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Case Report

Large renal pelvic hematoma in a moderately hydronephrotic kidney due to impacted ureteric stone: an unusual complication of ureteric calculus

Manoj Kumar Singh[1], Prem Kumar[1]*, Pragya Prem[2], Smita Singh[1]

[1]Ranchi Urology Centre, Bariatu, Ranchi, Jharkhand, India
[2]Sri Ramchandra Institute of Higher Education and Research, Chennai, Tamil Nadu, India

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***Correspondence:**
Dr. Prem Kumar,
E-mail: ruc.publications@gmail.com

ABSTRACT

In this case study, a young male presented with recurrent right flank pain and hematuria. Further investigations revealed an upper ureteric stone, causing significant hydronephrosis and blood accumulation within the pelvicalyceal system. Remarkably, blood clots were observed in this system alongside the ureteric calculus. The medical team opted for standard percutaneous nephrolithotomy (PCNL) to address the stone and simultaneously remove the clots. Additionally, a DJ stent was placed to ensure proper drainage and prevent complications. This rare presentation emphasizes the importance of recognizing diverse manifestations of ureteric stones and timely intervention through PCNL for effective management.

Keywords: Ureteric stone complications, Hydronephrosis, Large hematoma, PCNL

INTRODUCTION

Urinary calculi represent a significant medical challenge in modern primary care. Common clinical presentations of ureteral calculi include symptoms such as renal colic, hematuria, abdominal discomfort, nausea, increased urinary urgency and frequency, dysuria, as well as discomfort localized to the testicular or penile regions.[1]

The presence of obstructive kidney and ureter stones can lead to hydronephrosis, which causes pain and progressive kidney damage. Although microscopic hematuria is frequently observed in these cases, the occurrence of a large clot in the pelvic calyceal system is rarely seen in clinical practice.[2]

In this case report, we present a young male patient exhibiting a large volume clot in the pelvicalyceal system, associated with an upper ureteric stone and hydronephrosis.

CASE REPORT

A 31-year young non diabetic, non-hypertensive male presented with hematuria, and intermittent flank discomfort, demonstrating overall stable health without abdominal tenderness and fever. There was no history of recent trauma and has no associated comorbidities.

Blood investigations revealed normal hematology; however, there was borderline elevation in serum creatinine level (1.6 mg/dl). Patient's X-ray KUB demonstrated presence of a right upper ureteric calculus measuring approx. 15×10 mm. CT urography illustrated right upper ureteric calculus causing hydronephrosis with concurrent blood clot in right kidney, while left kidney exhibited normal morphology (Figure 1).

After the evaluation, an informed consent was taken from patient, and right PCNL was planned. Right ureteric catheterization and retrograde pyelogram revealed 15 mm

calculus in upper ureter with moderate hydronephrosis and large filling defect in pelvicalyceal system (PCS).

Patient was turned prone and puncture was made above the 12th rib in middle calyx; 26 F amplatz sheath was inserted following single step amplantz dilation. During nephroscopy, organized clots of volume of about 100 ml were found, which was subsequently removed with forceps. The stone in the upper ureter was fragmented with pneumatic lithoclast and fragments removed using alligator forceps. Total clearance was confirmed under fluoroscope. A 12 F DJ stent was placed antegrade and 16 F nephrostomy tube was left indwelling.

The postoperative period was eventful. On postoperative day 2, a nephrostogram demonstrated a well-opacified calyceal system without any filling defect to suggest clots or residual stones (Figure 2). The nephrostomy tube and foley catheter were removed and patient discharged same day. At 3-week follow-up, X-ray KUB and USG KUB were done, which didn't show any residual calculus/clots in PCS. Double J stent was removed 3 weeks later.

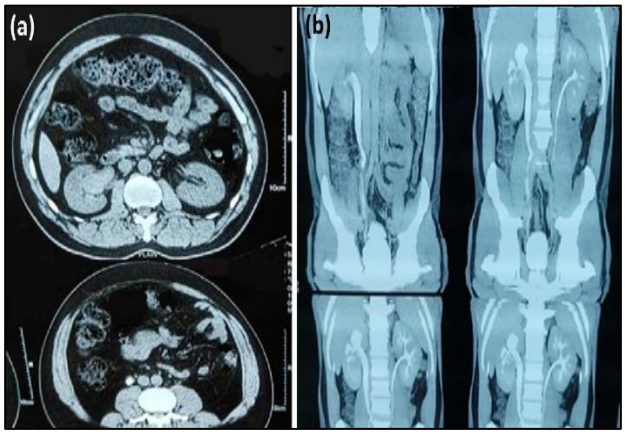

Figure 1 (a and b): CT urography image showing right upper ureteric calculus with proximal hydroureteronephrosis and blood in PCS.

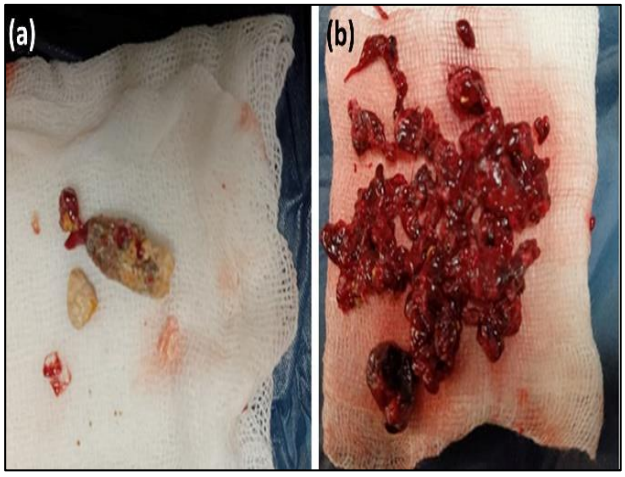

Figure 2 (a and b): Specimen of calculi and hematoma following removal by PCNL.

DISCUSSION

Urinary stone formation is a chronic process, which may be associated with mild to severe symptoms in patients.[3,4] Obstruction of the ureter can give rise to increased ureteric and renal pelvic pressure resulting in hydronephrosis, with reduced glomerular filtration rate, tubular function, and blood flow of the kidney.[5]

Renal pelvic clots typically manifest in individuals with pre-existing renal conditions, such as malignancies, trauma or infection. Hematuria, unaccompanied by a pelvic clot, commonly occurs with mobile calculi. The occurrence of a non-traumatic, spontaneous pelvic hematoma in an otherwise healthy individual is exceedingly rare, with only a few documented cases in medical literature. It is noteworthy that substantial renal pelvis hematomas have been reported in the context of uretero-pelvic junction obstruction, frequently presenting as an acute abdominal condition, particularly following minor injuries.[6] In contrast, our patient did not exhibit symptoms of an acute abdomen; instead, he experienced intermittent right-sided dull flank pain.

A thorough assessment is crucial to prevent misunderstandings that could result in unnecessary nephrectomies. This is especially important because renal hematomas can occasionally be misidentified as renal masses.[7] Hence, it might be prudent to contemplate the utilization of contrast-enhanced CT or MRI scans to eliminate alternative diagnoses. Intrarenal factors can also manifest symptoms akin to those witnessed in this patient. For instance, cases of IgA nephropathy have demonstrated spontaneous renal pelvic clots that can imitate malignancy. This resemblance stems from the deposition of pathogenic immune complexes in the mesangium, leading to glomerular injury.[6]

Nevertheless, in our specific case, the exact cause of hematoma formation remains uncertain. It is probable that ulceration of the mucosa, attributed to chronic inflammation, has led to recurrent bleeding and subsequent hematoma formation. A preoperative diagnosis of hematoma, as opposed to other possibilities, has been instrumental in both addressing the underlying cause and guiding the appropriate management, potentially avoiding unnecessary nephrectomies. It is crucial to note that the majority of documented cases primarily involve hematomas in the right renal pelvis. The exact reasons for this predominance are not fully understood at present. Possible explanations could be linked to anatomical or embryological developmental distinctions between the kidneys on the right and left sides.

Instances of large clots causing hydronephrosis are infrequently reported. Consequently, this study provides valuable insights into this rare occurrence, offering clinicians a perspective on our approach to its

management. This information may assist them in addressing similar cases more effectively.

CONCLUSION

This case underscores the importance of accurately recognizing and managing rare complications of urinary stones, such as renal pelvic hematomas. It highlights the necessity of comprehensive assessment to avoid misdiagnosis and unnecessary interventions. Utilizing advanced imaging techniques, such as contrast-enhanced CT or MRI, is crucial in distinguishing hematomas or clots, ensuring proper and effective management.

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