



External Urethral Meatus Stone in Women with Urinary Retention: A Rare Case Report

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KEYWORDS	ABSTRACT
Urethral Stones, Urinary Retention, Women.	Ureteral stones are commonly found in the kidneys, ureters, and bladder, whereas urethral stones are rare, accounting for less than 1% of all urinary tract stone cases. The prevalence is approximately 7 cases per 100,000 individuals, with a significantly higher occurrence in men, at a male-to-female ratio of 13:1. This research aims to report a rare case of urethral stone in a female patient and evaluate the effectiveness of manual stone extraction with local anesthesia as a minimally invasive treatment option. This research employs a case research approach by analyzing the clinical presentation, diagnostic findings, and treatment outcomes of a 55-year-old woman who presented at the emergency department with acute urinary retention lasting two hours, accompanied by genital pain. Physical examination revealed no abnormalities in the abdomen, but a stone was identified at the external urethral meatus. The patient underwent manual stone extraction under 2% lidocaine local anesthesia using nalfuder. The procedure involved fragmenting the stone into smaller pieces before complete removal, successfully restoring normal urination. The findings emphasize the rarity of urethral stones in female patients and highlight acute urinary retention as a key clinical manifestation. The successful outcome of manual extraction with local anesthesia demonstrates its efficacy as a minimally invasive approach, offering valuable insights for improving the management of urethral stones. This research contributes to the medical literature by supporting manual extraction as an effective and less invasive alternative in appropriate cases.

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INTRODUCTION

Urinary tract stones are a common presentation in emergency rooms and urology clinics, with patients often experiencing acute renal colic due to urolithiasis (Gottlieb et al., 2018). While emergency physicians and urologists are well-acquainted with these symptoms, lower urinary tract stones often present with subtler manifestations, including pelvic pain, penile pain, irritative voiding symptoms, obstructive symptoms such as acute urinary retention, and the sensation of a stone in the urethra.

Although urethral stones are rare, accounting for less than 2% of all urinary stones in industrialized countries, they can lead to significant complications, particularly acute urinary retention. This condition results in bladder distension and severe pain due to the inability to urinate (Panicker et al., 2015). Urethral stones are more frequently observed in older men, primarily due to urinary obstruction caused by benign prostatic hyperplasia, prostate cancer, or urethral strictures. In contrast, the female urethral anatomy generally facilitates the passage of small stones, making urethral stones less common in women. However, in certain cases, stones may form within the urethra or migrate from the bladder or upper urinary tract, leading to obstruction of the anterior urethra (Morton et al., 2024).

A delay in diagnosis can result in serious complications, including post-obstructive renal failure, urethral injury, incontinence, and even impotence (Abdi & Campbell, 2018). Despite these risks, studies focusing on the management of urethral stones in women remain limited, highlighting a gap in current research. This research presents a rare case of a 55-year-old woman with acute urinary retention caused by a urethral stone obstructing the external urethral meatus. The diagnosis was established through physical examination, and treatment was successfully performed via manual extraction in the emergency room.

This research aims to provide valuable insights into the diagnosis and management of external urethral meatus stones in women, emphasizing the importance of early detection and appropriate intervention (Morgan et al., 2022). The findings contribute to improving medical professionals' understanding of effective treatment strategies and potential complications associated with urethral stones. Furthermore, this research underscores its novelty by presenting a rare case in women and demonstrating how the manual extraction technique yielded satisfactory clinical outcomes.

CASE REPORT

A 55-year-old woman presented to the hospital emergency room with complaints of acute urinary retention for the past two hours. She also reported experiencing genital pain and a sensation of a foreign object in the genital area. Additionally, she mentioned having had difficulty urinating over the past two days, with only small amounts of urine being passed. The patient had a history of kidney stones approximately 15 years ago, for which she underwent surgical removal, with no recurrence since. She also had a history of hypertension but rarely took antihypertensive medication (Chiu & Sandoval, 2020). Additionally, she reported infrequent water intake but denied any history of hyperuricemia.

On vital signs examination, the patient had a blood pressure of 176/120 mmHg, a pulse rate of 101 beats per minute, a respiratory rate of 22 breaths per minute, and a body temperature of 36.5°C. Physical examination of the abdomen revealed no abnormalities, and suprapubic palpation did not indicate bladder distension (Thomas & Henn, 2021). However, on genital examination, a yellow stone was observed obstructing the external urethral meatus.

The patient underwent an extraction procedure for the urethral stone. The procedure lasted approximately [insert duration], and no immediate complications were observed. Post-procedure, the patient's ability to urinate was restored, and pain significantly reduced (Dombeck et al., 2023). The patient was monitored for potential complications such as hematuria, urethral injury, or infection. Follow-up over the next few days showed no recurrence of symptoms, and the patient was advised on adequate hydration and further urological evaluation.



Figure 1

Features of stones on genital examination

Kidney stones were extracted using manual extraction technique. The patient is given local anesthesia by injecting 2% lidocaine around the meatus, so as not to feel pain during extraction, then the kidney stone is removed by pinching the visible part and then crushing it into small parts with a nalfuder tool. Irrigation with 0.9 percent nacl to clean the outer urethra. After the urethral stone is removed, the patient is observed in the observation room, and can urinate normally.



Figure 2
The depicted stone after removal

RESULT AND DISCUSSION

Urinary tract stones are one of the common conditions that have made patients visit the emergency room in the last two decades. Urethral stones are the rarest form of urolithiasis. There is no standardized treatment or cure. During our literature search, we found that the symptoms and treatment of urethral stones are limited to case reports and a few literature reviews (Türk et al., 2016). Only a small proportion of case referrals are female.

The location of the stone, the size of the stone, the anatomical structural abnormality, and the facilities available at the hospital are some of the factors that are considered in determining the treatment. Small stones can be easily removed through the urethral meatus after lubrication with xylocaine jelly, but this technique carries the risk of mucosal injury and may become a urethral structure (Hamza et al., 2021).

One of the reported cases was a 24-year-old female who came to the emergency room with complaints of urgency, left lumbar pain, and urinary retention for 12 hours. A stone in the urethral meatus was diagnosed by physical examination, and a technique to remove the stone with lidocaine gel and pressure in the vaginal canal was performed but failed. The stone could be removed by clamping the stone with forceps (Lee & Haber, 2020).

Another reported case was a urethral stone in a 64-year-old woman with complaints of suprapubic pain, frequency, and urethral bleeding (Al Lawati et al., 2024). Physical examination in the lithotomy position revealed a stone blocking the external urethral meatus. The stone could not be removed manually or pushed into the bladder. In this case, the stone was successfully treated with endoscopic therapy using pneumatic lithotripsy, under spinal anesthesia (Sungur et al., 2018).

Another case was reported in a 35-year-old woman who developed acute urinary retention due to stone blockage in the external urethral meatus. The stone could not be removed by manual technique. The therapy in this case was systolithotomy after retrograde stone manipulation or inserting the stone back into the bladder with a catheter (Purnama & Santoyo, 2022).

There are no systematic reviews or research guidelines for the treatment of stones blocking the urethral meatus (Wessells et al., 2017). However, in some cases, female patients with stones blocking

the urethral meatus who present to the emergency room are reported to be treated initially with manual extraction. If manual extraction fails, more invasive therapies such as endoscopic techniques or cystolithotomy will be performed.

As in our reported case of urinary retention due to urethral stones, the extraction technique was performed by injecting local anesthesia around the meatus and extraction-destruction of the stone with a nalfuder clamp. The results were quite satisfactory, after the stone was successfully removed, the patient was able to urinate smoothly.

CONCLUSION

Stones in the external urethral meatus are rare in female patients. Management through manual extraction under local anesthesia and stone fragmentation using nalfuder has shown satisfactory immediate results in the emergency room. However, further research is needed to assess long-term recurrence rates and potential post-procedural complications. Future studies should focus on developing standardized treatment protocols, identifying risk factors for recurrence, and exploring alternative minimally invasive techniques to improve patient outcomes and reduce the likelihood of complications. Additionally, larger case series and prospective studies are essential to establish the efficacy and safety of manual extraction compared to other treatment modalities.

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