

# Spontaneous Ureteral Rupture Secondary to Obstructing Stone

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## Introduction

Rupture of the urinary collecting system with or without perinephric extravasation is a rare occurrence and usually known to occur following an obstructive pathology.[1,2] Here we present a case of distal 6mm calculus in otherwise normal kidney in elderly male, presenting secondary to ureteropelvic junction rupture.

## Case Presentation

A 67 year old male with history of DM on insulin, liver cirrhosis, renal stones and lithotripsy was admitted directly from urology office after ultrasound revealed left sided hydronephrosis. A week prior he had been to the ED for severe left flank pain with chills, bedside ultrasound showed left hydronephrosis without identifiable stone. Of note, a month prior he had been seen in an outside hospital and had an ultrasound for monitoring of his liver cirrhosis which revealed a left sided 6mm nonobstructing, interpolar stone. He was hence under observation by urology for left sided nonobstructing kidney stone and renal cyst with calcified wall.

Upon admission, labs revealed AKI (1.5, baseline creatinine 0.9). Non-contrast CT abdomen showed bilateral non obstructive renal calculi, a calcified dense lesion in left lower pole kidney measuring 2cm with perinephric stranding and small amount of fluid along the distal ureter extending into the left pericolic gutter and pelvis which possibly represented ureteral rupture [Fig. 1]. Cystoscopy, left ureteroscopy, and left ureteral stent was performed. No tumors or stones were present in the bladder on cystoscopic evaluation. On retrograde pyelogram, there was extravasation of contrast noted at the level of proximal ureter [Fig. 2]. Left ureteral stent placed, and kept for 4 weeks to allow the ureter to heal completely. Post operatively, creatinine trended down to 0.86, and patient was discharged without a foley. A month later, left ureteroscopy was done which showed a well healed left ureter with no extravasation, a free stone in left lower pole and papillary tip calcification in upper left pole was retrieved with basket, and stent exchange was performed with success.



Figure 1: Non-contrast CT abdomen showed bilateral non obstructive renal calculi



Figure 2: retrograde pyelogram, there was extravasation of contrast noted at the level of proximal ureter

## Discussion

Spontaneous ureteral rupture is extremely rare pathology; it is uncommon for ureteral rupture to occur outside an inciting event.[1] Reported cases of traumatic rupture usually reflect an underlying pathology.[3,4] The commonest underlying condition is congenital ureteropelvic junction obstruction (UPJO). It may occur when the upper third of ureter is fixed in position by an ectopic vessel or scars due to previous trauma. Ultrasound is a simple

screening tool.[5] Contrast-enhanced CT is required to locate the exact extent of the lesion and provide detailed information about associated intra-abdominal or retroperitoneal injuries.[6,7] It is usually expected to occur following either blunt, penetrating, or iatrogenic trauma.

Spontaneous or non-traumatic rupture rarely occurs secondary to downstream obstruction by calculi, papilla, stricture or extrinsic compression.[8] Obstruction of the genitorurinary system is followed by an increase in intraluminal pressure which leads to rupture of collecting system and extravasation with urinoma formation.

## Conclusion

Spontaneous or non-traumatic rupture requires timely diagnosis for prompt treatment. Prognosis is excellent if diagnosed early and with timely management. Patients experience immediate relief. Delay in treatment may result in complications such as perinephric or retroperitoneal collection, abscess formation, and subsequent urosepsis. Our case demonstrates that timely diagnosis and prompt intervention in the acute setting via ureteroscopy and stent placement is sufficient to allow complete healing and prevent complications.

## References

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