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Single Incision Mini-Sling Infection Managed without Mesh Removal: A Case Report

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Introduction

Surgical treatment of stress urinary incontinence (SUI) includes the use of synthetic mid-urethral slings (MUS). The standard retro pubic and trans obturator slings have been proven effective. However, they have complications such as bladder perforation, groin pain, and erosion. Third generation single incision mini-slings (SIMS) were developed to avoid such complications. In addition, SIMS provide shorter operative times and faster return to normal activities [1]. We recently published a modification of a SIMS using a novel technique of leaving the tensioning loop of the SIMS sling, delivered out of the vaginal incision and tucked in the vagina for 2 weeks post-operatively, that allows the clinician to modify the tension with the patient awake in the office [10]. We report a complication of this technique, a case of post SIMS insertion infection presenting as obturator abscess that was managed without mesh removal.

Case Presentation

A 46-year-old female presented with bothersome stress incontinence and vaginal prolapse. Since 2009 she had bothersome stress incontinence after delivering her first child. She reported feeling a vaginal bulge in 2015. Her past medical history included multiple large uterine fibroids, menometrorrhagia, microscopic colitis, and nephrolithiasis. Her gynecologist noticed vaginal prolapse during the dilation and curettage for the uterine fibroid. The patient had two children through vaginal delivery. She had no urgency symptoms or obstructive voiding symptoms. Her PVR was normal. On examination she had urethral hypermobility, a grade 1 cystocele with lax apical support and a grade 2 rectocele. She had a positive SUI test with cough.

She elected surgery, a vaginal hysterectomy, a modified SIMS placement using polypropylene mesh, rectocele repair, and possible cystocele repair if deemed necessary upon evaluation of the prolapse in the operating room. The surgery was planned to occur at the same time as her vaginal hysterectomy for uterine fibroids. The patient received preoperative antibiotics and placed under general anesthesia in the operating room suite. Urology was called in the room after gynecology performed the vaginal hysterectomy. On examination, there was a grade 2 rectocele, but no demonstration of cystocele. The mid urethra was identified and injected with saline and a 1.5 cm incision was made. The vaginal wall flaps were deflected laterally and the sling was anchored to the obturator membrane bilaterally without complication. Once adequate tension of the sling was established, the tensioning loop was left intact and placed in the vagina should there be a need to tension the sling postoperatively prior to trimming. The vaginal incision was then closed with 2-0 vicryl suture in a running fashion. The rectocele was then repaired primarily in standard fashion.

She recovered well from her surgery and passed her voiding trial on post-operative day # 1. At 10 days post-operatively she was emptying well without straining, had complete resolution of her SUI without any new urge symptoms so the tensioning suture was removed in office.

At 3 months post-operatively she saw her gynecologist for thigh and abdominal pain, pink and yellow vaginal discharge, and night sweats. Pelvic exam revealed no mesh exposure and complete physical was negative for other systems. Pelvic X-ray showed soft tissue fullness of the obturator region along the left aspect of the bladder. CT scan was concerning for abscess of the left obturator muscle with associated inflammation along the left anterolateral aspect of the bladder. Subsequent MRI confirmed these findings.

She was admitted to the hospital, started on IV antibiotics, and treated with CT guided percutaneous aspiration of the abscess. 3mLs of purulent fluid were aspirated from the obturator region. Gram stain showed many polymorphonuclear leukocytes and culture grew rare streptococcus intermedius. She was placed on a regimen of daptomycin and ertapenem for four weeks. Follow-up CT scan one month later showed complete resolution of the previously seen intramuscular abscesses.

Discussion

There has been a shift toward utilizing the MUS procedures for the surgical management of SUI because they are minimally invasive and are effective in treating SUI [2]. Compared to the first-generation MUS, SIMS are the third generation of slings that were introduced to offer an ambulatory procedure for SUI with less complications than the standard MUS by avoiding passage through the retropubic space and transobturator foramen. SIMS are placed through a single vaginal incision and anchored to the obturator internus muscles [3]. As previously discussed we developed a modification of a SIMS that leaves the tensioning suture exiting through the closed vaginal incision, allowing the clinician to do any sling tightening in the immediate post-operative period [10] This is the first infectious complication from this modification now done in more than 200 patients. An important management point is that the mesh, that she was very happy with and had been providing her complete resolution of her SUI, was not removed. Instead, she was treated with percutaneous drainage and IV antibiotics. She is now more than 1 year out from the obturator infection and remains happy and dry with her MUS demonstrating that mesh does not always have to be removed in the setting of infection.

More common complications reported after standard transobturator slings include bladder injury, urinary obstruction, and bleeding, but at lower rates than retropubic slings [4]. SIMS have been shown to have similar complications to standard slings as mentioned [5].

However, other infectious complications such as abscesses near the site of sling placement have been reported. In 2006 Goldman described a transobturator tape (TOT) case where a large thigh abscess growing peptostreptocci was found after the first postoperative day most likely originating from the vagina (anaerobic gram-positive cocci noted in many gynecologic infections) [6]. In 2006 DeSouza et al. described a patient who developed vaginal mesh erosion and vaginal discharge one week after TOT, initially treated with antibiotics and excision of the exposed mesh but it later evolved to a right thigh abscess six months after initial surgery [7]. In 2014 Kim et al. reported a case of vaginal mesh exposure with vaginal discharge and thigh pain. All these reports had vaginal mesh exposure in common leading to infection and abscess formation. From the literature in 2020, Demir et al. described a case of a vulvar abscess 11 years after a SIMS placement. This was a case most similar to ours since it involved the use of a SIMS and the patient did not have mesh exposure [9].

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