

Parapelvic cyst- an unusual cause of pelviureteric obstruction with laparoscopic management of the same

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Abstract

Pelviureteric junction obstruction can be attributed to intrinsic and extrinsic pathologies. We report an unusual cause of pelviureteric junction obstruction due to a large parapelvic cyst. The patient presented with intermittent flank pain. The diagnosis was arrived at following imaging. The cyst was managed by laparoscopic deroofting.

INTRODUCTION

Pelviureteric junction obstruction can be attributed to intrinsic and extrinsic pathologies.^[1] Intrinsic neuromuscular dysfunction is more frequently encountered than extrinsic abnormalities. The most common extrinsic pathology reported is a lower pole crossing vessel.^[2] Uncommonly, parapelvic cyst may be an extrinsic cause of pelviureteric junction obstruction. We narrate a case of large parapelvic cyst obstructing the pelvicalyceal system and manifesting as intermittent flank pain. The definitive treatment was attempted by laparoscopic approach.

CASE REPORT

A 65 year old female presented with intermittent left flank pain for last 6 months. There were no urinary symptoms or fever. There were no co-morbidities. On initial evaluation her vitals were stable. Abdominal and systemic evaluation was normal. Blood parameters including renal function and urinalysis were normal. Ultrasound scan was suggestive of large left renal cyst and multiple small left pelvic calculi. CT urogram (Fig.1 and 2) demonstrated a large left parapelvic cyst (dimensions- 12.5×7.5 centimeters) with stretching of the left pelvis and calyces and few small secondary calculi, largest 8 millimeters (mm).

Figure 1

Fig.1. CT Urogram: Parapelvic cyst obstructing left pelvicalyceal system.

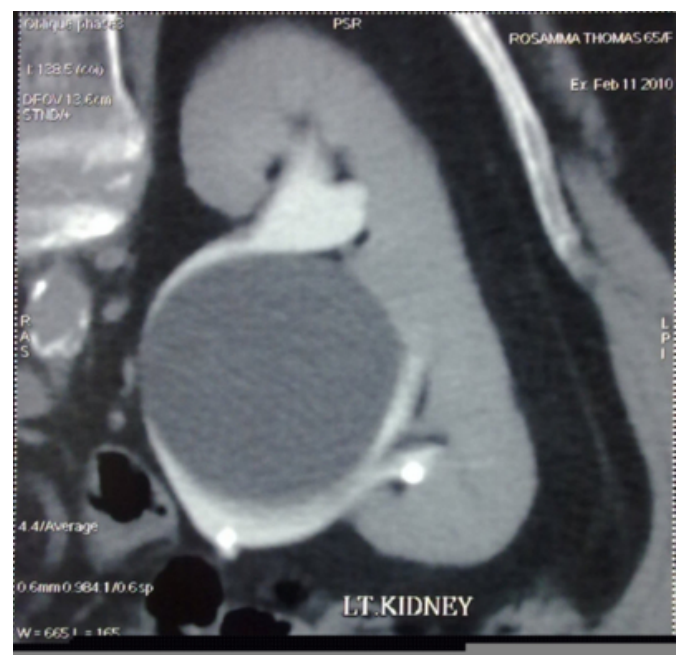
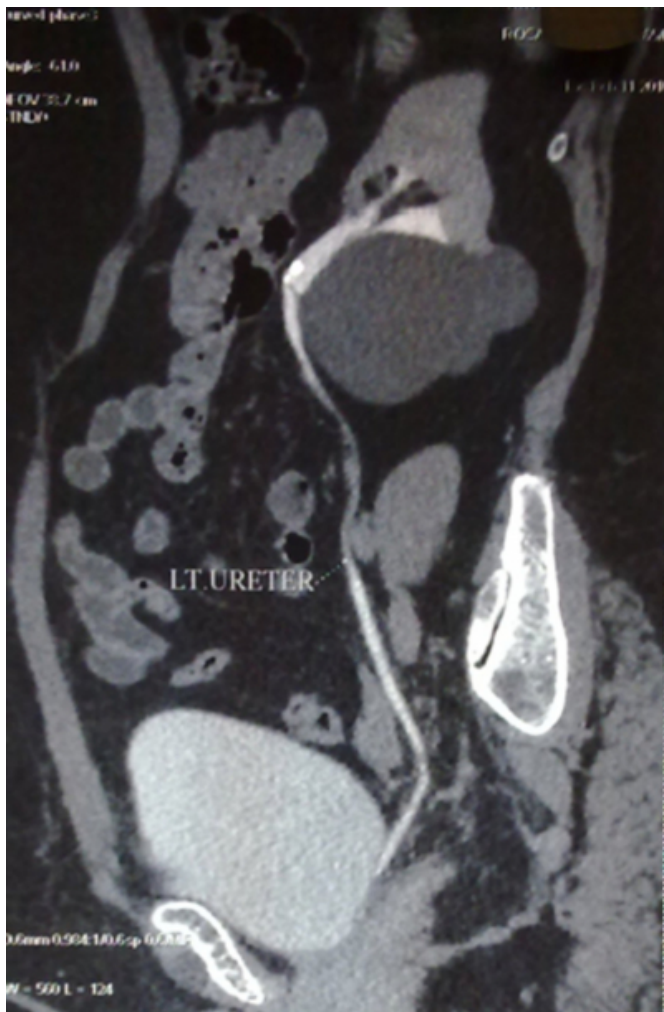


Figure 2

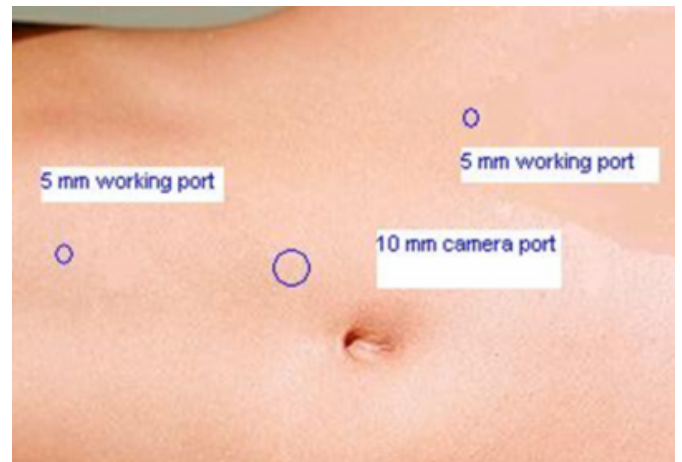
Fig.2. CT urogram showing large cyst stretching the left ureter with radioopaque calculi.



The patient was planned for laparoscopic cyst deroofing. Peglec bowel preparation was ordered preoperatively. A single dose of intravenous antibiotic was administered at induction. A 6F ureteric catheter was guided to the left renal pelvis via cystoscopy at commencement of surgery. She was then positioned in right lateral decubitus with padding of pressure points. Three ports were inserted (Fig.3): one-10 mm port for laparoscopic camera usage about 2.5 cm above and 3.5 cm left of the umbilicus, one- 5 mm working port midway between umbilicus and left iliac spine and one-5mm working port at left hypochondrium along the left midclavicular line.

Figure 3

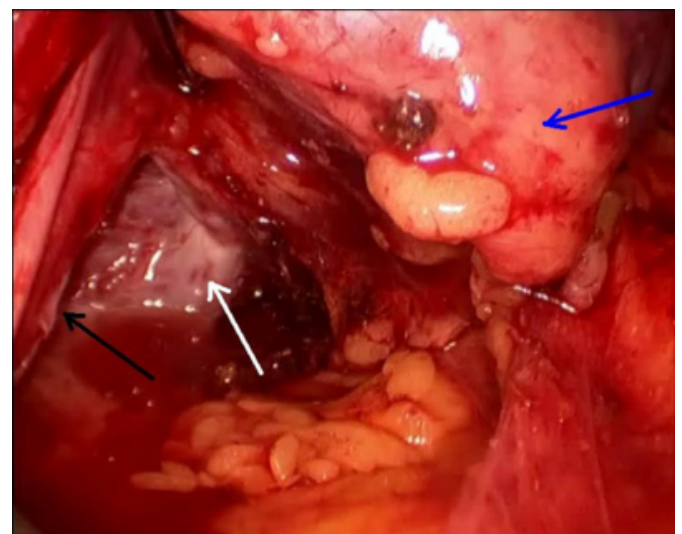
Fig.3. Port positions in right lateral decubitus.



Instruments used were 10 mm 0 degree and 30 degree telescope, 5 mm harmonic shears, 5 mm hook with electrocautery attachment, 5 mm curved dissector and 5 mm atraumatic grasper. The left colon was reflected medially along the line of Toldt. Following this the Gerota's fascia was incised. A plane was created between the lower pole of the left kidney and overlying Gerota's fascia using harmonic shears. The cyst was then visualised posterior to the lower pole extending till the posterior aspect of the pelvis. The left ureter was identified and traced towards the renal pelvis. The upper ureter and the pelviureteric junction were stretched over the cyst wall. The cyst was deroofed (Fig.4).

Figure 4

Fig.4. Intraoperative image: Blue arrow pointing to lower pole of left kidney, white arrow pointing to the cyst wall and black arrow pointing to ureter.



The cyst content was clear fluid. The cyst fluid was drained

completely. The cyst wall was excised and sent for histopathological examination. On retrograde methylene blue irrigation no obvious communication between the cyst wall and the renal pelvis was discernible. The residual cyst cavity was packed with omentum. Through one five mm working port, a drain was directed in the vicinity of the deroofed cyst and the ports were closed. Subsequently, the ureteric catheter was replaced by a 6F double pigtail ureteral stent via cystoscope guidance. The blood loss was 100 ml. The patient resumed oral intake by six hours. The drain and catheter was removed on the first postoperative day. The total postoperative analgesic requirement was 1000 gm of paracetamol. She was sent home by the third post operative day morning. Histopathological evaluation of cyst wall revealed a benign etiology. A revisit was scheduled at 6 weeks postoperatively. Patient reported 2 episodes of lithuria in this interval period. A repeat skiagram of the kidney at this review confirmed clearance of all secondary calculi. The ureteral stent was removed subsequently. At seven months follow-up she is asymptomatic with normal renal parameters. Repeat imaging demonstrated a non-dilated pelvicalyceal system with no radiodensities and good drainage pattern.

DISCUSSION

Parapelvic cyst, also known as renal sinus cyst, is encountered uncommonly in clinical practice.^[3] It is extraparenchymal and originates in the hilus of the kidney in close proximity to the pelvis and major calyces.^[3] The cyst is hypothesized to be lymphatic in origin with no communication to the pelvicalyceal system.^[4] Although asymptomatic on most occasions, it may be associated with hematuria, hypertension, hydronephrosis or become infected.^[5,6] Our patient complained of intermittent left flank pain. Although the history favored the diagnosis of renal lithiasis, the ultimate pathology detected was a parapelvic cyst causing extrinsic compression to the left pelvis. The diagnosis of parapelvic cyst relies on imaging. Ultrasound imaging reveals centrally located cysts that may be mistaken as pelvicalyceal dilatation.^[7] Although a difference in the ultrasound appearance of hydronephrosis and that of a parapelvic cyst has been mentioned, this has not been observed consistently. Hence a CT scan is often relied on for identification of the correct pathology. On non-enhanced CT scan, the cyst appearance may be mistaken for a renal sinus mass lesion. Contrast enhanced CT scan delineates the cyst and yields definitive diagnosis. Symptomatic or complicated parapelvic cysts mandate corrective intervention. Our patient

was symptomatic and imaging revealed extrinsic pelviureteric obstruction with secondary calculi. The constellation of findings mandated correction of parapelvic cyst. An array of options has been in vogue for the management of parapelvic cyst. Percutaneous aspiration of parapelvic cysts has been condemned in view of grave complications like retroperitoneal leakage of sclerosant and perirenal inflammation.^[8] Percutaneous nephroscopy guided resection and retrograde ureteroscopic resection are widely accepted treatment options^[9] although they may be limited by the size and location of the cyst. Laparoscopic management has been sparsely reported and apprehended in literature because of extensive dissection and technical difficulty.^[8] However in this case laparoscopic deroofing could be conducted without much difficulty and it may certainly be considered a standard of care for managing such anteriorly located cysts. Apart from rendering definitive correction, it also brings forth advantages inherent to a minimally invasive approach namely enhanced cosmesis, decreased postoperative analgesic demand, shorter hospital stay and early return to work. Retroperitoneoscopic deroofing of parapelvic cysts has also been reported^[10] but transperitoneal approach enables wider working space, familiar anatomy and more comfort.

CONCLUSION

Parapelvic cyst is an unusual cause of extrinsic obstruction of pelviureteric system. It may be conveniently managed through minimally invasive approaches. Contrary to the belief, transperitoneal laparoscopic deroofing is not technically demanding and renders additional gains like minimal morbidity, shorter convalescence period and good cosmetic outcome.

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