

Horseshoe Kidney with Complete Unilateral Duplication of Ureter and Pelvicalyceal System- A Case Report

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INTRODUCTION

Horseshoe kidney is the most common fusion abnormality in the kidney and occurs in 1 per 400 people with the male female ratio of 2:1.⁽¹⁾ Duplication of renal collecting system is the most common upper tract anomaly with an incidence of 0.5-0.8%.⁽²⁾ Unilateral duplication is six times more frequent than bilateral duplication, with equal incidence on right and left sides.⁽³⁾ However duplicated system in a horseshoe kidney is very rare. Most patients with horseshoe kidney are asymptomatic, up to 80% have hydronephrosis, about 20% develop renal calculi and 1/3-1/2 of cases have another associated anomaly.⁽²⁾

The aim of this report is to highlight its rarity and technical difficulties in its management.

CASE REPORT

A 30 years male patient presented to our department with history of left flank pain since last few months. Base line investigations revealed serum creatinine of 1.05 mg/dL, hemoglobin 13.5 g/dL and urine routine-microscopy showed pus cells 15-20/hpf. On evaluation he was found to have horseshoe kidney with bilateral pelvic calculi. Ultrasonography showed left small kidney (7 × 5 × 3 cm) with large pelvic calculus, gross hydronephrosis and thinned out cortex. Intravenous urography showed no contrast uptake on left side and normally functioning right kidney with right complete duplex system and bilateral renal calculi (Figure). DTPA scan showed left nonfunctioning kidney and normally functioning right kidney. Cystoscopy



Figure. X ray of KUB region showing right side horseshoe kidney with complete duplication of ureter and pelvis. Left renal radio opaque shadow (stone) is seen with no contrast uptake.

showed two ureteric orifices on right side and only one on left side. He was subjected to right PCNL, complete stone clearance was achieved. After one month left heminephrectomy was performed through a left flank sub costal incision. Findings of single ureter with three arteries and two veins were noted on left side during open retroperitoneal nephrectomy. Left kidney was hydronephrotic with very thin cortex and its ureter was crossing in front of the isthmus. Isthmus was divided at a line where thinned out cortex ended and normal cortex was evident. He recovered well and was discharged on 5th post-operative day. Histopathological study of the kidney showed features of chronic pyelonephritis. He is following our outpatient department since then (two months) and is doing well.

DISCUSSION

Horseshoe kidneys may be a result of teratogenic factors, which may also be responsible for the known increase in the

incidence of related congenital anomalies and nephroblastoma.⁽⁴⁾ Christoffersen and colleagues stated that combination of horseshoe kidneys with bilateral ureteral duplication is a very rare entity. Only two cases have been reported till now.^(2,5) He described a case of partial hydronephrosis, bilateral duplication of the pelvis and ureter with horseshoe kidney.⁽⁵⁾ Similarly Kuzel and colleagues described a horseshoe kidney with bilateral double pelvis system and double ureters.⁽⁶⁾ Kevin and colleagues reported a horseshoe kidney with bilateral partial duplex pelvicalyceal system and ureter in a cadaver during its anatomical dissection. He concluded that intravenous urography (IVU) is the main radiological investigation method to diagnose this anomaly.⁽⁷⁾ We report a case of unilateral complete duplex system in a horse shoe kidney. We reviewed literature by searching in Google and Pub med database, using “horseshoe kidney with unilateral completely duplicated system” as key words and found no such case reported till date.

Khong and colleagues reported a 9-month-old boy who had a horseshoe kidney, associated with bilateral single system ectopic ureters. The right ureteric orifice was located near the midline of a deformed trigone while the grossly dilated left ureter inserted into the posterior urethra.⁽⁸⁾

Pode and colleagues reported a case of unilateral triplication of the collecting system in a horseshoe kidney.⁽⁹⁾ Clinicians should be conscious of complete duplex systems in horseshoe kidneys which is very rare and may pose a diagnostic and interventional challenge.

CONFLICT OF INTEREST

None declared.

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