

Spontaneous pelvic rupture in a case of hydronephrosis due to PUJ obstruction: A rare complication in a pediatric patient

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Abstract

Urinoma formation is a rare complication of obstructive uropathy. Few cases of urinoma formation have been reported in adults as a complication of urinary tract calculus or malignancy. We are presenting a case in a child who had urinoma formation following spontaneous rupture of pelvis.

Keywords

Pelviureteric junction obstruction; hydronephrosis; urinoma; forniceal rupture; pyeloplasty.

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Introduction

Urine extravasation in the perinephric space following spontaneous rupture is an uncommon pathologic condition. It is usually associated with ureteral obstruction by calculi [1,2]. Neoplasms, trauma, and iatrogenic procedure have been associated rarely with this complication [1-3]. We report a case of renal pelvis rupture with

perirenal extravasation of urine, in a child of hydronephrosis secondary to pelviureteric junction obstruction (PUJO). Diagnosis, treatment, follow-up and relevant literature is discussed.

Case Reports

8 years old male child presented with severe colicky pain in left flank and intermittent fever for 10 days. Pain was associated with nausea and non-bilious vomiting. Patient had history of intermittent episodes of pain in left flank for last 2 years. No other significant medical complaints were present.

Examination revealed tachycardia, low grade fever, tenderness in the left flank. A lump was palpable in left flank of size 8 x 5 cm [Fig. 1].



Fig. 1. Renal lump on left side.

Left renal angle was full. Rest of abdominal examination was normal. Hemogram, renal function tests, serum electrolytes, urine routine and culture examination were normal. Patient was given injectable antibiotics. Ultrasound (USG) revealed Left Kidney size 10.6 x 5.2 cm, pelvis anteroposterior (AP) diameter 4 cm, left side severe hydronephrosis with thinned out renal parenchyma and left side perinephric anechoic collection. No internal echoes found. Right Kidney, bilateral ureters and bladder were normal. Intravenous urography [Fig 2] showed left hydronephrosis with

narrowing at the left PUJ (extra renal pelvis) with delayed excretion of the dye on the left side with preserved renal cortex.



Fig. 2. Intravenous urography showing left hydronephrosis with narrowing at the left PUJ (extra renal pelvis) with delayed excretion of the dye on the left side with preserved renal cortex. Extravasation of dye conforming the contour of the renal capsule medially towards the hilum. Normal function seen on the right side.

Extravasation of dye found conforming the contour of the renal capsule medially towards the hilum. Normal function seen on the right side. Computed tomography revealed severe left PUJO with extra renal pelvis- 5.0 cm in AP diameter. Hypodense septate collection found in the left

perinephric space extending to the iliac fossa with rent in the posterior aspect of the pelvis [Fig. 3].



Fig. 3. Computed tomography showing severe left PUJ obstruction with extra renal pelvis, hypodense septate collection in the left perinephric space extending to the iliac fossa with rent in the posterior aspect of the pelvis.

DTPA renal scan done for renal function evaluation. It showed normal function on the right side with definite evidence of left PUJO and poor excretion of tracer even after administration of diuretic [Fig. 4]. Left kidney: GFR 45.5 ml/min, differential function 43.6%. Right kidney: GFR 58.9 ml/min, differential function 56.4%.

With this work-up patient was posted for exploration through left flank incision. Retroperitoneum entered, Gerotas fascia opened, perinephric collection was found and drained.

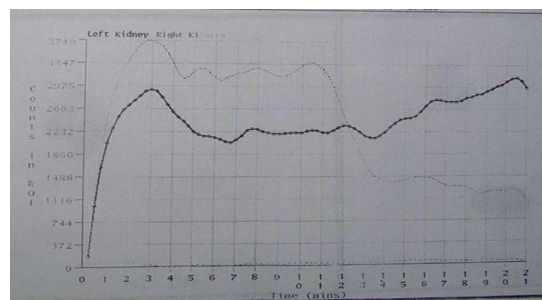


Fig. 4. DTPA renal scan showing normal function on the right side with definite evidence of left PUJ obstruction and poor excretion of tracer even after administration of diuretic.

Left kidney was found to have thin parenchyma and a rent measuring about 6 mm found in posterior aspect of pelvis near hilum of kidney. Modified Anderson-Hyne's dismembered pyeloplasty was done and transanastomotic double J (DJ) stent kept [Fig. 5].

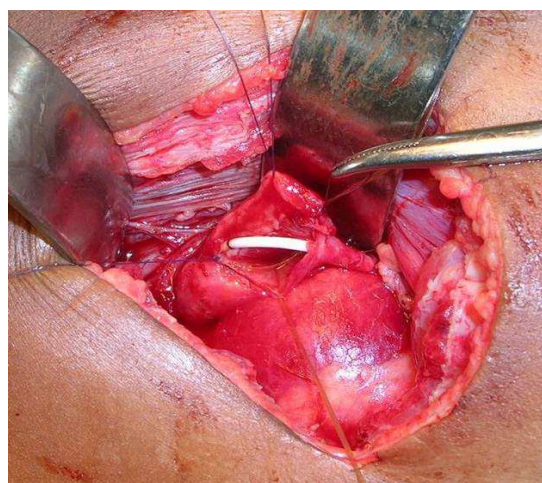


Fig. 5. Intra-op photo showing modified Anderson-Hyne's dismembered pyeloplasty with transanastomotic double J (DJ) stent placement.

Discussion

PUJO is by far the most common cause of pediatric hydronephrosis. Predominant clinical presentations included pain, urinary tract infection, abdominal mass, and hematuria. Diagnosis may also be incidental or antenatal. Urinary tract infections in infants and hematuria by trivial trauma in older children are the most common presentations. Urinoma formation due to forniceal rupture is a rare presentation of PUJO more so in older children.

Disruption of the urinary collecting system at any level from the calix to the urethra results in urine extravasation. Trauma is by far the commonest cause of renal urine leaks [4,5]. Stone, pelvic mass, pregnancy, retroperitoneal fibrosis, or posterior urethral valves can increase intraluminal pressure and cause rupture of the collecting system usually at fornix. Rarely, iatrogenic injury causes renal urine leak [6-10]. Urine extravasation may have clinically benign presentation or lead to acute abdomen symptoms. Urine extravasation may cause complications like paralytic ileus, dyselectrolytemia, or abscess formation

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[4,11]. Initial evaluation of urinary system includes plain X-ray study of the abdomen, serial USG, and color duplex Doppler USG. Plain film of the abdomen may show a ground glass opacity, loss of psoas shadow, stone and signs of paralytic ileus. Intravenous pyelograms and computed tomography with delayed images (obtained 5–20 min after contrast medium injection) are diagnostic showing contrast medium extravasation in the peripelvic, perinephric, or retroperitoneal spaces [4,10]. The treatment depends upon the cause of urinary extravasation. In our case ultrasonographic examination showed fluid in the perirenal and pararenal space. CT scan showed renal pelvis rupture. Patient was treated successfully with pyeloplasty.

In conclusion any patient of moderate to gross hydronephrosis with signs of acute abdomen should be suspected of urine leak. Prompt evaluation and appropriate treatment have good final outcome.

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