope (*Gyrus ACMI*, Southborough, MA, USA) was inserted into the bladder with the aid of the obturator. A 12 degree panendoscopic lens was inserted into the Stent-McCanthy working element. During the procedure, a small bleeding vessel was found near the cystostomy wound, and bladder tamponade and blood clots were noted (Fig. 1). A three-way Foley catheter was inserted for irrigation. A TUR was done and the bladder blood clots was removed. After the procedure, the patient was discharged with normal self-voiding and a smooth postoperative course.

DISCUSSION

The rational of insertion of a suprapubic catheter instead of a transurethral Foley catheter after pelvic reconstruction surgery, especially after a TVM repair procedure, is that it offers the advantage of voiding trials for patients [5]. For prolonged catheterization after vaginal prolapse surgery with TVM, a suprapubic catheter offers an optimal duration to prevent overdistention of the bladder [5]. Starting voiding trials 1 day after vaginal prolapse surgery leads to a shorter duration of catheterization, reduction of urinary tract infections and a shorter hospital stay [6]. Patients are able to attempt voiding normally through the

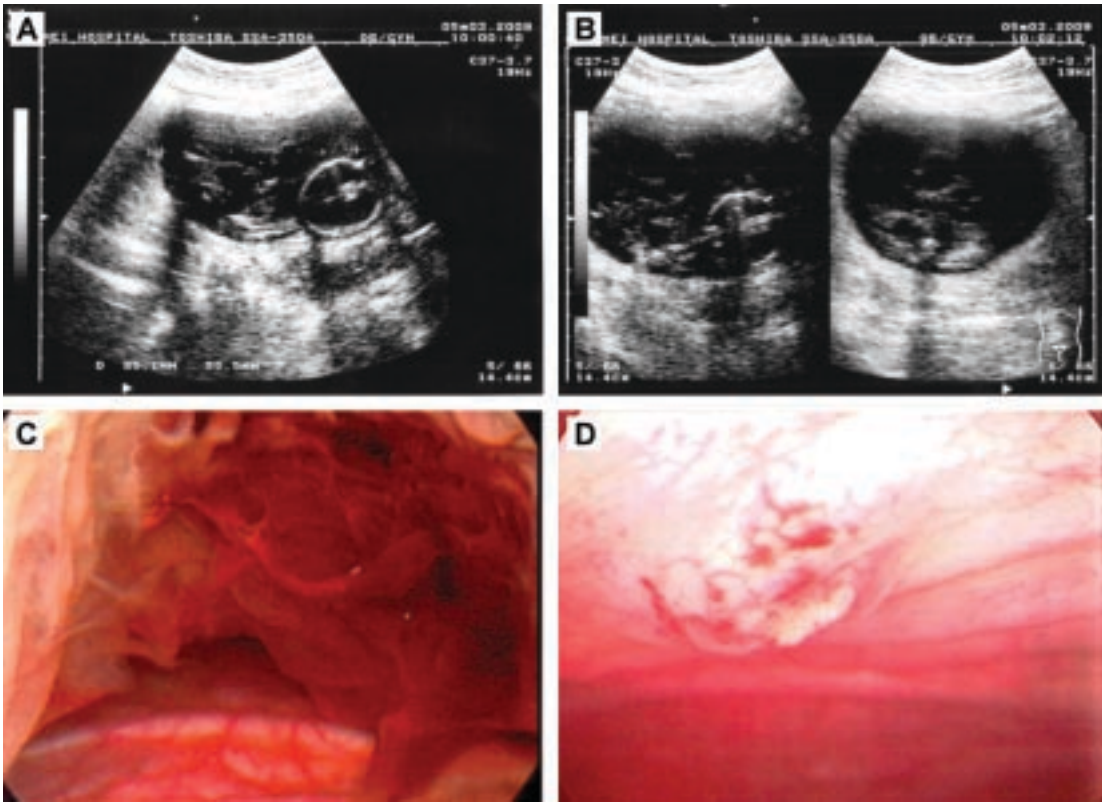

Fig. 1. Postoperative sonography reveals an intravesical echo-complex shadow next to the Foley catheter balloon (A,B). A cystourethroscopy reveals bladder tamponade with intravesical blood clots (C) with a bleeding point near the trocar cystostomy (D).

urethra and avoid the need for repeated transurethral catheterizations or intermittent self-catheterizations. However, there is a risk of postoperative bleeding complications due to inadvertent bladder trauma. The use of cystourthroscopy during creation of a trocar cystostomy can help prevent injury or assist in management of postoperative complications. Either a rigid or flexible fiberoptic cystoscope is used to examine the urethra and bladder lumen. Although, a cystoscopy after the TVM procedure in our patient showed no trocar cannula or mesh insertion into the bladder, we did not recheck bladder integrity after placement of the trocar cannula. After experience with this case, we recommend checking the integrity of the bladder mucosa, not only after completion of the TVM, but also after completion of suprapubic catheter insertion.

According to a review by Diwadkar et al patients with TVM repairs had lower reoperation rates for prolapse recurrence (1.3%, 95% CI 1.0%-1.7%) than those with sacral colpopexies (including standard sacral colpopexies, sacrocervicopexies and sacrohysteropexies by laparoscopy or lapartotomy) (2.3%, 95% CI 1.9%-2.7%) and traditional vaginal procedures (including uterosacral ligament suspension, sacrospinous ligament suspension, iliococcygeus fascial suspension, and McCall's culdoplasty) (3.9%, 95% CI 3.5%-4.4%) [7]. However, patients with TVM had higher reoperation rates because of mesh erosion, infections, and fistulas (8.5%, 95% CI 7.6%-9.4%) than those with sacral colpopexies (7.1%, 95% CI 6.4%-7.8%) and traditional vaginal procedures (5.8%, 95% CI 5.3%-6.3%) [7]. Also, TVM patients had more severe complications which required surgical, endoscopic, or radiologic intervention with general anesthesia (7.2, 95% CI: 6.3-8.0) than those with sacral colpopexies (4.8, 95% CI: 4.2-5.4) and traditional vaginal repairs (1.9, 95% CI: 1.7-2.3) [7]. Preliminary data showed the feasibility and acceptability of these procedures in pelvic organ prolapse; however, the long-term effects and complications deserve further sophisticated investigations.

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