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Aberrant vessels in ipsilateral malrotated kidney associated with contralateral cross ectopia without fusion

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Abstract. Aberrant vessels is the most common cause of extriensic uretero–pelvic junction (UPJ) obstruction. Due to the left flank pain, 18-year-old male patient with UPJ obstruction due to aberrant vessels in left malrotated kidney and right renal cross ectopia without fusion, had been operated. Ureter was reconstructed and anastomosed anterior to the aberrant vessels after the Double-J-Stent has been placed. At the postoperative period there were improvements in the clinical symptoms and renal function. So, even in the later childhood surgical choice is still the acceptable treatment modality in such cases. To the best of our knowledge, although there are some papers about aberrant vessels which cause UPJ obstruction, there is no such a case with ipsilateral renal hydronephrosis due to aberrant vessels associated with contralateral renal cross ectopia without fusion.

Introduction

True aberrant vessels are rare except in patients with renal ectopia with or without fusion and in individuals with horseshoe kidney. Aberrant renal arteries to inferior pole cross anteriorly to the ureter and may cause hydronephrosis. Nixon reported that 25 of 78 cases of ureteropelvic obstruction were secondary to vascular compression [1].

We report successful surgical decompression in hydronephrotic, malrotated left kidney with UPJ obstruction due to aberrant vessels.

Case report

We describe 18-year-old male patient with left flank pain. Abdominal ultrasonogram, intravenous pyelography (IVP) and computed tomography (CT) revealed left hydronephrosis and right cross ectopia without fusion (Figure 3a). Technetium-99m labelled DTPA diuretic renogram displayed impaired renal function with hydronephrosis and no responce to diuretic in left kidney and dilated collecting system in right kidney. Relative function was 21.1% and 78.9% for left and right kidneys, respectively. Preoperative and postoperative creatinine concentration was normal. Retrograde pyelography (RGP) indicate cross ectopia without fusion in right kidney (Figures 1a and 1b).

The patient underwent surgical exploration, we found aberrant renal artery cross anteriorly to the ureter result in hydronephrosis in the left kidney.

The ureter reanostomosed anterior to the aberrant vessels after placing of Double-J Stent (Figures 2a and 2b). The patient was dicharged without complications in the postoperative course. Short term-follow-up of 4 months showed no more flank pain exist. One month after operation, there were improvements in relative left renal function at Technitium-99m DTPA (left kidney 38.5%, right kidney 61.5%) and decrease in the hydronephrosis at IVP (Figure 3b).

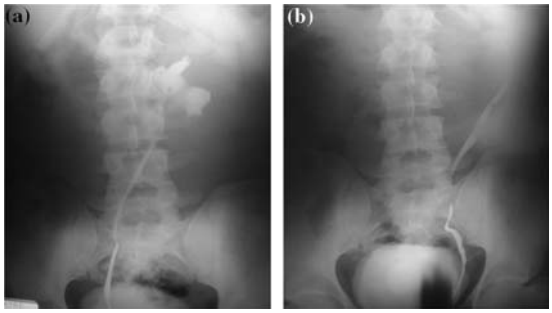

Figure 1. (a) Right RGP display right ureter with right renal cross ectopia; (b) left RGP showing only the ureter.

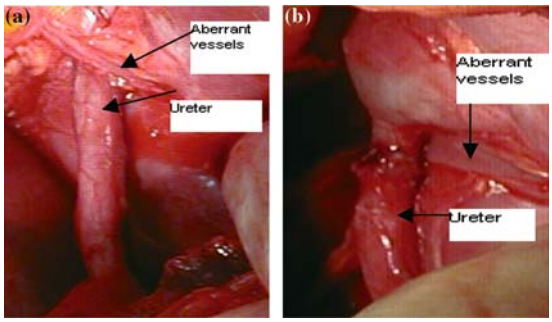

Figure 2. (a) Aberrant vessels cross anterior to the ureter; (b) ureter anastomosed anterior to the aberrant vessels.

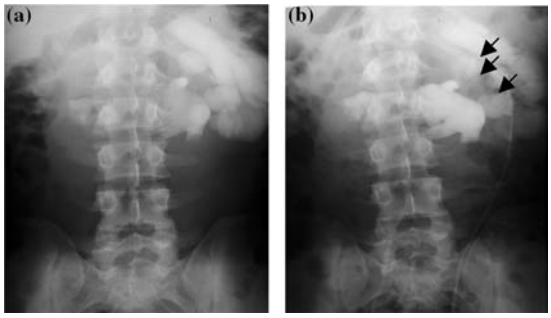

Figure 3. (a) Preoperative IVP show severe hydronephrotic left kidney with right renal cross ectopia; (b) postoperative IVP show decrease hydronephrosis in left kidney.

Discussion

Crossed renal ectopia is a rare congenital condition in which a ureter in the normal bladder position crosses the midline to an ectopic kidney lying on the opposite side of the body. Ninety percent of crossed ectopic kidneys are fused to their ipsilateral mate.

The anomaly occurs more commonly in males in ratio of 2:1, and left-to-right ectopia is seen three times more than right to left type [2]. However our patient had right-to-left renal cross ectopia without fusion associated with aberrant renal vessels in the ipsilateral kidney not in cross ectopic kidney where the aberrant vessels is usually seen.

The extensive review of the literature revealed no such a case with coexistence of all these anomalies in the same case.

There is controversy existing between those who favour careful observation [3] and those who favour corrective surgery [4] in children with UPJ obstruction. Even in the older individual most obstructed kidney can be salvaged by surgery, Parker et al. reported that even poorly functioning kidney (between 10% and 25%) show some improvements after surgery [5].

Although the patient was not diagnosed until later in childhood, we preferred surgical approach by careful observation. In the postoperative period no flank pain existed and there was some improvement in renal function (left relative renal function 38.1% , $T½$ washout of more than 20 minutes).

In summary, it is important to search aberrant vessels in patients with UPJ obstruction associated with renal congenital anomalies. Preoperative radiologic evaluation include CT, angiography and IVP is recommended. RGP may provide further information about the path of the ureters. In our case as there was improvements in the clinical symptoms and some improvement in renal function, this support the surgical choice in patients with UPJ obstruction even in early adulthood.

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