Large stone in crossed unfused ectopic kidney with totally intrarenal pelvis

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Accepted 9 April 2014

DESCRIPTION

A 35-year-old man with no significant medical history presented with an 8-month history of dull pain in his right-lower abdomen. There was no relevant family history. Intravenous urography (IVU) was performed in a peripheral hospital (figure 1A–C) and showed a normal right kidney and an ectopic left kidney (at the L4–L5 level right to midline) with a 25 mm pelvic stone. We further performed CT urogram for complete anatomical details (figure 1D, E) and found a left-crossed renal ectopia (RE) with pelvic calculi and good contrast uptake and excretion by both kidneys, left ureter not excreted due to stone. Retrograde ureteropyelogram (figure 2A–C) delineated a normal calibre of the left ureter which crossed from the left to right side. In

view of large stone burden, we opted for laparoscopic pyelolithotomy (figure 3A). Intraoperatively, there was a totally intrarenal pelvis and we found difficulty in progression (figure 3B), so the procedure was converted to open surgery and the stone was removed by extended pyelolithotomy (figure 3C).

RE is an unusual condition.¹ Birmole *et al* mentioned that crossed RE was first described by Pannorlus in 1654.² It is a very uncommon condition and more than 90% are fused.³ Its coexistence with nephrolithiasis is even rarer. Nephrolithiasis in crossed unfused RE with totally intrarenal pelvis have not been reported to the best of our knowledge. CT urography is the gold standard for stones in normal as well as in anomalous renal excretory systems and IVU should not be performed.

Figure 1 (A) X-ray of the kidneys, ureters, bladder showing radio-opaque shadow at the L4–L5 level, just above the right iliac crest. (B) Intravenous urography (IVU) at 15 min showing normal position of the right kidney and ectopic left kidney (at the L4–L5 level just medial to the right ureter). (C) IVU at 1 h delineating anatomy and function of both kidneys. (D) CT urogram demonstrating left crossed ectopia without fusion and good contrast uptake and excretion by both kidneys, left ureter not excreted due to stone. (E) Contrast CT showing stone in intrarenal pelvis of the ectopic kidney.

To cite: Prakash J, Swami V, Singh BP, *et al*. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-200713

Figure 2 (A) Fluoroscopic image taken before retrograde contrast study showing guide wire and stone in the left ectopic kidney. (B) Retrograde ureterography through left ureteric orifice showing crossing of ureter from the left to the right side. (C) Retrograde contrast study showing the pelvicalyceal system of the ectopic kidney.

Figure 3 (A) Laparoscopic picture showing left ectopic kidney with ureter (thin arrow) just medial-to-right ureter (thick arrow). (B) Laparoscopic picture showing entry of left ureter into the kidney (pelvis is not seen). (C) Picture showing opened pelvis with JJ stent in situ after open pyelolithotomy.

RE has an increased susceptibility for urinary tract infections and urolithiasis.⁴ Nephrolithiasis associated with RE could be treated by shock wave lithotripsy or various endourological and laparoscopic procedures depending on the size and location of stones.^{5–8} However, an anomalous location associated with a totally intrarenal pelvis poses a different surgical challenge and one should be ready for open conversion because laparoscopic approach may be difficult and non-progressive.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

Learning points

- ▶ Renal ectopia is an unusual condition.
- ▶ Nephrolithiasis in ectopic kidney can be treated conservatively or with shock-wave lithotripsy, ureteroscopy, percutaneous nephrolithotomy, laparoscopic-guided percutaneous nephrolithotomy and laparoscopic pyelolithotomy depending on the size and location of stones.
- ▶ Renal ectopia with totally intrarenal pelvis poses a different surgical challenge and one should be ready for open conversion because laparoscopic approach may be difficult and non-progressive.

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