

## Endourology

## Open pyelolithotomy in an ectopic kidney: A case report

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## ABSTRACT

Renal ectopia with stone is a rare case with no specific reported incidence rate. The treatment of kidney stone in ectopic kidneys poses a challenge to urologists. A 48-year-old male presenting with colicky pain on the right flank since one year ago. CT urography revealed an right-crossed renal ectopia and hyperdense lesions (25 × 20 mm and 10 × 10 mm) in the ureteropelvic junction of the right kidney. Under general anesthesia, we performed open pyelolithotomy for the patient and removed two stones completely. Open surgery could be the choice for patients with complex stone burden and associated renal anomalies such as ectopic kidney.

## Introduction

Renal ectopia with stone is a rare case with no specific reported incidence rate. The treatment of kidney stone in ectopic kidneys poses a challenge to urologists.<sup>1</sup> Open pyelolithotomy, laparoscopic assisted percutaneous nephrolithotomy; laparoscopic pyelolithotomy, robot-assisted laparoscopic pyelolithotomy, and shock-wave lithotripsy have an important role for ectopic kidney calculi management.<sup>2</sup> We, herein describe a case of an open pyelolithotomy in an ectopic kidney; in this case, we use lumbotomy incision with minimal bleeding.

## Case report

A 48-year-old male came with colicky pain in the right flank that worsen since the last one month. Pain have been felt since one year ago with no aggravating or relieving factor. Physical examination showed non-distended, non-tender abdomen which was soft with bowel sounds and no abdominal mass or lump could be palpated. Urine examination was normal and urine culture was sterile. Renal function test was slightly increase. Plain X-ray of the abdomen revealed an elliptical, smooth, radio-opaque shadow in the lower abdomen in the midline. CT urography reveals a right-crossed renal ectopia and hyperdense lesions of calcific attenuation of size 25 mm × 20 mm and 10 mm × 10 mm seen in the uretero pelvic junction of the right kidney (Fig. 1).

After initiating general anesthesia, the patient was maintained in a lumbotomy position. Using transverse incision retroperitoneal space was approached. Gerota fascia was identified and incised, showing an

ectopic kidney. Ureter was identified and traced upwards till renal-pelvis in the anterior. Pyelum was incised in linier manner, two stones were present in the renal pelvis and were removed (Fig. 2). DJ stent could be palpated in the bladder itself. Pyelum was closed using 4-0 Vicryl. An abdominal drain was placed in the retroperitoneum and the surgical incision was closed layer by layer. The urethral catheter was removed on the 3rd day and the abdominal drain, 4th day after surgery. Patient was discharged on the 8th day after surgery. An evaluation X-ray KUB showed DJ stent in-situ with an advice to review after 15 days from discharge for DJ stent removal.

## Discussion

Due to the availability of the equipment, expertise and experience in surgical treatment of urinary stones, most urological centers worldwide report a need for open surgery in only 1–5.4% of the cases. In 2000, only 2% of the medicare patients undergoing a stone-removing procedure in the USA were treated with open surgery. Moreover, tertiary medical centers are reporting that open surgery is used in less than 1% of stone patients. In the UK the frequency of Open Renal Stone Surgery (ORSS) was reported to be 1% in 2006.<sup>3</sup>

In developing countries open pyelolithotomy rate is considerably higher. In a Chinese study published in 2009 the rate of open pyelolithotomy was reported to be 7.4%, while Zargooshi found an incidence of 14% when reviewing a series of cases of open stone surgery in children over a 10-year period in Iran. In Pakistan, Rizvi et al. even reported a rate as high as 30% for open pyelolithotomy in pediatric patients.<sup>3,4</sup>

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There are factors that responsible for the frequent use of open stone surgery in developing countries; later presentation and, therefore, more complex cases with an increased stone burden, unavailability of equipment for non-invasive and minimally invasive techniques and the last increased emphasis on the cost (which is borne, at least in part, by the patient) and the consequent desire for a single procedure. Due to these limiting factors, open stone surgery remains a viable option in the developing countries for some cases.<sup>1</sup>

According to European Association of Urology (EAU) guidelines, percutaneous nephrolithotomy (PCNL) and shock wave lithotripsy (SWL) are the first choice in kidney stones management. But there are a number of circumstances that make open surgery an option, for example stone cases in ectopic kidney. In a systematic review carried out by Lavan et al., PCNL has a higher stone clearance rates compared to SWL, but with a higher risk of complications.<sup>5</sup>

In this patient, we decided to perform open surgery because of the size of stone (25 × 20mm and 10 mm × 10 mm) and anomaly of the kidney (ectopic kidney). Thus, make it complex stone burden. The procedure lasted 75 minutes and the blood loss was around 50 cc. There was no major complication during and after the procedure.

Previous reports on complications of open surgery showed a high variability, especially when comparing endourological and open surgical procedures. In one study the post-operative complication rate after open surgery was 8% with the complications mainly consisting of bleeding and wound infection. Other studies mention overall complication rates of 10–20%.<sup>2</sup>

In our experience, after procedure, patient stayed for eight days before discharge. Patient experienced post-operative pain. Visual Analog Scale (VAS) score was 5 in the first day after the procedure and gradually decreases until 3 in the third day. Pain was managed using non



Fig. 2. Photograph showing the retrieved stone.

steroidal anti-inflammatory drug. Superficial wound infection also happens in patient but managed by daily wound dressing and broad-spectrum antibiotic. On day four, drainage was removed, the product was less than 20 ml/24hours.

**Conclusion**

Nowadays, the treatment of choice for renal stones is the use of minimally invasive therapies. The high rate of complications of open

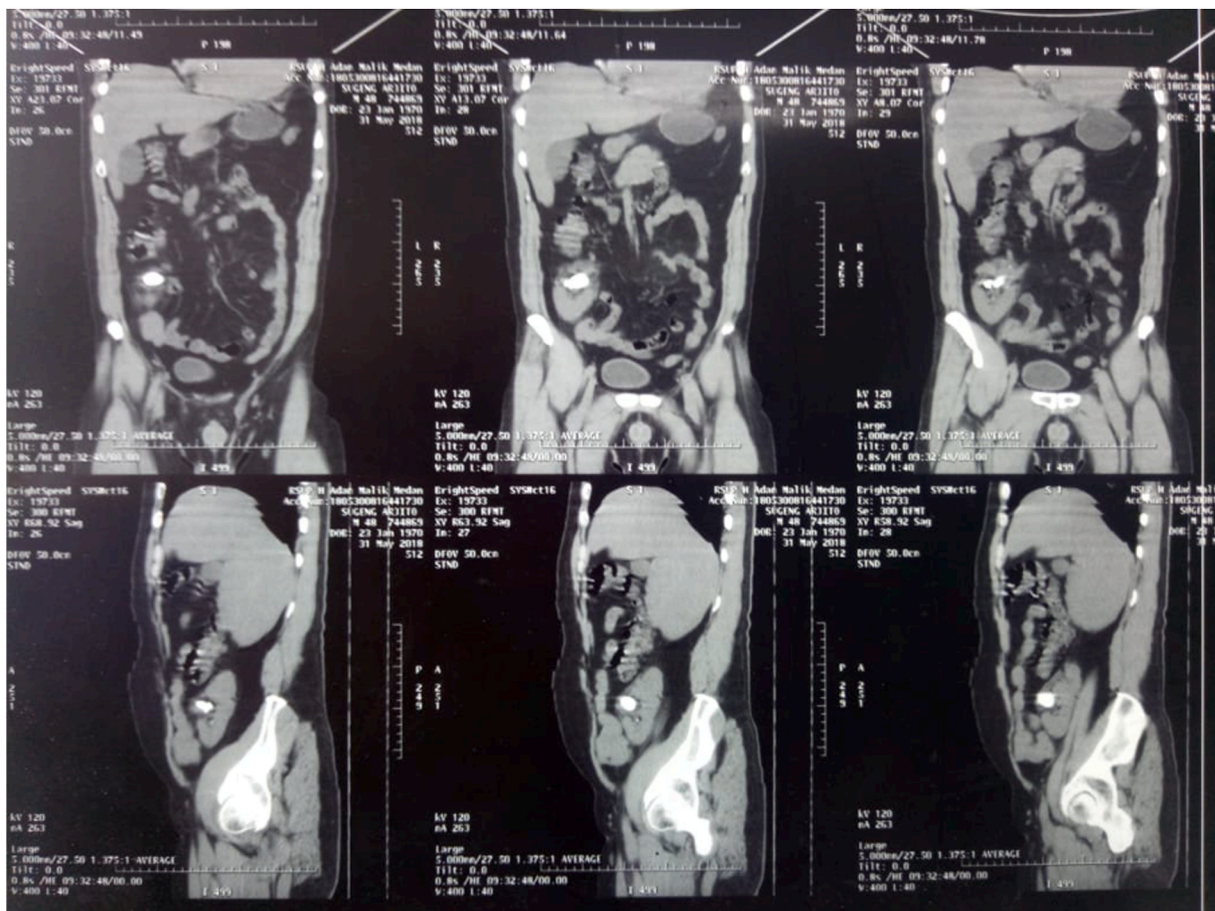


Fig. 1. NCCT showing an ectopic right kidney with the stone lying in the pelvis.

pyelolithotomy of patients coupled with the negative impact on renal function and prolonged hospital stay are against its use as a viable treatment option of renal stones. Open stone surgery has to be limited to selected patients with a complex stone burden associated renal anomalies.

#### Declaration of competing interest

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