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Case Report Olgu Sunumu

SPONTANEOUS URETERAL RUPTURE: A CASE REPORT

Spontan Üreter Rüptürü: Olgu Sunumu

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ABSTRACT

Spontaneous ureteral rupture is an uncommon urological emergency characterized by the extraluminal leakage of urine in the absence of trauma or prior instrumentation. It may be mistaken for other surgical conditions. We report the case of a 24-year-old male with a history of nephrolithiasis who presented with acute left flank and abdominal pain. Contrast-enhanced computed tomography revealed proximal ureteral contrast extravasation and a sizable perirenal fluid collection, consistent with ureteral rupture. The patient underwent urgent surgical intervention, and a 6 Fr double-J stent was placed. Postoperative recovery was uneventful, and the patient was discharged in stable condition on postoperative day one.

This case highlights the need to include spontaneous ureteral rupture in the differential diagnosis of acute abdominal or flank pain. Early imaging and timely urologic intervention are pivotal in achieving optimal clinical outcomes.

Keywords: *Ureteral rupture, urolithiasis, computed tomography*

ÖZ

Spontan üreter rüptürü, travma ya da öncesinde uygulanan herhangi bir girişim olmaksızın üreterden ekstraluminal idrar sızıntısı ile karakterize, nadir görülen bir ürolojik acildir. Klinik bulguları sıklıkla diğer cerrahi patolojilerle karışabileceğinden tanıda gecikmelere yol açabilir. Bu yazıda, önceden nefrolitiyazis öyküsü bulunan ve akut sol yan ve abdominal ağrı ile başvuran 24 yaşındaki bir erkek olgu sunulmaktadır. Kontrastlı bilgisayarlı tomografide üreterin proksimal düzeyinde kontrast ekstravazasyonu ve belirgin perirenal sıvı birikimi saptanmasıyla üreter rüptürü tanısı konulmuştur. Hasta acil cerrahi müdahaleye alınmış ve 6 Fr double-J stent yerleştirilmiştir. Postoperatif süreci sorunsuz seyretmiş ve hasta birinci gününde stabil durumda taburcu edilmiştir. Bu olgu ani gelişen abdominal ağrı ya da yan ağrısının ayırıcı tanısında spontan üreter rüptürünün mutlaka göz önünde bulundurulması gerektiğini vurgulamaktadır. Erken görüntüleme ve zamanında gerçekleştirilen girişim, optimal klinik sonuçların elde edilmesinde kritik öneme sahiptir.

Anahtar Kelimeler: *Üreter Rüptürü, ürolitiyazis, bilgisayarlı tomografi*

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INTRODUCTION

Spontaneous ureteral rupture is a rare and clinically significant urological emergency characterized by the non-traumatic disruption of the ureteral wall in the absence of prior instrumentation, surgical intervention, or identifiable obstructive pathology. Patients typically present with the acute onset of severe flank or abdominal pain, often mimicking other abdominal emergencies.[1] The condition is most commonly associated with ureteral calculi, which may lead to obstruction, elevated intraluminal pressure, and eventual rupture.[2] Contrast-enhanced computed tomography (CT) remains the diagnostic modality of choice, offering high sensitivity for detecting hallmark features including contrast extravasation, ureteral dilatation, and perirenal fluid accumulation.[3,4] Given its rarity and often subtle clinical presentation, early recognition is critical to avoid delayed diagnosis and adverse outcomes.

CASE REPORT

A 24-year-old male with a history of renal stones presented to the emergency department with left flank and abdominal pain that began one hour prior. The patient denied any history of trauma, and physical examination revealed no signs of external injury or trauma-related findings. The patient had no history of other diseases or previous surgical operations. Vital signs were within normal limits. There was diffuse abdominal tenderness on examination, with positive left costovertebral angle tenderness. Peripheral pulses were palpable and symmetric, with no inter-limb blood pressure discrepancies or abdominal bruits noted. The visual analog scale pain score was 9/10. Urine output and color were observed to be normal. The patient received intravenous hydration and analgesia with 50 mcg of Fentanyl. To rule out life-threatening acute abdominal conditions, computed tomography (CT) angiography of the thorax and abdomen was performed promptly upon admission which revealed that the left kidney appeared edematous with a normal size, grade II dilation in the left renal collecting system, extending to the left ureter down to the vesicoureteral junction, where a 4 mm stone was identified within the lumen. A free fluid collection measuring 63×45×19 mm was detected in the anterior perirenal space. A 3 mm calyceal stone was observed in the upper pole of the right kidney. Laboratory findings were as follows: Creatinine: 0.84 mg/dL, Hemoglobin: 15.3 g/dL, C-reactive protein: 0.27 mg/L, White blood cell count: 6,000/mm³. Other biochemical parameters were within normal limits.

Urology was consulted, and a delayed-phase (excretory-phase) contrast-enhanced abdominal CT was obtained approximately 15 minutes after contrast administration to optimize visualization of the urinary collecting system and assess for extravasation. The scan revealed contrast leakage at the level of the left proximal ureter, confirming ureteral rupture and prompting urgent surgical intervention.

Figure 1: Coronal image (a) and VR reconstruction (b) of the contrast-enhanced CT scan in the delayed phase showing contrast extravasation (arrow).

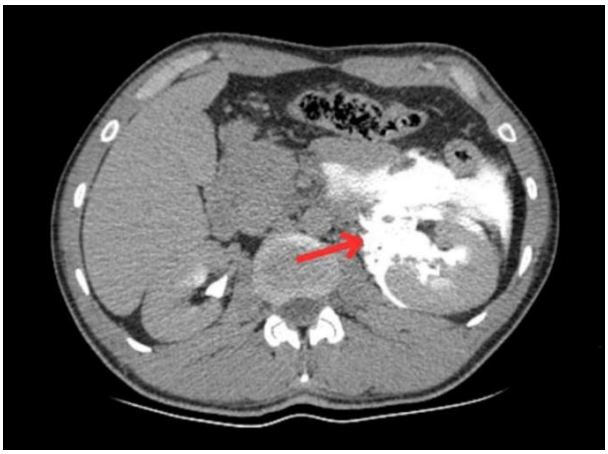

Figure 2: Axial image of the contrast-enhanced CT scan in the delayed phase showing contrast extravasation (arrow).

During the procedure, a 4 mm stone was identified in the bladder and was successfully extracted. Extravasation at the left proximal ureter was confirmed intraoperatively. A 6 Fr double-J stent was placed. The procedure was completed without complications.

The patient remained stable postoperatively, with no complications observed during hospitalization. The urine culture showed no bacterial growth. He was discharged on postoperative day 1. The ureteral stent was removed during the patient's initial outpatient follow-up visit. No complications were observed during the two-months follow-up period.

DISCUSSION

Spontaneous ureteral rupture is a rare condition defined as the rupture of the ureter in the absence of ureteric instrumentation, prior surgery, external compression, trauma, or any destructive kidney lesion.[1,2] Diagnosing spontaneous ureteral rupture remains clinically challenging due to its rarity and nonspecific presentation. Patients often report acute flank or abdominal pain-symptoms that overlap with far more common conditions such as renal colic, appendicitis, bowel perforation, or even vascular emergencies like

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abdominal aortic aneurysm.[3] The absence of trauma or prior instrumentation may further lower clinical suspicion for an urinary tract rupture. In such cases, diagnosis requires a high index of suspicion, especially in patients with a history of nephrolithiasis, as ureteral calculi are the most common cause of spontaneous ureteral rupture. Other etiologies include ureteral strictures and tumors, although in some instances no definitive underlying cause can be identified.[3,6] Ureteral stones may obstruct, increase intraluminal pressure, and ultimately lead to ureteral rupture.[2,4,6] While rupture can occur at any point in the urinary tract, the fornix and upper ureter are the most commonly affected sites.[3] Gershman et al. found that the most common level of obstruction was at the vesicoureteral junction, occurring in 58.1% of cases, mean stone size was 4.09 (2.0) mm. and urinary tract infection was rare (5.2%). Our case presented comparable findings in all these aspects.[5] Initial imaging with standard contrast-enhanced CT, typically performed in the portal venous phase, may be insufficient to detect subtle injuries of the collecting system or urinary extravasation. In such cases, delayed-phase (excretory-phase) contrast-enhanced CT serves as an indispensable diagnostic tool. Typically performed 5-15 minutes after contrast administration, this imaging phase provides optimal opacification of the renal pelvis and ureters, thereby significantly enhancing the sensitivity for detecting urinary tract extravasation. It also facilitates the identification of the underlying cause, such as obstructing ureteral calculi or strictures.[4,6] The management of spontaneous ureteral rupture is not standardized; however, primary ureteroscopy with double ureteral stent placement is the most commonly used approach.[3]

This case highlights the potential for ureteral rupture in patients presenting with abdominal pain. Due to its rarity and nonspecific symptoms, spontaneous ureteral rupture requires a high index of suspicion for timely diagnosis. Early diagnosis through imaging and timely surgical management are crucial for optimal patient outcomes.

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