

Thigh and Leg Abscesses Post-transobturator tape Insertion with Residual Mesh Migration: A Case Report and Literature Review

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ABSTRACT

Stress urinary incontinence (SUI) is defined as the involuntary loss of urine during physical exertion, efforts, and coughing or sneezing in the absence of detrusor contraction. It is the most common type of urinary incontinence in women. Mid-urethral slings are one of the most popular surgical options to treat patients with SUI. Transobturator tapes (TOTs) are one of the mid-urethral slings with an excellent success and rare complications rate. Yet, there are some reported rare and serious complications. In this study, we report one case who underwent TOT insertion then developed a serious complication, discussing the management strategies and outcome.

Key words: Complications, Mid-urethral slings, Necrotizing fasciitis, Stress urinary incontinence, Transobturator tapes

INTRODUCTION

Stress urinary incontinence (SUI) considered as one of the chronic conditions that affect women's quality of life. The tension-free vaginal tape (TVT) procedure used to be the gold standard treatment of stress incontinence in females. Since the introduction of TVT in 1995, other tapes and minimally invasive treatments have arisen. The transobturator tape (TOT) procedure was first described in 2001 as an alternative to TVT procedures. TOT decreases the risk of bladder, digestive, and vascular injuries associated with the retropubic route.^[1] The TOT procedure requires placement of the polypropylene mesh under the mid-urethra as the tunneler is passed through the obturator

foramina. As a result, the contents of the obturator foramen could be damaged, formation of adductor compartment abscess and transient inner thigh pain. Necrotizing fasciitis is a life-threatening infection, involves primarily the superficial fascia, and requires emergency debridement.^[2] We report a rare case of bilateral thigh necrotizing fasciitis following TOT procedure for urinary stress incontinence treatment.

CASE REPORT

A 50-year-old lady, married, P5+0 (normal vaginal deliveries), known case of hypertension on medication, presented to our clinic on March 2012 with SUI symptoms for the past few years. She denied any history of using pads or urgency. Systematic examination was grossly normal. Urine analysis,

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urine culture, renal lytes, and complete blood count are all within normal limits. Video urodynamic study revealed Grades 1–2 cystocele, urodynamic-proven SUI with Valsalva leak point pressure of 180 cm water with no evidence of detrusor overactivity. The treatment options were explained to the patient including and not limited to conservative therapy in the form of biofeedback and surgical correction of her incontinence using TOT. She opted to go for surgery, which was done in July 8, 2012. She had smooth intraoperative and immediate post-operative course. She was discharged after 2 days with good flow of urine and 44 ml post-void residual. One week later, she presented with voiding difficulty. Her flow was 5 ml/s with residual of 250 ml and was managed with meatal dilation under local anesthesia with no improvement in her flow afterward. She was offered sling incision to relieve her symptoms, but we explained to her that there is a risk of incontinence symptoms recurrence, yet, she refused. The other options we offer her are clean intermittent catheterization 3 times daily and to be followed up and she accepted. In August 4, 2012, she presented to clinic with a history of the left thigh abscess for 2 weeks which was drained in different hospital and kept on dressing. On examination, wound was clean and dry with no pus. Furthermore, she still complaining of voiding difficulty. In August 7, 2012, she presented again with the same complains and she refused admission due to social reasons. In August 26, 2012, she underwent cystoscopy under anesthesia and incision of tape due to persistent high residual. Cystoscopy revealed no evidence of erosions of the tape and normal local examination. Unfortunately, 1 day postoperatively, she developed right thigh swelling and erythema. Ultrasound showed no evidence of deep venous thrombosis or abscess collection. Computed tomography (CT) scan of the right hip showed inflammatory soft tissue stranding in the subcutaneous fat and skin but no evidence of abscess or mass lesion. She was seen and managed by general surgery and infectious teams and discharged on antibiotics. Post-tape incision, she preserved her continence with no leakage and there was a significant improvement in her voiding flow. On the other hand, she continued to develop the right thigh swelling and abscess. CT of the right thigh showed air loculi consistent with necrotizing fasciitis and it was drained. She had good response post-drainage with serial dressing, but 2 weeks later, she developed another abscess in the same right thigh but in lower side. She was managed with intramuscular antibiotic injections as she refused admission for intravenous antibiotics. In October 6, 2012, she underwent drainage of the right thigh abscess and complete excision of the right arm of the tape. There was no abscess in the vaginal wall or around the tape. Findings within the right thigh were suggestive of necrotizing fasciitis which was confirmed by histopathology report. The left arm of the tape was not removed as she had complete resolution of her left thigh lesion and to keep some degree of continence which was a huge concern for the patient. She continued to follow up and had a satisfactory wound healing results. Later on, she, unfortunately, developed another collection in the left thigh [Figure 1] and

extensive drainage and debridement of the dead tissue were done in addition to the excision of the residual tape in the left side through thigh and vaginal incision on November 21. The resected tape was incomplete with probable of engulfment of mesh by the tissue. Histopathology report confirmed foreign body presence (tape) and diagnosis of necrotizing fasciitis was made. Postoperatively, she was discharged after few days in a satisfactory condition with regular daily dressing in the nurse clinic [Figure 2]. Unfortunately, the patient continued to develop multiple abscesses in her left thigh, left leg [Figure 3], and even left dorsum of the feet, for which multiple drainage and debridement of the dead tissues were performed over a period of 2 years [Figures 4 and 5] with no evidence of residual tape during surgery or in the follow-up magnetic resonance imaging (MRI) and CT. Obturator fossa dissection

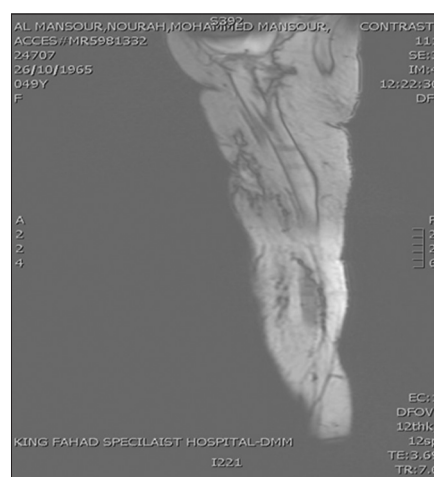


Figure 1: Magnetic resonance imaging left femur with air pockets

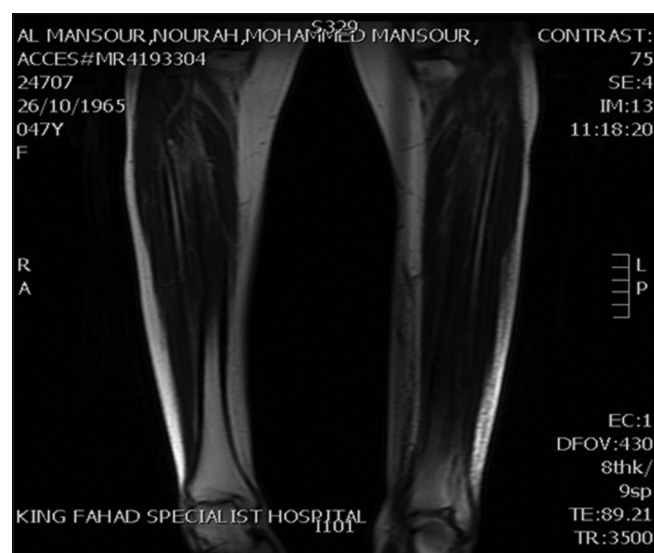


Figure 2: Magnetic resonance imaging tibia/fibula left with cellulitis and small abscess at lateral aspect necrotizing fasciitis



Figure 3: Vacuum dressing



Figure 5: (a and b) Left thigh wounds



Figure 4: (a and b) Left leg wound



Figure 6: Residual mesh fragment from the left leg

was performed by the orthopedic team and no evidence of residual mesh or clear abscess was seen. Four months ago, the patient presented with the left anterior leg abscess just below the left knee joint and small foreign body (residual mesh) was identified and removed [Figure 6] which was confirmed later on with histopathology report. Postoperatively, she had a smooth recovery and dressing. At present, the patient is doing well with no recurrence of any abscess.

DISCUSSION

The TOT procedure was developed to prevent bladder perforation associated with the TVT and is generally considered to be less morbid than TVT. Unlike TOT, the TVT procedure is well known to result in major complications to major vessels, gastrointestinal tract, and mortalities.^[3] The minor complications of TOT include lower urinary tract injury, post-operative urinary retention, urge incontinence, and pain in the groin or thigh not related to a serious condition that can be controlled by medication or observation. However, major complications such as vaginal erosions and muscle abscess formation can cause very serious problems.^[2,4] Thigh

abscess is an uncommon complication of suburethral sling; in most cases, it is due to vaginal erosion of the sling.^[5] Our case was very different with the fact that there was no erosion but abscess developed in thigh and multiple areas far from the insertion site. Necrotizing fasciitis is a severe form of soft tissue infection that primarily involves the superficial fascia.^[5] Patients usually present with high fever, pain out of proportion, hypotension, and other signs of generalized toxicity.^[6] This may be due to insults to the integumentary system or from hematogenous spread. Risk factors are many; the most important one is diabetes mellitus, which presented in 57% of patients according to literature.^[5] Another important risk factor that was suggested is the type of tape utilized. Dietz *et al.* noted that the polypropylene mesh had the lowest stiffness propriety; thus, it may increase the risk of erosion.^[7] Williams *et al.* described the ideal mesh to be one with minimal initial inflammatory reaction followed by fibroblast and vascular infiltration.^[8] The promotion of fibrous tissue around the mesh without infiltration of the tissue promotes “encapsulation” which increases the risk of erosion because

mesh does not incorporate into the host tissue.^[9] Diagnosis depends mainly on the clinical presentation. Furthermore, wound exploration helps in diagnosis by revealing loss of fascial integrity along the tissue planes and frank evidence of muscle involvement. Imaging studies, such as CT or MRI, cannot visualize necrotic tissues, but they will often help us by showing extension of inflammation, abscesses, and gas.^[9] To the best of our knowledge, this is the first case reporting migration of remaining mesh in lower limbs that cross the knee joint. The most recommended management is immediate debridement with wide incision and excision of all necrotic tissue and extensive fasciotomy where indicated, with complete removal of the tape followed by vigilant surgical reexamination of the infected area. In addition, broad-spectrum antibiotics and hyperbaric oxygen therapy (a “high-dose oxygen inhalation and diffusion therapy”) to manage severe necrotizing infections with rapid progression and systemic toxemia were recommended by a lot of researchers.^[9] Our patient improved with immediate muscle debridement and fasciotomy; the wound was covered with broad-spectrum antibiotics and dressed daily with betadine without hyperbaric oxygen therapy.

CONCLUSION

Necrotizing fasciitis is a rare and serious complication of TOT. Early detection and initial aggressive management including tape removal is an important step to achieve full recovery.

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