

New-Onset Continuous Urinary Incontinence After Ectopic Ureteral Stone Surgery with Pre-existing Stress Urinary Incontinence: A Case Report

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Case Report

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Additional Declarations: No competing interests reported.

Abstract

Background: Adult ectopic ureter is uncommon and may be overlooked when a common cause of urinary incontinence coexists.

Case presentation: A 66-year-old woman had a 2-year history of intermittent urinary leakage during coughing or physical activity. She later developed right flank pain and fever. Computed tomography (CT) demonstrated bilateral duplicated collecting systems and a right upper-pole ectopic ureter opening into the urethra, with an approximately 11×8 mm calculus impacted near its distal opening (Fig. 1A, B). Ureteroscopic lithotripsy relieved the flank pain. Subsequent urodynamic evaluation demonstrated moderate stress urinary incontinence (SUI) (Fig. 1C), and a tension-free vaginal tape (TVT) procedure initially improved the leakage. One month after TVT, however, the leakage changed to continuous urine loss unrelated to coughing, activity, or body position. Repeat urodynamics were normal, and the leaking fluid remained clear during bladder methylene blue instillation. Cystoscopic reassessment and review of the known duplicated anatomy raised suspicion of an ectopic urinary source (Fig. 2A). Laparoscopy confirmed the ectopic right upper-pole ureter (Fig. 2B), which was reimplanted into the bladder. Postoperative retrograde pyelography documented the reconstructed system (Fig. 2C), and the patient no longer experienced urinary leakage.

Conclusion: This case illustrates that ectopic ureter may be easily missed when coexisting SUI provides a convincing explanation for urinary leakage. A transition from stress-related intermittent leakage to continuous, position-independent leakage should trigger reassessment of the diagnosis. In patients with a duplicated collecting system, integration of symptom phenotype, urodynamics, dye testing, cystoscopy, and cross-sectional imaging can help identify an ectopic urinary source and avoid diagnostic delay.

Background

An ectopic ureter terminates outside the normal bladder trigone and is commonly associated with a duplicated collecting system. Continuous leakage is a classic presentation when the ectopic opening lies distal to the continence mechanism, but adult presentation may be atypical, particularly when obstruction, infection, calculi, or another cause of incontinence coexists (1-5). We report an older woman with both objectively supported SUI and a right ectopic upper-pole ureter. The diagnostic clue was not persistence of the same symptom, but a change in the phenotype of urinary leakage.

Case Presentation

A 66-year-old postmenopausal woman presented with urinary incontinence for approximately 2 years. Physical examination revealed a soft abdomen without tenderness or costovertebral angle tenderness. External genitalia showed atrophic changes without masses or excoriation. No significant neurological deficits were noted in the lower extremities. Leakage was initially intermittent, small in volume, and mainly associated with coughing, walking, or other increases in abdominal pressure. Symptoms had remained relatively stable with conservative treatment.

Approximately 1 month before urological admission, she developed intermittent right flank distending pain with fever. CT demonstrated bilateral duplicated collecting systems. On the right, the upper-pole ureter followed an ectopic course toward the urethra, and an approximately 11 × 8 mm calculus was impacted near its distal ectopic opening, with proximal dilatation and inflammatory change (Fig. 1A, B).

Transurethral rigid ureteroscopy identified the normal right ureteral orifice and, on further urethral inspection, a separate ectopic ureteral opening. A distal stone measuring approximately 10 × 8 mm was fragmented and extracted; purulent urine drained from the ectopic ureter after catheter placement. The flank pain markedly improved after treatment.

After stone treatment, the patient reported more troublesome urinary leakage. Because the historical pattern remained predominantly stress related, urodynamic evaluation was performed. Reduced maximal urethral closure pressure and an abdominal leak-point pressure of approximately 80 cmH₂O supported moderate SUI (Fig. 1C). A single TVT procedure was performed on 26 August 2025, with initial improvement in leakage.

One month after TVT, however, urinary leakage recurred with a distinctly different pattern: urine loss was continuous and independent of coughing, physical activity, or body position. Repeat urodynamics were normal. During bladder methylene blue instillation, the continuously leaking fluid remained clear, suggesting a source outside the bladder. Cystoscopic examination after TVT demonstrated the right ureteral orifice and urethral lumen (Fig. 2A). In view of the known duplicated collecting system and previously identified ectopic ureter, an ectopic urinary source was reconsidered.

Laparoscopic exploration demonstrated the right ectopic upper-pole ureter together with the normally inserting right ureter (Fig. 2B). The ectopic ureter was reimplanted into the bladder with ureteroscopic evaluation and stent placement. Postoperative right retrograde pyelography demonstrated dilatation of the ectopic upper-pole ureter with a single calyx and the normal right collecting system and ureter (Fig. 2C). After reconstruction, the patient no longer experienced urinary leakage.

Timeline

Period	Key finding	Management/interpretation
Initial 2 years	Intermittent cough/activity-related leakage	Stress-related phenotype
Mar 2024	Duplicated systems; ectopic right upper-pole ureter with distal stone	Ureteroscopic lithotripsy; flank pain improved
After stone treatment	Leakage became more troublesome; urodynamics showed moderate SUI	Single TVT performed; initial improvement
1 month after TVT	Continuous, position-independent leakage; repeat urodynamics normal; dye test negative for bladder source	Ectopic ureter reconsidered
Definitive treatment	Ectopic ureter confirmed laparoscopically	Ureteral reimplantation; patient became dry

Discussion

The main diagnostic pitfall was the coexistence of two genuine mechanisms of urinary leakage. The patient's early cough- and activity-related symptoms, abnormal urodynamic findings, and initial response to TVT supported SUI. Thus, SUI was not an incorrect diagnosis. The ectopic ureter became clinically dominant only when the leakage phenotype changed to continuous, position-independent urine loss.

Several factors made the ectopic ureter easy to overlook. Adult presentation is uncommon, the patient did not report lifelong continuous dribbling, and a common functional diagnosis was objectively demonstrated. In addition, the distal ectopic ureter was obstructed by a calculus with infection. Relief of obstruction could plausibly have increased drainage through the ectopic opening and made the ectopic component more apparent, although causality cannot be established because quantitative pre- and post-lithotripsy drainage measurements were unavailable.

This case also shows the complementary roles of functional and anatomical assessment. Urodynamics can confirm coexisting SUI but cannot exclude an ectopic urinary source. When leakage becomes continuous or discordant with stress maneuvers, repeat functional testing should be interpreted together with dye testing and anatomical evaluation. In this patient, normal repeat urodynamics and clear leakage during bladder methylene blue instillation redirected attention to the known ectopic ureter, which was subsequently confirmed at laparoscopy.

The report is limited by its single-patient design, retrospective reconstruction of part of the clinical course, and the absence of quantitative split renal function or ectopic urine-flow measurements. Nevertheless, complete resolution after ureteral reimplantation supports the ectopic ureter as the source of the continuous leakage.

Conclusion

In an adult woman with confirmed SUI, a new pattern of continuous, position-independent leakage should prompt reconsideration of an additional anatomical cause. In patients with duplicated collecting systems, integrating symptom phenotype, urodynamics, dye testing, imaging, and operative findings may prevent diagnostic delay.

Patient perspective

The patient reported that urinary leakage affected her daily and social activities. She experienced initial improvement after TVT but was troubled by the subsequent continuous leakage. After ureteral reimplantation, she was dry and satisfied with the final outcome.

Figure 1. Preoperative diagnostic findings. (A) Preoperative computed tomography (CT) demonstrating bilateral duplicated collecting systems, including the right ectopic upper-pole ureter (blue arrow) and the normally inserting right ureter (yellow arrow). (B) Preoperative CT showing an approximately 11 × 8 mm calculus impacted at the distal opening of the right ectopic ureter (white arrow). (C) Urodynamic study demonstrating moderate stress urinary incontinence.

Figure 2. Endoscopic, intraoperative, and postoperative findings. (A) Cystoscopic examination after tension-free vaginal tape (TVT) surgery showing the right ureteral orifice (blue arrow) and the urethral lumen (yellow arrow). (B) Laparoscopic view showing the right ectopic upper-pole ureter (blue arrow) and the normally inserting right ureter (yellow arrow). (C) Postoperative right retrograde pyelography demonstrating dilatation of the ectopic upper-pole ureter with a single calyx (blue arrow) and the normal right collecting system and ureter (yellow arrow).

Declarations

Ethics approval and consent to participate

This case report was conducted in accordance with the Declaration of Helsinki and was approved by the Medical Ethics Committee of the Second Affiliated Hospital of Chongqing Medical University, Chongqing, China (Approval No. 2026EC081). Written informed consent was obtained from the patient for participation.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Clinical trial number: not applicable.

Availability of data and materials

All data generated or analyzed during this case report are included in this published article and its accompanying figures. Additional de-identified clinical data are available from the corresponding author

upon reasonable request, subject to patient confidentiality and institutional ethical requirements.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

LiPing Pu,Wang Li , XiaoQin Huang. collected the clinical data and drafted the manuscript. ZhengJu Ren. and Qing Jiang. conceived the report, performed the surgical procedures, and critically revised the manuscript. All authors read and approved the final manuscript.

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Figures



Figure 1

Preoperative diagnostic findings. (A) Preoperative computed tomography (CT) demonstrating bilateral duplicated collecting systems, including the right ectopic upper-pole ureter (blue arrow) and the normally inserting right ureter (yellow arrow). (B) Preoperative CT showing an approximately 11 × 8 mm calculus impacted at the distal opening of the right ectopic ureter (white arrow). (C) Urodynamic study demonstrating moderate stress urinary incontinence.

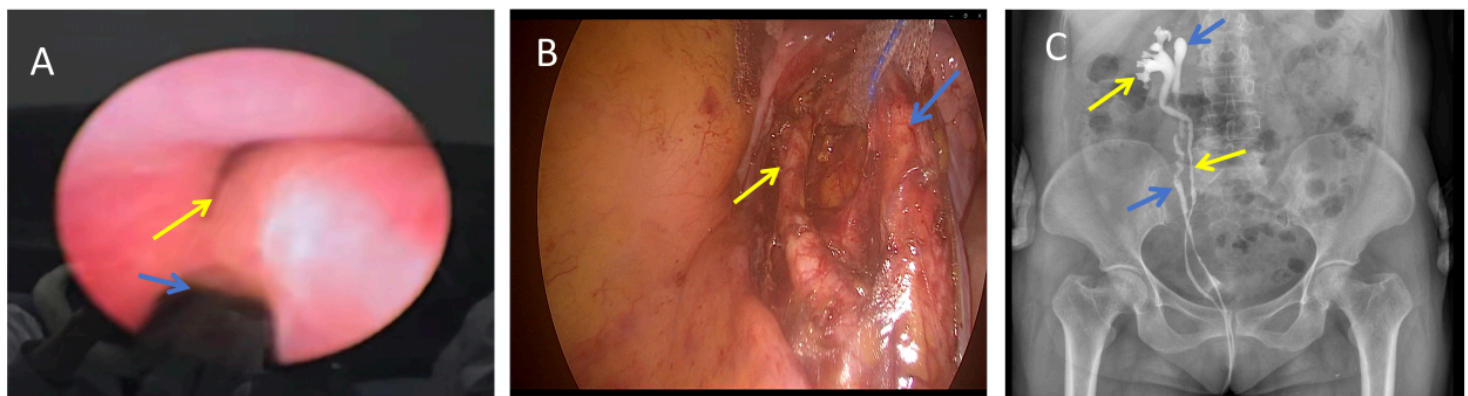


Figure 2

Endoscopic, intraoperative, and postoperative findings. (A) Cystoscopic examination after tension-free vaginal tape (TVT) surgery showing the right ureteral orifice (blue arrow) and the urethral lumen (yellow arrow). (B) Laparoscopic view showing the right ectopic upper-pole ureter (blue arrow) and the normally inserting right ureter (yellow arrow). (C) Postoperative right retrograde pyelography demonstrating dilatation of the ectopic upper-pole ureter with a single calyx (blue arrow) and the normal right collecting system and ureter (yellow arrow).