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Case Report

Pancake kidney with single draining ureter: a rare developmental anomaly

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ABSTRACT

Pancake kidney is one of rare form of congenital developmental anomaly of kidney. Very rarely it is drained by a single ureter. We are reporting a case of pancake kidney with a single draining ureter. The diagnosis was made during the routine workup for abdominal pain and UTI in a 12 year old male child. Usually pancake kidney may be associated with other congenital malformation but in our case we did not find any. Pancake kidney is managed surgically as well as conservatively depending upon the presenting symptoms and problem. This case was managed conservatively for recurrent UTI.

Keywords: Pancake kidney, Single draining ureter, Developmental anomaly

INTRODUCTION

Fusion of medial borders of both the poles of kidneys leads to the formation of a ring shaped structure known as pancake or doughnut kidney. When the fusion of the entire medial border of both the kidneys occurs, the resulting structure known as “cake” or “lump” kidney.[1] Pelvises of both the kidneys are usually anteriorly placed and drained by two ureters that are draining their respective halves. But very rarely it is drained by single ureter as in our case.

CASE REPORT

We are presenting a case of a 12 year old male child who presented to our out-patient department with the chief complaints of lower abdominal pain which was off and on for about 6 months. It was non-coliky in nature and relieved with medication. He also had burning micturition for last 10 days. There was no history of fever, vomiting or disturbance in bladder or bowel habits. During abdominal examination there was no lump palpable. Renal angles were normally concave. No other significant findings were there.

Investigations revealed that the total leucocyte counts (TLC) was 7800 cells/microl. Blood urea was 31 mg/dl and serum creatinine was 1.39 mg/dl. The routine urine examination revealed 6-8 pus-cells/HPF. Urine culture and sensitivity revealed growth of *E. coli* that were sensitive to levofloxacin, norfloxacin, ciprofloxacin, nitrofurantoin, chloramphenicol, amoxicillin, azithromycin, and meropenem. The ultrasonography of KUB region revealed fused ectopic pelvic kidneys. So we advised contrast enhanced CT scan to get more details about kidneys. It revealed “bilateral absence of native kidneys in their respective renal fossae, crossed fused renal ectopia with pancake kidney in the pelvis below aortic bifurcation (Figure 1 and 2). The renal arteries were seen arising from aortic bifurcation and renal vein draining into left common iliac vein. On delayed contrast images single ureter was noted exiting the pancake kidney and entered into normally situated right vesicoureteric junction. The patient was put on antibiotics

as per the sensitivity report. Patient was relieved from pain abdomen as well as burning micturition after 7 days. Patient was advised regular follow up for evaluation of his renal function.

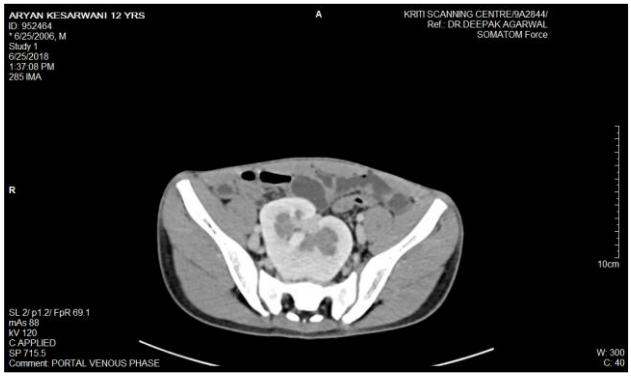

Figure 1: CECT abdomen axial plane showing fused pancake kidney in pelvis. CECT, contrast enhanced CT.

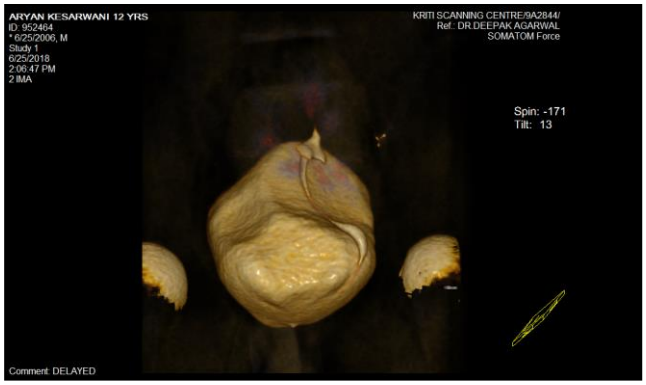

Figure 2: 3D reconstruction of CT scan showing pancake kidney drained by single ureter.

DISCUSSION

Kidney fusion anomaly was first described by Wilmer.[1] When the mature kidney fails to reach its normal location in the renal fossa, the condition is known as renal ectopia. The actual incidence among autopsy series varies from 1 in 500 to 1 in 1200 with average occurance of about 1 in 900.[2] In pelvis, kidney is opposite to the sacrum and below aortic bifurcation. The ectopic kidney is usually smaller and because of fetal lobulation it may not confirm to the usual reniform shape. The renal pelvis is usually anterior (instead of medial) to the parenchyma because of incomplete rotation of kidney. As a result there is hydronephrotic condition in 56% of ectopic kidneys.

Pancake is an extremely rare variety of fused ectopic kidney.[3] Looney et al were first to describe the pancake kidney.[4] Here medial borders and both poles joined together giving doughnut or ring shaped mass. This is also known as shield, doughnut or pancake kidney. Sometimes there is more extensive fusion of medial border which leads to shield or disc like appearance. As in other ectopic kidneys here also the renal pelvis is anteriorly placed and has risk of hydronephrosis. Ureters are uncrossed but sometimes in rare case they are drained by a single ureter.[2]

Ectopic kidney is no more susceptible to disease than orthotopic kidney except for the development of hydronephrosis or stones. Most of the patients are asymptomatic and diagnosis is incidental but some patients develop abdominal pain, UTI, pyuria or hematuria.

Asymptomatic cases can be managed conservatively with advice for follow up as they have a chance for development of obstruction or calculi formation as well as UTI. Symptomatic cases can be managed with medication or surgically depending upon the case. Surgical management requires expertise as vascularity is different in such conditions.[5]

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