



Endourology

A giant ureteral stone in a young adult: A case report

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ABSTRACT

A large ureteral stone is a rare condition that can cause significant complications if untreated. We report the case of a 21-year-old male from Farah province who experienced abdominal pain for eight months, with localized lower abdominal pain for the last two months, and frequent urination but no hematuria. Imaging revealed a 9 × 4 cm stone lodged in the lower ureter. The patient underwent ureterolithotomy, and a double J stent was placed. Postoperative outcomes were excellent. Stones larger than 10 cm are exceptionally rare, and this case emphasizes the need for prompt diagnosis despite atypical symptoms.

1. Introduction

Ureteral stones occur in various anatomical locations within the urinary system.¹ They are commonly found in three narrow areas of the ureter.² Patients with ureteral stones usually present with flank pain or hematuria.³ However, atypical symptoms such as abdominal pain, urinary urgency, heartburn, vomiting, frequent urination, and testicular pain can also occur. The likelihood of spontaneous passage depends on the stone's size and location within the ureter (proximal, middle, or distal). Generally, ureteral stones with a diameter greater than 10 mm are unlikely to pass on their own, necessitating intervention for most patients.⁴ Extracorporeal shock wave lithotripsy (SWL) and transurethral lithotripsy (TUL) are the primary treatment methods for ureteral stones. Studies show varying rates of spontaneous stone passage based on the stone size, with stones larger than 10 mm in diameter rarely passing without intervention (87 % [1 mm]; 76 % [2–4 mm]; 60 % [5–7 mm]; and 48 % [7–9 mm]).⁵ Additionally, the spontaneous passage rate for stones in the distal ureter and the junction of the ureter with the bladder is higher than for stones in the middle and proximal ureter.⁶ However, some ureteral stones progress silently until they exceed 10 cm in length or weigh more than 50 g.⁷ These types of stones are called large ureteral stones and are very rare. Most urinary system stones are composed of calcium oxalate or calcium phosphate.⁸ Other types include struvite, magnesium, uric acid, and cystine stones.⁹ This report discusses a rare case of a large distal left ureteral stone causing hydronephrosis without metabolic or anatomical anomalies.

2. Case presentation

A 21-year-old male from Farah province presented with abdominal pain for eight months and pain in the left lower abdomen for two months. He reported frequent urination and urgency but no change in urine color. He was admitted to the emergency department of Tabiban Hospital. He had a history of left kidney stone surgery but no family history of urinary system stones. He used acetaminophen for pain relief.

3. Imaging

Ultrasound revealed hydronephrosis and hydroureter (Fig. 1). A KUB X-ray identified a large stone in the left ureter (Fig. 2). IVP confirmed left kidney function.

4. Laboratory examinations

Initial tests showed a urinary tract infection caused by *E. coli*, which was treated with ciprofloxacin. Subsequent urine culture was negative. Urine biochemistry results were as follows: urea 40 mg/dl, creatinine 1 mg/dl, blood urea nitrogen 16 mg/dl, hemoglobin 14.2 mg/l, and normal sodium, potassium, plasma calcium, and phosphorus.

5. Surgery

The patient underwent open ureterolithotomy using a Gibson incision. A 9 × 4 cm stone was removed (Fig. 3), and a double J stent was

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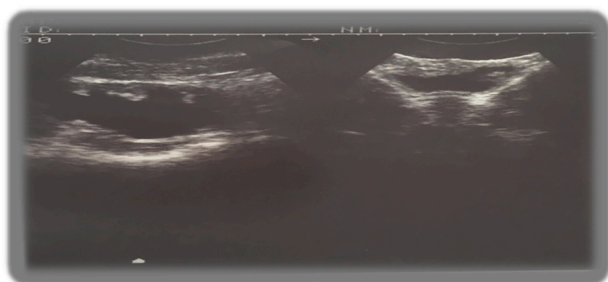


Fig. 1. Ultrasonography shows hydronephrosis.



Fig. 2. KUB shows a large ureteral stone.



Fig. 3. A large ureteral stone was removed to a size of 9 × 4 cm.

applied. The patient was discharged after five days without any complications.

6. Discussion

Ureteral stones often originate from kidney stones that lodge in the ureter and block the ureter during their passage.⁷ Larger stones can cause significant obstruction and hydronephrosis, often related to the stone's size and anatomical issues with the ureter.⁷ According to the American Urological Association (AUA) guidelines, up to 98 % of ureteral stones 4 mm or smaller pass spontaneously.¹⁰

Large stones, due to being stuck in different parts of the ureter, block the renal pelvis system and kidney calyces, usually causing pain and hydronephrosis infection.¹⁰ Issues related to unusual clinical symptoms, very large ureteral stones, or unusual complications can be reported as case studies.¹¹

Several case reports document large ureteric stones without underlying anatomical or metabolic anomalies.¹² Other reports describe ureteral stones causing postrenal acute kidney injury or ureteroceles resulting in complications.^{1,7,12,13}

Most cases present with flank pain and hematuria, whereas our case was unique due to the abdominal symptoms and the absence of hematuria. Additionally, the stone size was exceptional, causing ureteral blockage sooner than typically expected.⁹

Clinical diagnosis of ureteral stones should be confirmed with appropriate imaging.¹⁴ CT scans are now the first-line investigation.¹⁵ KUB studies are also useful for detecting ureteral stones.¹⁶ Despite advances in endoscopic technologies, open surgery still plays an important role in the treatment of some ureteral stones, according to the size and location of stones. About 20 % of stones require surgery.¹⁷ For large complex stones, non-invasive methods such as ESWL and TUL may not be sufficient, requiring open surgery for stones larger than 5 cm.^{7,13}

CRedit authorship contribution statement

Mohammad Jawad Jawad: Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Abdul Azim Amiri:** Writing – original draft, Methodology, Investigation, Data curation. **Abdul Tawab Saljuqi:** Writing – review & editing.

Ethical approval

This case report was conducted in accordance with the ethical standards of the institution and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from the patient included in this case report.

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Declaration of competing interests

The authors declare that they have no conflicts of interest.

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