Para-pelvic cyst-an unusual cause of pelviureteric obstruction in a malrotated kidney

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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 in a malrotated kidney. The patient presented with intermittent flank pain. The diagnosis was arrived at following imaging. The cyst was managed by open surgery.

Introduction

Intrinsic and extrinsic pathologies of the renal system may be related to pelviureteric junction obstruction. Intrinsic neuromuscular dysfunction is more than extrinsic abnormalities. The most common extrinsic pathology reported is lower pole crossing vessel. Uncommonly, parapelvic cyst may be an extrinsic cause of pelviureteric junction obstruction. We narrate a case of large right parapelvic cyst obstructing the pelvicalyceal system and manifesting as flank pain. The definitive treatment was attempted by open surgery.

Case report

A 50 years old female with no known comorbid presented with intermittent right flank pain for last 3 months. There were no urinary symptoms or fever. On initial evaluation her vitals were stable. Physical examination was unremarkable. Hematological investigations including renal function and urinalysis were within normal limits. Ultrasound scan was suggestive of large right renal cyst and moderate hydronephrosis. CT KUB plain (Figs. 1 and 2) demonstrated malrotated right kidney with a large right parapelvic cyst (dimensions- 5.9 × 7.6 cm) with moderate dilatation of pelvicalyceal system and ballooning of renal pelvis and abrupt cut off at the level of pelvi-ureteric junction. Renal scan was performed for evaluation of renal function. It showed a right suboptimal functioning hydronephrotic kidney with outflow obstruction and a left well-functioning kidney.

The case was discussed in multidisciplinary team meeting and it was decided to perform an open exploration for cyst excision since it’s a malrotated kidney. Patient positioned in left lateral position. Incision given superior to the 12th rib, skin and fascia incised, muscles dissected and Gerota's fascia opened. Kidney mobilized and ureter identified. Huge right parapelvic cyst approximately 7cm in size was compressing whole of the renal pelvis resulting in pelviureteric junction obstruction [Fig. 3]. Renal parapelvic cyst was not communicating with the pelvicalyceal system. Renal cyst excision was performed carefully and sent for histopathological examination. Its margins were marsupialized with renal capsule.

The residual cyst cavity was packed with perinephric fat. The blood loss was approximately 200 ml. The patient resumed oral intake by 6 h. The drain and catheter was removed on the first postoperative day. The postoperative analgesic requirement were paracetamol and tramadol. She was discharged on the third post-operative day. Histopathological evaluation of cyst wall revealed a benign etiology. A revisit was scheduled at 4 weeks postoperatively. Patient complained of mild pain at the operative site in this interval period. At three months’ follow-up she is asymptomatic with normal renal parameters. Repeat imaging demonstrated a non-dilated pelvicalyceal system and good drainage pattern.

Discussion

Parapelvic cyst is encountered uncommonly in clinical practice. It is extra parenchymal and originates in the hilum of the kidney in close proximity to the pelvis and major calyces. The cyst is hypothesized to be

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lymphatic in origin with no communication to the pelvicalyceal system. Although asymptomatic on most occasions, it may be associated with hematuria, hypertension, hydronephrosis or become infected. Our patient complained of intermittent right flank pain. The ultimate pathology detected was a parapelvic cyst causing extrinsic compression to the right pelvis. The diagnosis of parapelvic cyst relies on imaging. Ultrasound imaging reveals centrally located cysts that may be mistaken as pelvicalyceal dilatation. 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. 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 and recurrence rate is 22.8%–30%.\(^1\) Percutaneous nephroscopy guided resection and retrograde ureteroscopic resection are widely accepted treatment options\(^2\) 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.\(^1\) Percutaneous ureteroscopy laser unroofing is an effective and less invasive alternative for treatment of renal cysts in selected patients. It is significantly less invasive approach, needs only one port, more comfortable for the patient.

However, in this case with malrotation laparoscopic deroofing should be considered as well in near future as 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\(^3\) but transperitoneal approach

Fig. 1. CT KUB (axial sections) showing right PUJ obstruction with moderate hydronephrosis.

Fig. 2. CT KUB (coronal section) showing right upper ureter is pulled upwards due to the parapelvic cyst.

Fig. 3. Intraoperative: Blue arrow point towards the parapelvic cyst. Yellow towards ureter. Green towards the PUJ obstruction caused by the parapelvic cyst. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)
enables wider working space, familiar anatomy and more comfort.

**Conclusion**

A rare cause of extrinsic obstruction of pelvic system is the parapelvic cyst. It can be easily managed by minimally invasive procedures. Transperitoneal laparoscopic deroofing is not technically challenging and produces additional benefits such as reduced morbidity, good cosmesis and short convalescence time.

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