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Using Flexible Scope Technology in Management of Renal Stone in Congenital Malrotated and Malpositioned Kidney

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Abstract

Surgical treatment of stone disease has evolved through generations of research and usage of various engineering models. Now at present we have many technological advances in the field of EndoUrological Management of Stone disease at our disposal. Many of these advances has come as a boon to treat various cases of challenging stone situations.

Keywords: EndoUrological; Anomalous Kidneys with Stone disease; Ectopic kidneys (EK)

Introduction

Surgical treatment of stone disease has evolved through generations of research and usage of various engineering models. Now at present we have many technological advances in the field of EndoUrological Management of Stone disease at our disposal. Many of these advances has come as a boon to treat various cases of challenging stone situations. We describe one such challenging condition where surgical treatment of stone disease is always met with unexpected complications, which is Anomalous Kidneys with Stone disease. commonest renal anomaly is the horseshoe kidney (HSK) with an incidence of 1 in 400, ectopic kidneys (EK) are reported with an incidence of 1 in 3000, with the incidence of isolated malrotation (MR) less widely reported. Crossed unfused ectopia constitutes a very rare variant of ectopic kidneys, with an approximate incidence of 1: 75000. We hereby describe a rare case of an incidental finding of crossed unfused ectopic kidneys, in a 33-year-old gentleman presenting with lower abdominal pain.

Case

AA 33-year-old Bangladeshi gentleman presented to us with dull aching pain in the lower abdomen and more on the right lower quadrant for the past 10 days. There was history of dysuria and hematuria. Clinical examination showed soft and non-distended abdomen with no tenderness, no palpable mass or organomegaly with intact hernial orifices. External genitalia examination revealed normal study. Investigations showed Haemoglobin of 14.7 gm%, S. Creatine101mmol/L. WBC counts 9850 cell/cmm and Urine analysis shows – 35 pus cells, RBC 45-60. USG revealed absent left kidney and noted to be malpositioned and malrotated in the right side of the pelvis with calculus of 23mm size.

Pre-Operative Images

Operation performed: Cystoscopy + Left Double J stenting followed by Interval of 2 weeks later underwent Stent removal + Flexible Ureteroscopy + laser Lithotripsy + Double j stenting

Procedure highlights: Entire Left Ureter coursing medially and onto the right of the midline posterior to bladder. Dilated Pelvis with Large partial staghorn calculus with extension into the upper pole.

Intra Operative findings: Postoperative recovery was uneventful. Patient improved well. Foleys catheter removal done on 1st day.

Discussion

Anomalous kidneys arise from different abnormalities in the embryological development. These may relate to abnormal

ascent, fusion, rotation or a combination of these. These anatomical anomalies not only lead to compromised renal drainage, but also increase the risk of urolithiasis. Endourological management is challenging due to these abnormalities leading to difficulties accessing the stone. Treatment such as shockwave lithotripsy (SWL) and percutaneous nephrolithotomy (PCNL) are well described in anomalous kidneys, but can be technically challenging, with success rates often reported to be lower than those in normal kidneys. Advances in technology and technique have allowed a broadening of indications for flexible ureterorenoscopy (FURS). The development of smaller calibre ureteroscopes with their increased deflection capability, along with holmium laser fibres and other adjuncts, make FURS an attractive treatment modality for challenging intrarenal anatomy. However, endoscopic access can be challenging, with complications and stone-free rates (SFR) that are variable across the reported studies. This article aims to review and summarise the efficacy and safety of Flexible URS for urolithiasis in anomalous kidneys (Figures 1-4) [1-5].

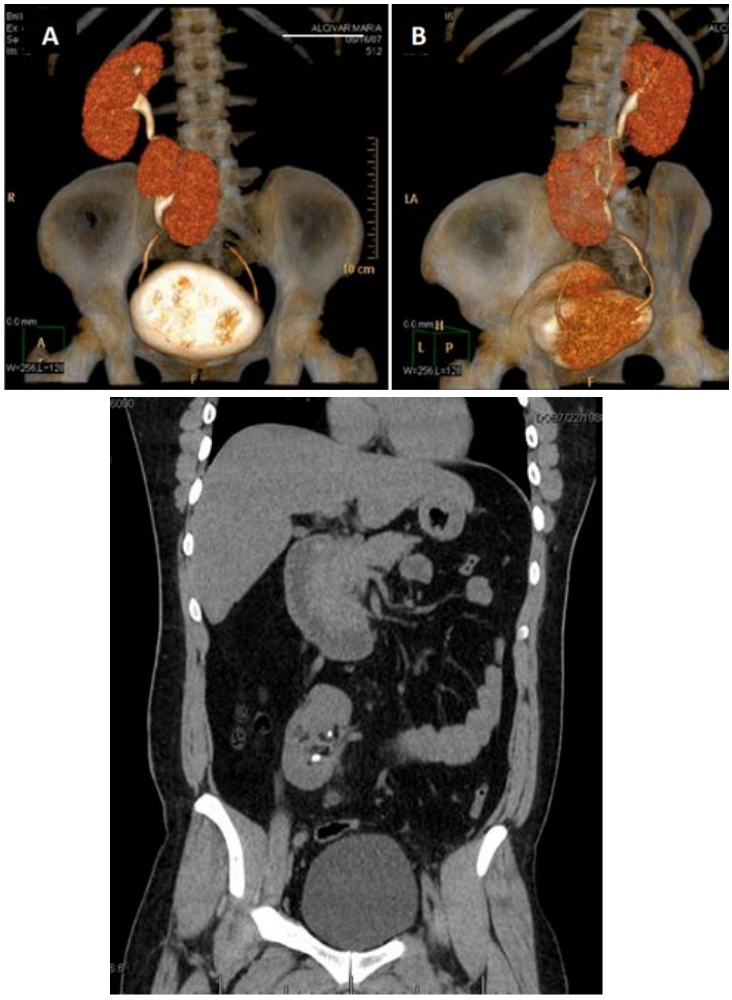

Figure 1: *CT KUB with Right sided located ectopic left Kidney.*

Figure 2: *Stone in the Pelvis of left kidney with malrotation.*

Figure 3: *IntraOp Picture of Laser Dusting of stone.*

Figure 4: *Post fragmentation Retrograde pyelogram – Abnormal Orientation of Pelvis /calyces.*

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