

Necrotizing Fasciitis Secondary to TVT Erosion: A Case of Delayed Presentation

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1. Abstract

1.1. Background

Stress urinary incontinence (SUI) is a common condition in women, often treated with mid-urethral slings (MUS). While MUS procedures are generally safe, rare complications such as mesh erosion and infections can occur. Necrotizing fasciitis, a severe and potentially fatal infection, is an exceedingly rare complication of MUS, with few cases reported, most occurring shortly after surgery.

1.2. Case Presentation

A 62-year-old woman with a history of diabetes mellitus (HbA1c 9.2%), obesity, hypertension, smoking, and TVT surgery for mixed urinary incontinence presented with progressive inguinal and lower abdominal pain 11 years postoperatively. Initial diagnosis of sciatic pain delayed recognition of the condition. On re-evaluation, physical examination and imaging revealed necrotizing fasciitis involving the lower abdomen, pelvis, and thighs, with evidence of mesh erosion. The patient underwent emergency debridement, removal of the eroded mesh, and intensive wound care. Despite further complications, including osteomyelitis of the pubic bone, she recovered after multiple surgeries, wound management with vacuum-assisted closure, skin grafting, and long-term antibiotics.

1.3. Discussion

This case represents one of the most delayed presentations

of necrotizing fasciitis associated with the TVT procedure. Contributing factors included poorly controlled diabetes, obesity, and smoking, all of which increase infection risk. The case highlights the role of mesh erosion as a potential nidus for severe infections. It raises concerns about the adequacy of conservative management strategies for asymptomatic mesh exposure in high-risk patients.

1.4. Conclusion

Delayed necrotizing fasciitis following MUS procedures is extremely rare but life-threatening. This case underscores the importance of long-term follow-up for MUS implants and suggests that early intervention for asymptomatic mesh erosion may be warranted in high-risk individuals. Further research is needed to develop tailored management strategies for patients with significant comorbidities to prevent severe complications.

2. Background

Stress urinary incontinence (SUI) is a common condition among women, significantly affecting their quality of life. Surgical intervention is the mainstay of treatment, with mid-urethral slings (MUS) being the most commonly performed procedures due to their high success rates and relatively low complication rates [1]. Long-term complications following MUS are rare and primarily mesh-related, such as mesh erosion and pain [1]. Mesh exposure following MUS procedures has been reported in 1–3% of cases

[1]. Infection is an infrequent complication, usually presenting several months after the procedure. Such infections have been reported following all MUS techniques, including tension-free vaginal tape (TVT) and TVT-obturator (TVT-O) procedures [1]. According to the Austrian, Norwegian, and French registries, infection following TVT-O is less than 0.5%, with abscesses and other severe infections even rarer [2-4]. Necrotizing fasciitis, a rare but life-threatening condition, is a rapidly progressing infection requiring immediate surgical debridement and medical intervention [5]. The first reported case of necrotizing fasciitis following TVT placement was by Johnson et al. in 2003 [6]. A literature review identified 10 additional cases since this report [6, 7-14]. Six cases occurred within 10 days of the procedure, while five were presented later. Four occurred 9–17 months postoperatively, and one was reported 10 years after TVT placement [13]. Here, we present a case of necrotizing fasciitis that developed 11 years after a Retro-pubic TVT procedure in a 62-year-old woman with multiple comorbidities, including poorly controlled diabetes, obesity, and a history of heavy smoking.

3. Case Presentation

A 62-year-old female with a history of hypertension, diabetes mellitus (HbA1c 9.2%), obesity (BMI: 31.1), and retro-pubic TVT surgery for mixed urinary incontinence in 2009 presented to the

emergency department (ED) on June 3, 2020. She reported right gluteal and inguinal pain radiating to the posterior aspect of her right knee. She was diagnosed with sciatic pain and discharged with analgesics and a recommendation for a spinal MRI. Four days later, on June 7, 2020, she returned to the ED with worsening pain, now involving both inguinal sides and her lower abdomen. Physical examination revealed lower abdominal cellulitis with blue discoloration and blisters, though the patient was afebrile and tachycardic (heart rate of 110 bpm). Laboratory tests showed elevated CRP (538 mg/L) and WBC (17K) levels. A computed tomography (CT) scan revealed diffuse fat infiltration with air pockets, suggesting necrotizing fasciitis in the soft tissues of the lower abdomen, pelvis, perineum, and medial right thigh. Air was also noted in the right obturator muscle, and bone irregularity was observed in the right lower ramus of the pubis (Figure 1). Following fluid resuscitation and broad-spectrum antibiotic administration, the patient was immediately taken to the operating room (OR). A multidisciplinary team performed extensive debridement, including general surgeons, orthopedic surgeons, and gynecologists. Necrotic tissue was found extending from the anterior superior iliac spine (ASIS) to the labia majora and inner thighs, with deep involvement of the anterior rectus sheath. The rectus muscle remained intact (Figure 2).

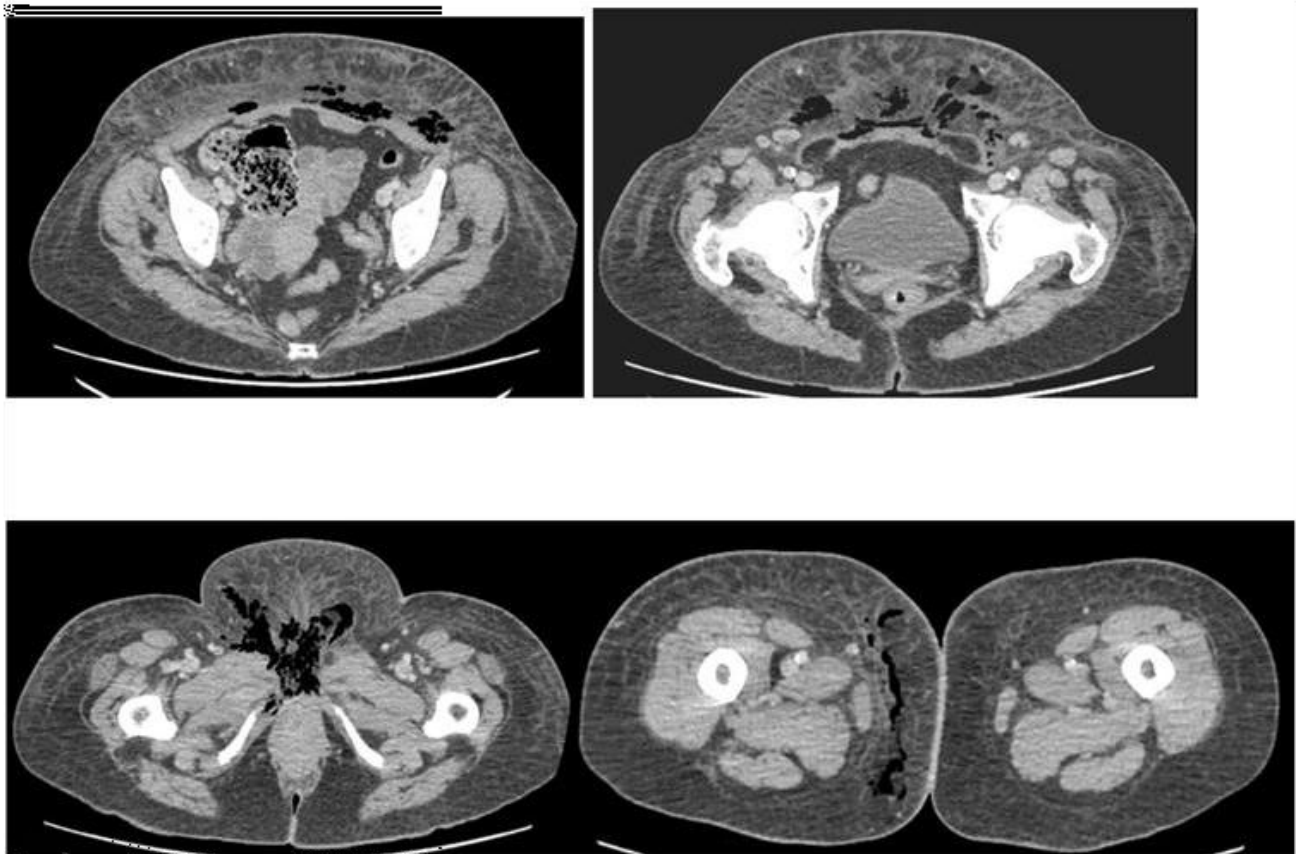


Figure 1: Diffuse fat infiltration with air pockets in the soft tissues of the lower abdomen, pelvis, perineum, and medial right thigh.

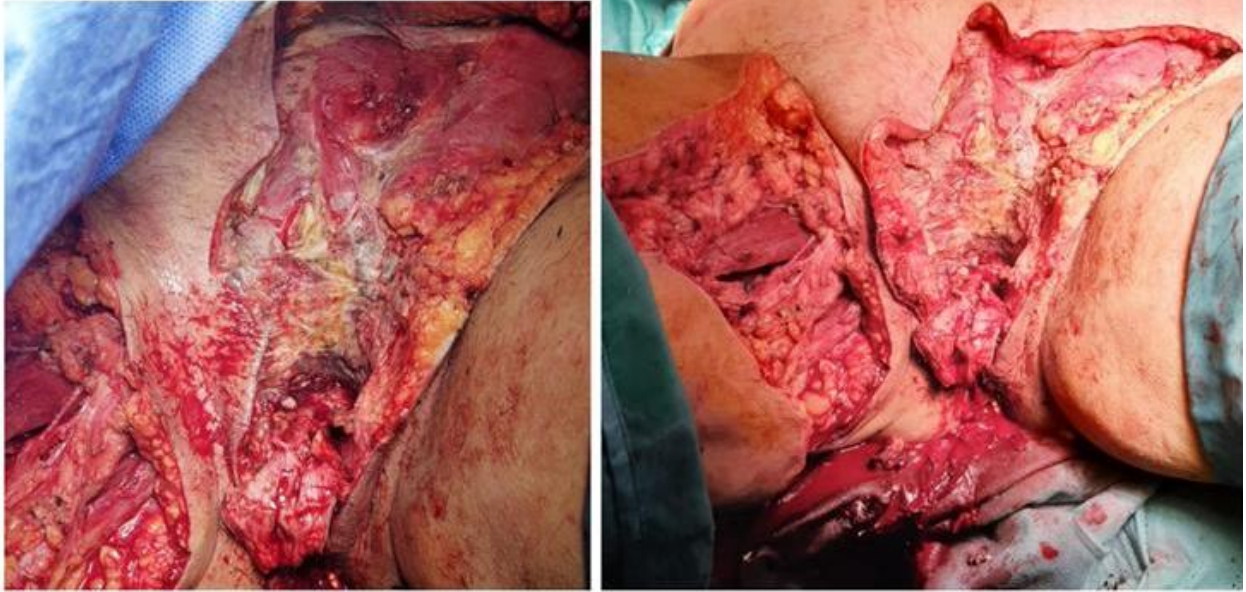


Figure 2: Debridement of necrotic tissue extending from the anterior superior iliac spine (ASIS) to the labia majora and inner thighs, with deep involvement of the anterior rectus sheath.

3.1. Postoperatively, The Patient was Transferred Intubated To The ICU

On June 8, 2020, the patient underwent a second debridement. While most of the surgical wound appeared viable, necrotic tissue with pus drainage persisted near the right labia and pubis. An extrusion of TVT mesh was noted in the distal third of the vagina and was removed by the urogynecologist. During the removal of the tape, a large abscess was found behind the right side of the pubic bone. Access for drainage of the abscess required detachment of the rectus muscle insertion to the pubis to avoid the need for pubic bone resection. After daily lavages and debridements in the ICU, the patient's condition gradually improved, and she was extubated on June 15, 2020. A vacuum-assisted closure (VAC) device was applied to the wounds, and the patient remained stable with continuous improvement (Figure 3). On July 2, 2020, she

was transferred to the surgical ward, where aggressive wound management continued. A free skin graft from the lateral thighs was applied to the inner thighs on July 7, 2020. During the following weeks, intermittent offensive smells and pus drainage were noted. On July 23, 2020, a repeat CT scan revealed osteomyelitis of the right inferior ramus pubis and symphysis pubis. Bone cultures were taken, and the infection was treated with antibiotics without further debridement. A second skin graft was applied to the mons pubis on July 28, 2020, to avoid stenosis of the vaginal opening and salvage a remnant of the clitoral area (Figure 4). The patient was discharged to a rehabilitation facility on September 9, 2020. The wound was well-healed upon discharge from the hospital, and there were no signs of infection. The patient had lost 30 kg and reported some residual inner thigh pain, which was managed with analgesics. She was referred for genital reconstruction surgery.



Figure 3: A vacuum-assisted closure (VAC) device was applied to the wounds.



Figure 4: Skin graft from the lateral thighs applied to the inner thighs and mons pubis.

4. Discussion

This case highlights a rare presentation of necrotizing fasciitis occurring 11 years after TVT insertion, significantly later than most reported cases. Necrotizing fasciitis is a life-threatening condition requiring prompt surgical intervention, and its association with MUS procedures is highly uncommon. Johnson et al. [6] were the first to report necrotizing fasciitis following TVT placement, and since then, 10 additional cases have been described [6, 7-14]. Most infections occurred within 10 days post-surgery, while a minority presented later, ranging from 9 months to 10 years [13]. Our case, occurring 11 years post-surgery, represents one of the most delayed presentations. This was most likely a result of a late tape exposure. Several factors likely contributed to this patient's susceptibility to

infection. Diabetes, a significant risk factor for necrotizing fasciitis, increases susceptibility due to compromised immunity, poor wound healing, and vascular insufficiency. This is particularly relevant for perineal and lower extremity infections [5]. Our patient had poorly controlled diabetes (HbA1c 9.2%), obesity, and a history of smoking, all of which are known contributors to increased infection risk. Tape erosion was identified intraoperatively in this case. Among the 11 reported cases of necrotizing fasciitis following MUS procedures, seven documented mesh erosion [6, 7-14]. Mesh erosion is a known complication of MUS procedures, occurring in 1–3% of cases [1]. While many instances are asymptomatic, tape exposure can act as a nidus for infection, particularly in patients with comorbidities. The Austrian, Norwegian, and French registries suggest that infection rates following TVT are low (<0.5%), with severe complications like abscesses and necrotizing fasciitis being even rarer [2-4]. However, risk factors like poorly controlled diabetes and erosion may increase the likelihood of severe infections. Current guidelines from the American College of Obstetricians and Gynecologists (ACOG) and the National Institute for Health and Care Excellence (NICE) recommend conservative management for asymptomatic mesh exposure, including observation or topical estrogen application [15]. Surgical excision is generally reserved for symptomatic cases or those unresponsive to conservative treatment. However, these guidelines do not address whether risk factors, such as obesity and diabetes, should influence management strategies for asymptomatic cases. The documented association between mesh erosion and severe infections like necrotizing fasciitis raises questions about the adequacy of current management strategies. Cases such as this one suggest that in high-risk patients, earlier surgical intervention to remove the eroded mesh may be warranted, even in asymptomatic cases, to prevent life-threatening complications. Further research is needed to establish whether patients with significant risk factors require tailored management approaches.

5. Conclusion

This case underscores the potential for severe, delayed complications following TVT procedures, even years after initial placement. Necrotizing fasciitis is a rare but life-threatening condition associated with mesh erosion, particularly in patients with significant comorbidities such as poorly controlled diabetes, obesity, and smoking history. While current guidelines advocate for conservative management of asymptomatic mesh erosion, this case highlights the need to consider patient-specific risk factors when determining management strategies. Early identification and tailored intervention for at-risk patients may help prevent catastrophic outcomes like necrotizing fasciitis. This case reinforces the importance of long-term follow-up for patients with MUS implants and calls for further research to optimize management guidelines for mesh-related complications, especially in those with predisposing risk factors.

References

1. Tommaselli GA, Di Carlo C, Formisano C, Fabozzi A, Nappi C. Medium-term and long-term outcomes following placement of mid-urethral slings for stress urinary incontinence: a systematic review and meta-analysis. *Int Urogynecol J*. 2015;26(9):1253-68.
2. Tamussino K, Hanzal E, Kölle D, Tammaa A, Preyer O, Umek W. Transobturator tapes for stress urinary incontinence: Results of the Austrian registry. *Am J Obstet Gynecol*. 2007;197(6):634. e1-5.
3. Dyrkorn OA, Kulseng-Hanssen S, Sandvik L. TVT compared with TVT-O and TOT: results from the Norwegian National Incontinence Registry. *Int Urogynecol J*. 2010;21(11):1321-6.
4. Collinet P, Ciofu C, Costa P, Cosson M, Deval B, Grise P. The safety of the inside-out trans obturator approach for transvaginal tape (TVT-O) treatment in stress urinary incontinence: French registry data on 984 women. *Int Urogynecol J Pelvic Floor Dysfunct*. 2008;19(5):711-5.
5. Wong CH, Chang HC, Pasupathy S, Khin LW, Tan JL, Low CO. Necrotizing fasciitis: clinical presentation, microbiology, and determinants of mortality. *J Bone Joint Surg Am*. 2003;85-A(8):1454.
6. Johnson DW, ElHajj M, O'Brien-Best EL, Miller HJ, Fine PM. Necrotizing fasciitis after tension-free vaginal tape (TVT) placement. *Int Urogynecol J*. 2003; 14: 291-293.
7. Flam F, Boijesen M, Lind F. Necrotizing fasciitis following trans obturator tape treated by extensive surgery and hyperbaric oxygen. *Int Urogynecol J Pelvic Floor Dysfunct*. 2009;20(1):113-5.
8. Kerbaj J, Aubry C, Prost C. Thigh abscess and necrotizing fasciitis following an inside-out trans obturator tape intervention: a case report. *Journal of Medical Case Reports*. 2016.
9. SB Choi, JS Kim, JH Yang. Case of necrotizing fasciitis in thigh after transobturator tape procedure, treated by vacuum-assisted closure. *ANZ Journal of Surgery*. 2015.
10. A Tholozan, T Delapparent, J Terzibachian. Fasciite nécrosante tardive: une complication de la chirurgie de l'incontinence urinaire par bandelette sous-urétrale, Late necrotizing fasciitis: a complication of suburethral sling urinary incontinence surgery. *GynécologieObstétrique&Fertilité*. 2014.
11. KY Lee, JA Sim, SW Lee. Necrotizing fasciitis following trans obturator tape procedure: a case report and literature review. *Canadian Urological Association Journal* 2011.
12. Karsenty G, Boman J, Elzayat E, Lemieux MC, Corcos J. Severe soft tissue infection of the thigh after vaginal erosion of transobturator tape for stress urinary incontinence. *Int Urogynecol J*. 2007; 18: 207-212.
13. Goldman HB. Large thigh abscess after placement of synthetic transobturator sling. *Int Urogynecol J Pelvic Floor Dysfunct*. 2006; 17(3):295-296.
14. Recommendations, Urinary incontinence and pelvic organ prolapse in women: management Guidance | NICE [Internet], Nice.org.uk. 2020.