Common and Uncommon Complications of Autologous Pubovaginal Sling

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Abstract

Introduction: Erosion of autologous pubovaginal slings, placed for treatment of urinary stress incontinence, is uncommon. The complication profile of autologous slings differs from polypropylene midurethral slings.

Materials: This patient presented with supra pubic pain, dysuria, recurrent urinary tract infections/pyelonephritis, stress incontinence, and urinary retention requiring intermittent catheterization. Cystoscopy revealed that her previous pubovaginal sling, placed 4 months prior, had perforated the bladder was responsible for the symptoms.

Results: The patient required a cystectomy and urinary diversion to treat her refractory symptoms. Compared to midurethral polypropylene slings, autologous pubovaginal slings have a much lower incidence of material extrusion or erosion but a higher incidence of infectious complications, particularly wound infections.

Conclusions: Erosion of pubovaginal sling into the bladder is an uncommon source of refractory urinary symptoms.

Keywords: Complications; Autologous pubovaginal sling; Erosion

Case Presentation

Introduction

Stress urinary incontinence (SUI) is a common problem, affecting up to 40% of US women [1]. Autologous fascial pubovaginal slings (PVS) represent an effective option for surgical treatment of SUI and are rarely associated with some of the complications that are seen with synthetic midurethral slings (MUS) placement, such as mesh erosion, extrusion or material infection. However, autologous sling procedures are not without risk for complications and while common complications of PVS such as urinary disturbances (retention, slow stream) and urinary tract infection (UTI) are well documented in the literature, there is insufficient data on the more uncommon complications, such as extrusion of the sling and visceral perforation. Here, we present a case of intravesical erosion of an PVS and review the literature on common and uncommon complications of PVS.

Case Presentation

Presenting problem

A 69-year-old woman presented with suprapubic pain, dysuria, recurrent urinary tract infections/pyelonephritis, stress incontinence, and urinary retention requiring intermittent catheterization. She had a previous history of autologous PVS for treatment of stress incontinence 4 months prior to evaluation and had recently been treated with sacrospinous ligament fixation (SSLF) vaginal vault reconstruction. During the SSLF surgery, intra operative cystoscopy demonstrated a calcified band of tissue between the trigone and the superior bladder neck. Visual inspection of the material during cystoscopy revealed it to be the previous autologous PVS which appeared to perforate the bladder at the right bladder neck and exit the bladder through the trigone, near the ureteral orifice. The right ureteral orifice was widely patulous and scarred in an open position (Figure 1). She underwent fluoroscopic urodynamic evaluation, which demonstrated severe bilateral VUR (grade 5 on right, grade 3 on left) at low volumes (Figure 2), a 160ml functional bladder capacity, stress urinary incontinence with a valsalva leak point pressure less than 50 cm H2O, and an atonic detrusor. Renal ultrasound showed bilateral hydroureteronephrosis, consistent with reflux.

Treatment and intervention

Given the combination of small bladder capacity, severe continuous stress incontinence and
symptomatic vesicoureteral reflux, the patient was first presented the option of bilateral ureteral reimplantation with augmentation cystoplasty and repeat autologous PVS. However the patient was extremely frustrated with her current symptoms and did not wish to pursue intermittent catheterization as a possible a long term emptying option. As an alternative, the patient elected to undergo cystectomy with urinary diversion.

During the surgery, cystoscopy was first performed and the intravesical portion autologous PVS was identified. Both ureteral orifices were noted to be widely patent which was consistent with the reflux observed on previous voiding cystourethrogram. A midline laparotomy incision was then used, and a small, contracted bladder was identified in the space of Retzius, adherent to the pubic symphysis. A cystotomy was next performed to confirm the position of the eroded sling and, as noted on cystoscopy (Figure 3). A simple cystectomy was performed with resection of the bladder to the proximal urethra, the retropubic part of the sling was removed, and the urethral stump was closed. After the cystectomy was completed, ureteral dissection was performed and a standard ileal conduit urinary diversion was created. The patient’s postoperative course was notable for a postoperative ileus, but her recovery was otherwise uncomplicated. She experienced no further complication. At her six month follow up clinic appointment, she reported that her urinary tract infections/pyelonephritis has resolved and her urinary quality of life is improved.

**Review of the Literature**

**Outcomes**

Global cure rates for AF-PVS range from 67-97% [1-4]. These are measured using objective measures to determine change in volume of stress incontinence, such as pad weight and pad number, with cure many times cited as patient reported pad use of <1 pad per day. Subjective cure rates, which focus on patient/provider perception of improvement, are also quantified using pain scores, quality of life scoring systems, and patient-reported satisfaction rates range from 51-86% [1-3,5].

**Complications**

Reported global complication rate for AF-PVS range from 14% to 29% [1,5] but the true complication rate for PVS is difficult to compare across series due to variability in defining success and lack of reporting adverse advents. Since our patient displayed complications of organ injury from the PVS, urinary tract infections, and urinary incontinence, reviewed we evaluated three major categories of AF-PVS complications, Injury to surrounding organs, infection, and voiding dysfunction, to give context to the incidence of PVS related complications

**Injury**

There are very few cases of erosion of autologous tissue, and most of these cases involve either the vagina or the urethra. There are only two documented cases of bladder erosion, specifically following AF-PVS operations [6-12]. Athanasopoulos et al. [5] report vaginal extrusion of the sling in two patients (0.08% incidence in author’s series). Erosion into the urethra has also been reported in 4 additional patients, including 3 occurring de novo after surgery and one after urethral injury during intermittent catheterization [9-12]. In comparison, the incidence of material erosion for patients is 1-5% of patients undergoing MUS. Of patients requiring post MUS surgical intervention, about 34% are related to mesh erosion or extrusion, with vaginal extrusion being the most common [13,14].

Bladder associated injury during MUS surgery has been reported to be between 0-7% [15], although care must be used in interpreting aggregate statistics since mesh type, location, and placement technique may alter incidence of complication for a specific MUS sling type. Similar injury rates have been reported in PVS series [16]. In a prospective study evaluating three multicenter clinical trials, universal intra operative cystoscopy at incontinence surgery detected a lower urinary tract abnormality in 5.2% of PVS cases. Of which, 76% were likely related to sling placement. Risk factors for intra operative bladder injury included patient age and smoking status. Trainee participation was not associated with an increased risk of injury [15].

Although our patient required a cystectomy for her severe stress incontinence, vesicoureteral reflux, and small bladder capacity, many intravesical sling complications, both mid urethral and PVS, can be managed endoscopically. Patients with material extrusion into the bladder typically present with pelvic pain, dysuria, and recurrent UTIs usually which prompt evaluation and diagnosis [9]. The most conservative management for such cases is removal of the intravesical material using cystoscopic identification and excision. In a study evaluating urinary tract erosions after synthetic pubovaginal sling placement, Clemens et al. [6] reported complete relief of pain and incontinence following removal of intravesical contents with cystoscopic guidance. More invasive approaches can be considered when endoscopic excision is not indicated or not successful, as with Misrai et al. [7] report of a cohort of 75 patients who underwent complete surgical resection of a synthetic suburethral sling following intravesical erosion. In this series, all patients had improvement of pain and urinary urgency, while recurrent incontinence developed in
Conclusion

To voiding dysfunction may arise with 1.9% to 6% of patients, and sling surgery or injection of bulking agents. Reoperations secondary to voiding symptoms which can then be treated with additional division. PVS sling revision may result in subsequent return of stress requiring additional interventions such as urethrolysis or sling conservatively with observation and medication but some patients require operative intervention when compared to AF-PVS [1,3].

Most PVS voiding related adverse events can be managed conservatively with observation and medication but some patients requiring additional interventions such as urethrolysis or sling division. PVS sling revision may result in subsequent return of stress incontinence symptoms which can then be treated with additional sling surgery or injection of bulking agents. Reoperations secondary to voiding dysfunction may arise with 1.9% to 6% of patients, and [3,5].

References