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Research Article

Ectopic and Malrotated Kidney- Presenting As Refractory Pain Abdomen

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Abstract: ***Introduction:*** An ectopic malrotated kidney is a congenital birth defect where one or sometimes both kidneys does not grow in its normal location under the rib cage and is twisted out of its proper anatomical alignment. During fetal development, the kidneys normally start in the pelvis and ascend to the upper abdomen. An ectopic kidney fails to migrate fully and can remain in the pelvis (pelvic ectopia), the iliac region, or even cross over to the opposite side. As a kidney ascends, it is supposed to rotate 90 degrees inward so its blood vessels and urine drainage tubes (pelvis and ureter) face the spine. A malrotated kidney faces an abnormal direction (e.g., laterally or anteriorly), which can alter urine flow and blood drainage. Many people with these congenital variants remain asymptomatic throughout their lives and are diagnosed incidentally on medical imaging. However, the abnormal position and twisting can predispose the kidney to certain issues like Urinary Tract Infections (UTIs), nephrolithiasis, hydronephrosis or atypical abdominal pain. These anomalies are typically detected via ultrasounds (often fetal scans), CT scans, MRIs, or nuclear medicine scans. If the kidney functions normally and there are no blockages or infections, no treatment is required. If complications like severe blockages or stones occur, treatments can include antibiotics for infections, minimally invasive surgery or laser therapy to remove stones, or—in rare cases of severe, irreversible damage—surgery to correct the position or remove the kidney.**Case Report-** A 26 -year-old male patient, not a known case of any chronic illness presented with vague pain abdomen for last few months which was associated with dyspepsia symptoms. The pain was on right side, dull aching, dragging and generalized type. It was not associated with fever, bladder or bowel symptoms or vomiting. His general physical and systemic examination including abdominal, cardiovascular, respiratory and neurological was non-contributory. All his routine biochemical parameters were normal except for mild transaminitis. The ultrasonogram abdomen revealed fatty liver. The viral screen was negative and on autoimmune profile, ANA was borderline positive but ASMA and anti-LKM1 were within normal range. The Wilson's profile, serum IgATTG antibody test was normal. For ruling out autoimmune hepatitis, liver biopsy was done which was suggestive of metabolic dysfunction-associated steatotic liver disease (MASLD) and borderline ANA positivity can be seen in it also. He was started on saroglitazar 4 mg daily once, along with proton-pump inhibitors (PPI), anti-spasmodic and analgesics. His transaminases normalized within one month but the vague pain abdomen persisted. Hence, he was subjected to endoscopy which was also non-contributory. He was admitted and was started on injectable PPI, and analgesics but for no relief. Hence, he was subjected to contrast enhanced computed tomography scan which revealed right sided kidney to be ectopic and malrotated. The right kidney was noted at paramedian location at L3-L5 vertebral level, over psoas muscle with hilum facing anterolaterally. On delayed scan, opacification of right pelvi-calyceal system was seen but right ureter could not be followed or well visualized. Hence, patient was referred for urological consultation who have still kept him on conservative approach and will proceed for surgical intervention, if symptoms persisted or worsened.**Conclusion:** Patient usually do not lie or exaggerate their symptoms until there is some psychiatric component. We, the doctors have to believe the patients and if there is no symptomatic treatment, then all the relevant investigations should be done to make correct diagnosis. It will surely lead to decrease in morbidity and mortality associated with the disease.

Keywords: Ectopic Kidney, Malrotated Kidney, Pain abdomen, ultrasonogram abdomen, CT Scan abdomen

INTRODUCTION

Gallstone disease is one of the most common disorders The kidneys develop in the pelvis and ascend to the lumbar region between the sixth and ninth weeks of gestation, rotating medially so that the hilum faces anteromedially. Arrest or abnormal rotation during this process results in renal ectopia or malrotation. The incidence of renal ectopia is approximately one in 1000 live births, while malrotation occurs in roughly one in 2000 individuals [1]. Most cases are asymptomatic and discovered incidentally, but altered position and aberrant vasculature can predispose to urinary obstruction, infection, or vascular stasis. These anomalies are often discovered incidentally but may predispose to complications such as urinary stasis, infection, calculi, or vascular compromise [1,2]. Located in the lumbar diaphragm fossae, the kidneys are usually known as retroperitoneal organs [3]. The upper pole of the right kidney is located between the intercostal space between the 11th and 12th thoracic vertebrae, while that of the left

kidney goes up to the 11th thoracic vertebrae [3]. When the kidneys are not located in this normal position, it is referred to as being ectopic. It can be located anywhere along the course of its ascent or contra-laterally, referred to as "crossed" [4]. There is evidence of a relationship between vascularization and renal ascent [5].

CASE REPORT

A 26 -year-old male patient, not a known case of any chronic illness presented with vague pain abdomen for last few months which was associated with dyspepsia symptoms. The pain was on right side, dull aching, dragging and generalized type. It was not associated with fever, bladder or bowel symptoms or vomiting. His general physical and systemic examination including abdominal, cardiovascular, respiratory and neurological was non-contributory. All his routine biochemical parameters were normal except for mild transaminitis. The ultrasonogram abdomen revealed fatty liver. The viral screen was negative and on autoimmune profile, ANA was borderline positive but ASMA and anti-LKM1 were within normal range. The Wilson's profile, serum IgATTG antibody test was normal. For ruling out autoimmune hepatitis, liver biopsy was done which was suggestive of metabolic dysfunction-associated steatotic liver disease (MASLD) and borderline ANA positivity can be seen in it also. He was started on saroglitazar 4 mg daily once, along with proton-pump inhibitors (PPI), anti-spasmodic and analgesics. His transaminases normalized within one month but the vague pain abdomen persisted. Hence, he was subjected to endoscopy which was also non-contributory. He was admitted and was started on injectable PPI, and analgesics but for no relief. Hence, he was subjected to contrast enhanced computed tomography scan which revealed right sided kidney to be ectopic and malrotated. The right kidney was noted at paramedian location at L3-L5 vertebral level, over psoas muscle with hilum facing anterolaterally. On delayed scan, opacification of right pelvi-calyceal system was seen but right ureter could not be followed or well visualized. Hence, patient was referred for urological consultation who have still kept him on conservative approach and will proceed for surgical intervention, if symptoms persisted or worsened.

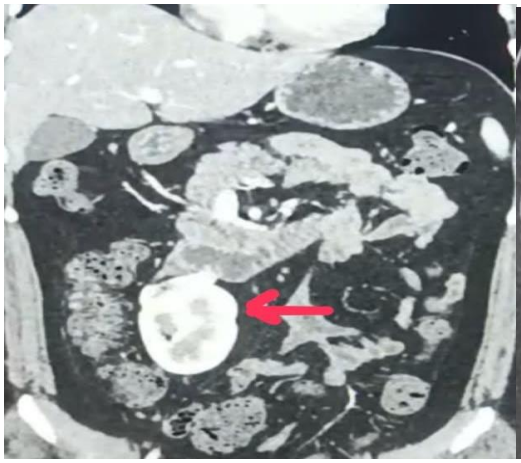

Figure 1- CT Scan abdomen showing Ectopic and malrotated kidney (red arrow)

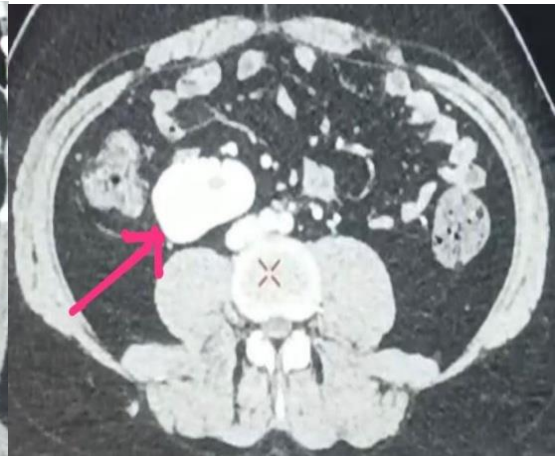

Figure 2- Showing Ectopic and malrotated kidney in different view (red arrow)

DISCUSSION

Anomalies of Rotation may be seen in normal or ectopic kidneys. Four rotational anomalies have been identified. Non- Rotation-Renal pelvis facing ventrally, Incomplete Rotation-Ventromedially, Reverse, and Excessive Rotation-Hilum faces laterally **[4]**. In our case, it is the excessive rotation-hilum faces laterally. It is well known that the ectopic kidney is more prone to hydronephrosis and kidney stones **[6]**. Ectopic kidneys have a lot of clinical significance due to their abnormal positioning, malrotation, and varying arterial supply. Also, the positioning of ectopic kidneys makes them vulnerable to trauma **[6]**. This congenital anomaly may remain undetected if it is asymptomatic, only to be discovered accidentally during some other routine investigations. With the increase in the rate of renal transplants and vascular surgeries, knowledge of these various types becomes imperative **[6]**. Urinary system congenital abnormalities are uncommon, accounting for just around 0.3% of all live births **[7]**. Our case highlights the need of detailed evaluation of patient with unexplained pain abdomen which can be sole presentation in ectopic and malrotated kidney. Other features like recurrent UTI and hydronephrosis which are also part of ectopic and malrotated kidney were not seen in our case. Our case report highlights the fact that health professionals must anticipate atypical presentations including vague pain abdomen.

CONFLICT OF INTEREST- The authors declare that there was no conflict of interest.

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