

A Rare Conundrum of Transvaginal Mesh Causing Urethral Stricture & Vesico-vaginal Fistula, Compounded with Bilateral Ureterocolles: A Case Report

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Abstract

Transvaginal mesh (TVM) procedures have become a mainstay in the management of stress urinary incontinence (SUI), offering minimally invasive and effective solutions. However, mesh-related complications –particularly urethral strictures and vesicovaginal fistulae (VVF)– are rare but potentially debilitating. Even more unusual is the coexistence of congenital anomalies such as ureterocolles in elderly women, further complicating the clinical picture. This case report describes a rare triad of mesh-induced urethral stricture, infra-trigonal VVF, and bilateral ureterocolles in a postmenopausal woman, highlighting the diagnostic and therapeutic challenges involved. A 65-year-old woman with a history of TVM for SUI presented with persistent urinary leakage through the vagina, flank discomfort, and signs of renal dysfunction. Examination revealed a stenotic external urethral meatus with an underlying 2x2 cm VVF. Laboratory investigations showed elevated serum creatinine and leucocytosis, while imaging revealed bilateral hydronephrosis with incidental bilateral ureterocolles. Initial management included bilateral percutaneous nephrostomy and antibiotics. Following clinical stabilisation, she underwent urethral dilatation and optical internal urethrotomy. Cystoscopy confirmed bilateral ureterocolles and infra-trigonal VVF. A single-stage procedure comprising bilateral ureterocolle incision with DJ stenting and transvaginal VVF repair via the Latzko technique was successfully performed. The patient showed significant improvement in renal function and continence during follow-up. This case underscores the necessity for high clinical suspicion and comprehensive evaluation in patients presenting with atypical urinary symptoms post-mesh surgery. Timely intervention, multidisciplinary coordination, and tailored surgical strategies are essential in managing such rare and complex urogenital pathologies, ensuring renal preservation and functional recovery.

Keywords: Stress urinary incontinence, vesicovaginal fistula, ureterocolle, incontinence, obstructive uropathy

Introduction

Transvaginal mesh (TVM) procedures have become a standard approach for the surgical management of stress urinary incontinence (SUI) in women, offering high success rates and minimal invasiveness. However, the long-term complications associated with mesh implantation are increasingly being recognised and reported. Among these, erosion, chronic pelvic pain, dyspareunia, and urinary tract symptoms are well-documented. Urethral complications, such as meatal stenosis and urethral stricture, are far less commonly encountered and are reported in only 0.6–1.5% of patients following mid-urethral sling surgeries (1).

Strictures may develop due to chronic compression and ischemia from mesh encroachment, leading to fibrosis and luminal narrowing. If left untreated, such obstruction can precipitate significant upper urinary tract deterioration and, in rare cases, result in vesicovaginal fistula (VVF). While the overall incidence of VVF following pelvic surgery is estimated at 0.1–0.2%, its development secondary to mesh-related urethral complications is extremely rare and only described in isolated reports (2).

Even more unusual is the coexistence of bilateral ureterocolles in such patients. Ureterocolles are congenital cystic dilations of the distal ureter, typically diagnosed in paediatric populations. Their incidence in adults is exceedingly low (0.01–0.02%), and bilateral involvement in elderly women is infrequent (3).

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This case report highlights a unique and rare clinical scenario wherein a woman in her mid-60s presented with mesh-induced meatal stenosis and urethral stricture, ultimately leading to infra-trigonal VVF. The incidental discovery of bilateral ureteroceles caused upper tract obstruction. This complex presentation underscores the importance of individualized, multidisciplinary management and draws attention to the long-term surveillance needed in patients with mesh-based interventions.

Case Presentation

Informed consent was obtained from the patient before writing this case report. A 65-year-old diabetic and hypertensive woman presented with continuous leakage of urine per vaginum, which had been occurring for the past 5 years. She also complained of nausea, poor appetite, and bilateral flank discomfort for the last 2 years. She had undergone transvaginal taping with mesh for SUI 6 years ago. Per vaginum examination revealed a palpable mesh tightened around the urethra, resulting in narrowing of the urethra with a pinpoint external urethral meatus. Also, there was a 2x2 cm VVF, ~4 cm from the vaginal introitus (Figure 1).

Her lab parameters revealed a low haemoglobin of 7.8 g/dL, raised serum creatinine of 3.6 mg/dL, and an elevated total leucocyte count (TLC) of 16,000/mm³. A venous blood gas analysis was suggestive of metabolic acidosis. An ultrasound of the kidneys and bladder showed bilateral moderate hydroureteronephrosis (Figure 2) with bilateral ureterocele.

She first underwent bilateral percutaneous nephrostomy insertion and was started on broad-spectrum antibiotics with strict input-output charting. Gradually, she improved symptomatically; TLC became normal; and her serum creatinine dropped to 1.2 mg/dL. Following this, upon optimisation, she underwent urethral dilatation with optical internal urethrotomy (OIU) to open the tightened urethra due to the mesh encroachment. Following OIU, a cystoscopy revealed bilateral ureterocele (Figure 3) with a 1x1 cm infra-trigonal VVF. She underwent ureterocele incision with DJ stenting. In the same sitting, she underwent the transvaginal Latzko technique of VVF repair. The urethral catheter and the bilateral DJ stents were removed after 3 and 4 weeks, respectively.

It is evident that after six weeks of treatment, the patient is demonstrating positive outcomes, with no adverse effects observed. Furthermore, the patient is able to void without difficulty, and her serum creatinine levels are within the established normal range.

Discussion

This case delineates an uncommon but clinically significant complication arising from TVM use mesh-induced urethral

stricture culminating in an infra-trigonal VVF, which was compounded by the incidental detection of bilateral ureteroceles in an elderly woman. While TVM surgery has transformed the management of SUI, adverse outcomes such as erosion, infection, and pain have prompted global reassessments of its safety profile (3). Among the less frequently encountered complications are urethral strictures, reported in fewer than 1.5% of cases post mid-urethral sling (MUS) procedures. These strictures are typically attributed to chronic ischemia, pressure necrosis, or direct trauma from the implanted mesh (4).

In our patient, a tightly adherent TVM was observed encroaching upon the urethra, resulting in severe meatal stenosis and fibrotic luminal narrowing. The chronic obstruction likely contributed to upstream hydroureteronephrosis, recurrent urinary tract infections, and progressive renal dysfunction. Notably, when lower urinary tract obstruction is prolonged and unrelieved, it can predispose the bladder wall to ischemic breakdown and fistula formation—mechanisms supported by experimental and clinical data (4,5). Although vesicovaginal fistulae are generally iatrogenic and most commonly follow hysterectomies or



Figure 1. Showing vesico-vaginal fistulous opening on per vaginal examination (yellow arrow)

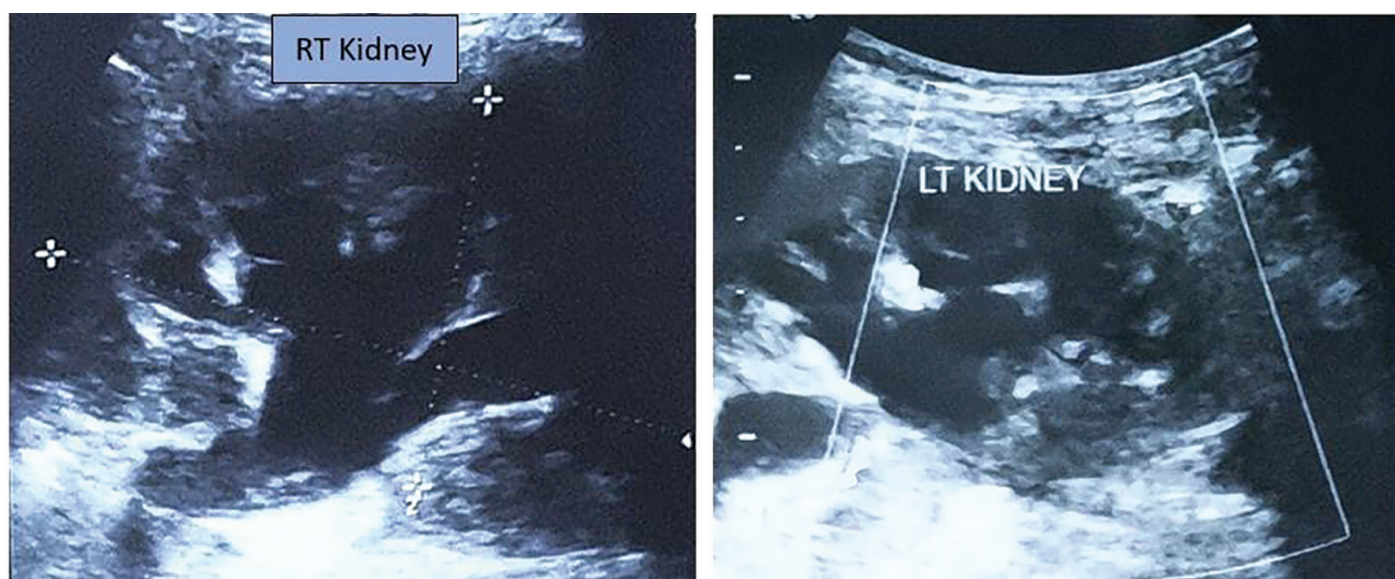


Figure 2. Ultrasound showing bilateral moderate hydroureteronephrosis

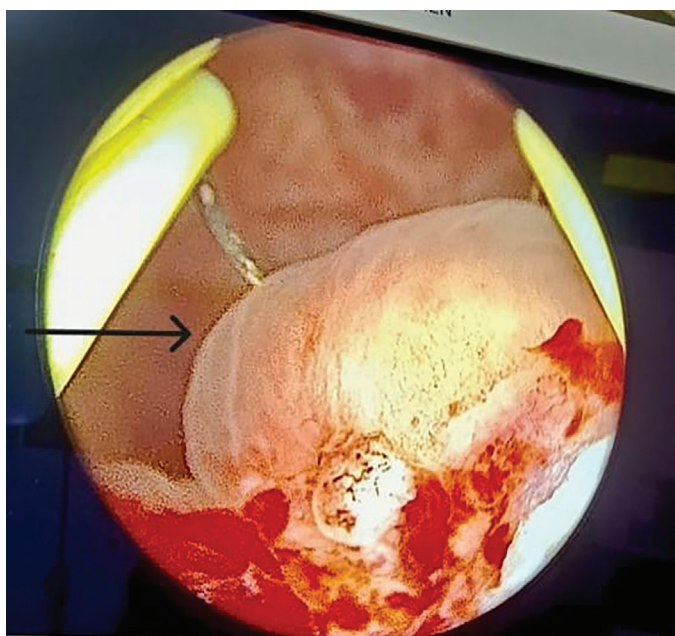


Figure 3. Cystoscopy image showing ureterocoele (black arrow)

pelvic radiation, they can rarely result from prolonged urinary retention and pressure necrosis secondary to distal obstruction, particularly in the context of foreign body-induced urethral compromise (5,6).

What renders this case even more unusual is the co-occurrence of bilateral ureterocoeles—congenital anomalies typically diagnosed in childhood, with a prevalence of merely 0.01–0.02% in adults. Most adult cases are unilateral and often discovered incidentally or during evaluation for recurrent infections or obstruction. The bilateral presence of unspecified symptoms in an elderly woman, in conjunction with VF and urethral stricture,

has seldom been reported. Ureterocoeles, especially if large, can cause functional obstruction at the vesicoureteral junction, leading to hydronephrosis and upper tract deterioration, potentially explaining the persistent renal dysfunction in our case, even after decompression via nephrostomy (6,7).

The diagnostic approach in this scenario highlights the importance of thorough imaging and endoscopic evaluation. Ultrasonography and cystoscopy revealed bilateral ureterocoeles and infra-trigonal VF, while OIU was required to manage the obstructed urethral segment. Surgical repair involved simultaneous endoscopic incision of ureterocoeles with Double-J stenting and transvaginal VF closure via the Latzko technique, an approach favourably reported for its low morbidity and high success rates in small, infra-trigonal fistulae. The sequence and staging of these procedures were crucial in optimising renal recovery and preserving continence.

It is important to note that the TVM was not removed in this patient. Although the European Association of Urology and National Institute for Health and Care Excellence (NICE) guidelines advocate complete or partial mesh excision in cases of symptomatic erosion, fistula formation, or urethral stricture, the decision must be individualized based on patient stability, anatomical considerations, and surgical risk. In this case, the mesh was densely adherent and intricately embedded within the fibrotic urethral segment, making excision technically challenging and potentially hazardous, with a high risk of urethral disruption or complete loss of continence. Given the patient's advanced age, comorbidities, and already compromised renal function, the clinical priority was to relieve obstruction, to address infection, and to preserve renal function and continence. These objectives were achieved through targeted interventions

-urethral dilatation, optical internal urethrotomy, and staged endoscopic and transvaginal reconstructive procedures-without the added morbidity of mesh excision. This approach aligns with the NICE guidance that emphasises balancing therapeutic benefit against surgical risk in elderly, or medically fragile patients (8,9).

This case underscores several key learning points. Firstly, urethral stricture as a delayed complication of MUS should be considered in patients presenting with voiding dysfunction or recurrent infections after mesh implantation. Secondly, prolonged obstruction, if not addressed, can lead to devastating complications like VVF. Thirdly, seemingly unrelated anatomical abnormalities such as ureteroceles, though rare in this demographic, should not be overlooked in complex presentations. Finally, a tailored, multidisciplinary approach is essential, encompassing urologists, radiologists, and reconstructive surgeons to achieve favourable outcomes.

Given the controversies surrounding TVM, regulatory bodies such as the Food and Drug Administration have advised caution, and in some regions, usage has been restricted due to underreporting of long-term complications. This case serves as a critical reminder that while mesh may provide durable continence, vigilance for insidious complications should be maintained, with a low threshold for imaging and surgical intervention when indicated.

Conclusion

This case exemplifies the rare yet serious complications that can arise from TVM procedures, including urethral stricture and infra-trigonal vesicovaginal fistula. The added complexity of bilateral ureteroceles -an uncommon adult anomaly-highlights the necessity for comprehensive evaluation in patients presenting with persistent urinary symptoms post-mesh surgery. Timely imaging, multidisciplinary collaboration, and staged interventions are pivotal for preserving renal function, restoring continence, and achieving favourable patient outcomes. Clinicians must remain vigilant for delayed mesh-related complications, especially in elderly patients, and adopt an individualised approach that integrates reconstructive, endoscopic, and urological expertise for optimal long-term care.

Ethics

Informed Consent: Informed consent was obtained from the patient before writing this case report.

Footnotes

Authorship Contributions

Surgical and Medical Practices: G.S., P.N., Concept: G.S., P.N., Design: G.S., P.N., Data Collection or Processing: G.S., P.N., Analysis or Interpretation: G.S., P.N., Literature Search: G.S., P.N., Writing: G.S., P.N.

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