Spontaneous Perirenal Urinoma Associated with Ureteropelvic Junction Obstruction in a Child: A Case Report

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We report a case of a 10-year-old Taiwanese boy with a perinephric urinoma, whose health had previously been good, but who experienced a sudden onset of severe left flank pain. Radiological examination revealed ureteropelvic junction obstruction with grade IV hydroureter. Percutaneous drainage was performed successfully to relieve these symptoms. Urinoma is a rare complication of congenital obstruction of the urinary tract, and it occurs most commonly following renal trauma.

1. Introduction

Perirenal urine extravasation, also known as urinoma, refers to an encapsulated collection of extravasated urine in the perirenal or pararenal space. Urinoma occurs most commonly following renal trauma. Perforation of the collecting system during an endosurgical procedure is also a frequent cause of urinoma. In rare cases, urinomas are caused by congenital obstruction of the urinary tract. Here, we report a case of a 10-year-old boy with spontaneous perinephric urinomas secondary to a left ureteropelvic junction obstruction (UPJ-O).

2. Case Report

A 10-year-old Taiwanese boy with no history of surgery, blunt abdominal injury, or severe flank pain, presented to our emergency department complaining of a sudden onset of severe left flank pain with vomiting since the previous night. Physical examination showed knocking tenderness over the left costovertebral angle. The complete blood count revealed a white blood cell count of $1.74 \times 10^3$/mm$^3$ with 82.9% neutrophils, 4.8% lymphocytes, and 2.3% monocytes; a hemoglobin level of 12.2 g/dL; a hematocrit level of 37.5%; and a platelet count of $335 \times 10^3$/mm$^3$. The C-reactive protein (CRP) level was <0.1 mg/dL, blood urea nitrogen was 13 mg/dL, and creatinine was 0.5 mg/dL. The findings of the urine analysis were as follows: leukocyte count, 0–1/high-power field (HPF); erythrocyte count, 6–7/HPF; nitrite (–); leukocyte esterase (+/–); protein (–); and occult blood (–). The plain abdominal radiograph showed an intestinal ileus. A renal ultrasonogram revealed grade IV hydronephrosis (Figure 1). The abdominal computed tomography (CT) scan revealed...
Figure 1  Ultrasonogram of the left kidney reveals significant pelviectasis and caliectasis with distorted parenchyma (A) and fluid accumulation over the perirenal space (B). *Renal parenchyma, †renal calyx, ‡renal pelvis, §fluid accumulation.

Figure 2  A series of abdominal CT scans reveals dilated extrarenal pelvis, marked hydronephrosis over left kidney, UPJ-O, and fluid accumulation over left perirenal space. *Fluid accumulation (A), †extrarenal pelvis (B), ‡renal pelvis (C), ureteral pelvic junction (arrow) (D). CT=computed tomography; UPJ-O=ureteropelvic junction obstruction.
marked hydronephrosis over the left kidney and UPJ-O with urinoma and fluid accumulation over the left perirenal space (Figure 2). A percutaneous nephrostomy (PCN) was performed after the CT scan, and a pigtail was installed over the left renal pelvis for continual drainage. The drained fluid was similar to the patient’s urine: leukocyte count, 2–3/HPF; erythrocyte count, 3–5/HPF; protein (−); and glucose (−). Pyelonephritis was excluded because of the absence of pathogen growth in culture. On the fourth day of pigtail drainage, the left flank pain was relieved and an antegrade pyelogram through the tube revealed hydronephrosis and stenosis over the UPJ; furthermore, the contrast medium had gradually moved to the bladder, but there was no extravasation of the contrast in the perirenal space (Figure 3). The patient underwent ureterolysis and ureteropyeloplasty, and left side UPJ-O and hydronephrosis were noted. Finally, a 4.7Fr. 16cm double-J ureteral stent was left in place. The ureteral biopsy revealed focal fibrotic changes of the ureteral tissue. The double-J stent was removed about 6 weeks later.

3. Discussion

Urinomas are common after renal trauma or perforation of the collecting system during an endosurgical procedure. Perirenal urine extravasation is a rare complication of congenital obstruction of the urinary tract. In more than 70% of cases, perirenal urinomas and urinary ascites are associated with the posterior urethral valves. Other reported pathologies are UPJ-O, ureteral valves, ureterocele, urethral atresia, bladder neck obstruction in conjunction with reflux, and sometimes without any evidence of obstructive uropathy.

UPJ-O is the most common obstructive lesion in childhood, and congenital abnormalities are the most common cause of this condition in young children. In older children, UPJ-O may be caused by compression of the ureter, inflammation, retroperitoneal fibrosis, kidney stones, or scar tissue from previous surgery to correct the UPJ-O.

Our patient had no history of renal trauma; he had not undergone any surgical procedure in the
past, and he had no history of urinary tract infection or renal stones. The urinoma may have been spontaneous and secondary to congenital UPJ-O as a result of increased transmitted back pressure or renal intrapelvic pressure,\textsuperscript{4,5} but the actual cause of his condition remains unclear. Over 90% of patients with urinoma due to obstructive uropathy are successfully treated by percutaneous drainage to relieve the obstruction.\textsuperscript{6} Our patient’s symptoms were also relieved by percutaneous nephrostomy drainage. Children who are symptomatic with UPJ-O usually require surgical intervention. If the radiographic evaluation reveals hydronephrosis during pain and resolution of the dilatation when symptoms subside, pyeloplasty is performed to relieve the intermittent obstruction.\textsuperscript{7} In our patient, the antegrade pyelogram revealed marked hydronephrosis, UPJ-O, and poor contrast drainage. Although the symptoms were relieved by PCN drainage, they were indicative of severe UPJ-O. Surgical repair was indicated to prevent recurrence of urinoma and advanced renal damage.

References

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