Spontaneous Ureteropelvic Junction Rupture Caused by a Small Distal Ureteral Calculus

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To the Editor: Spontaneous ureteral rupture is rare, and urolithiasis is the most common cause.[1,2] The underlying mechanism may be the pressure around the ureteral wall due to stone impaction or a tear during the stone passage. Smaller distal stones exert higher intraureteral pressures than do larger proximal stones because of the greater length of obstructed ureter and the smaller diameter of the distal ureter.[2]

Examination of a 79-year-old woman showed tenderness over her left lower quadrant and left costovertebral angle. Urine microscopic examination showed hematuria; however, she was afebrile, and gross hematuria was absent. Her leukocyte count and serum creatinine level were 15,570/μl and 0.63 mg/dl, respectively. The initial impression was ureteral calculus. She was administered painkillers, but her pain did not subside. A preliminary radiograph of the kidney, ureter, and bladder showed no abnormality. Computed tomography (CT) of the abdomen and pelvis showed a 3-mm calculus in the left ureterovesical junction (UVJ) with mild hydroureteronephrosis or perirenal or periureteral fluid collection. Ureterorenoscopic lithotripsy and double-J catheter placement performed the next day were successful. She was discharged, and outpatient follow-up was performed. The catheter was removed 28 days later with good clinical results.

Symptoms of spontaneous ureteral rupture include sudden onset of severe abdominal and flank pain associated with nausea and vomiting. Most patients presented with acute flank pain (66.7%), and some with acute abdominal pain (33.3%).[3] Although not accurate, ultrasonography is a simple screening tool for hydronephrosis or fluid collections in the perinephric space or pouch of Douglas. In patients with stable conditions, contrast-enhanced CT is required to identify a rupture and its cause, the location of extravasation, and other lesions. Spontaneous ureteral rupture management is not standardized. Minimally invasive procedures and conservative care yield excellent results.[3] The outcomes of primary ureteroscopy, double-J ureteral stent insertion under fluoroscopy, and conservative management with fluid collection in the perinephric space, and extravasation of the contrast medium at the ureteropelvic junction (UPJ) level, as observed on the delayed film [Figure 1]. Spontaneous UPJ rupture caused by a small distal ureteral calculus was diagnosed; thereafter, percutaneous nephrostomy was performed, and antibiotic therapy was administered. On hospital day 10, follow-up CT showed no evidence of UVJ stones, urine leakage,

Figure 1: (a) Computed tomography revealed a minute intramural stone at the left ureterovesical junction (black arrow); (b) an enhanced computed tomography scan showed a fluid collection in the perinephric space (white arrow); (c) contrast medium leakage in the ureteropelvic junction region extending outside Gerota's fascia into the perinephric space in the delayed phase (white arrowheads).

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were good.[3,4] Based on stone size alone, 98% of stones <5 mm in diameter, 60% of stones with 5–7 mm in diameter, and 39% of stones >7 mm in diameter will pass within 4 weeks without intervention.[5] Therefore, in the emergency department, patients with urolithiasis <5 mm are treated with analgesics such as nonsteroidal anti-inflammatory drugs and then discharged with urologic or primary care follow-up.

Our patient showed only small calculus of diameter 3 mm at UVJ. Moreover, she did not have a history of trauma; therefore, we did not suspect ureteral rupture. Although spontaneous ureteral rupture is a rare complication of urolithiasis, in which the calculus is small (<5 mm), it should be considered as a differential diagnosis in emergency patients with flank pain, especially those with a history of urolithiasis and no response to analgesic drugs.

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Conflicts of interest

There are no conflicts of interest.

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