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Case Report

Solitary Pelvic Kidney – A Case Report

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ABSTRACT

We here are reporting a case report of 35 year old male with a solitary pelvic kidney. The finding of solitary pelvic kidney was encountered during work of the patient who was admitted with decreased urine output. A solitary pelvic kidney is a rare congenital abnormality of kidneys and it deserves to be reported to the medical literature.

KEYWORDS: Ectopic kidney; Solitary kidney; Solitary pelvic kidney.

INTRODUCTION

Kidneys start developing in the 4th gestational week in the sacral region and then during the embryonic life, the kidneys "ascend" upwards to lie at the upper lumbar and lower thoracic region. Any abnormality in this "ascent" can lead to the abnormal positioning of kidney either or both of the kidneys leading to ectopic kidney. Ectopic kidney may be pelvic, lumbar, abdominal or thoracic[1].

The ectopic position of one of the two kidneys has a reported frequency of 1:500 to 1:110; ectopic thoracic kidney being rarest with frequency of 1:13000 whereas one normal and one pelvic kidney are found in one in 3000. Frequency of solitary kidney is estimated at 1:1000 but combination of solitary kidney with pelvic ectopic position is quite rare with occurrence of one in 22,000[2]. But others differ regarding the frequency of ectopic kidney, considering its frequency at one in 900[3]. To the best of our knowledge, there are only three case reports of solitary pelvic kidney from India in the literature searched by us[1][4][5].

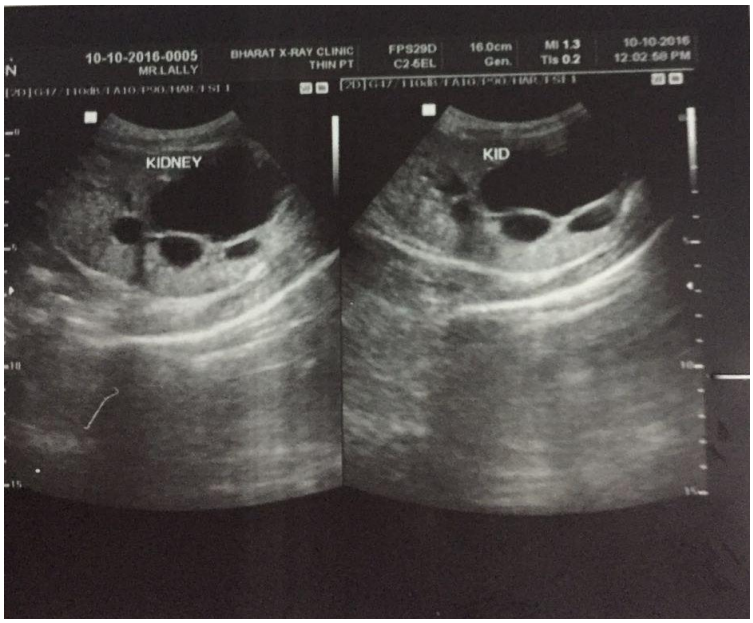
CASE REPORT

A young wage labourer of 35 years age and a father of 7 year old boy presented to the medicine emergency department of Guru Nanak Dev Hospital and Govt. Medical College, Amritsar with complaints of decreased urine output for 6-7 days along with difficulty in micturition and moderate grade of fever and pain in lower abdomen for last about four days. On examination, patient was febrile (oral temperature was 101^0F). Per abdomen examination revealed suprapubic tenderness on palpation and dullness on percussion suggestive of distended bladder and cystitis.

On routine investigations, hemoglobin was 11.2 gm/dl, total leukocyte count was 10,800/mm^3 with differential count of polymorphs 76%, lymphocytes 21%, monocytes 2% and eosinophils 1%. The blood urea was 56mg/dl and serum creatinine levels were 1.2mg/dl. Urine sample was sent which revealed numerous pus cells on each HPF. Patient was put on empirical treatment of urinary tract infection including antibiotics and urinary antispasmodics after sending the urine sample. Patient was sent for ultrasonogarphy of abdomen which showed absence of kidneys at their normal location. Instead a single kidney,10.5x5x3 cm in size, was found lying in suprapubic region (Fig. 1).

There were moderate hydronephrotic changes in it and markedly distended urinary bladder was also noted. No other sonographic abnormality was found in abdomen. At this stage, examination of reproductive system was also done which found no abnormality, moreover patient was happily married and a father of school-age boy. To relieve the patient of pain, one time catheterization was ordered but the intern was not able to pass the catheter, so small sized catheter was tried which passed with relative ease. A presumptive diagnosis of uretheral stricture was made along with other findings. Patient was then referred to department of surgery for further management with advice to remain in constant follow up in medicine outdoor.

Figure 1: Ultrasonogram showing single solitary kidney in Pelvis (renal tissue marked by words 'KIDNEY, KID' in the picture)



DISCUSSION

Ectopic kidneys are usually discovered incidently while imaging study being performed for other reasons. Pelvic kidneys, especially if solitary, are prone to be misdiagnosed preoperatively. There is report on record where the ectopic kidney was mistaken for appendix mass or tumour leading to its removal[6]. In yet another report, the ectopic solitary pelvic kidney which was missed in preoperative sonography imaging, was found perioperatively[7]. If there are associated undescended testis in a male patient, then there is increased risk of testicular cancer in such ectopic testis. Such patients are usually candidates for the prophylactic removal of abnormal gonads. Luckily, our patient was free of such abnormality.

From medicine point of view, the importance of single kidney lies in the fact that these patients are more prone to go into renal failure (both acute and chronic) because of decreased number of total nephrons[8] if size of solitary kidney is comparable to normal kidney, and less convulated tubular mass[9] if the solitary kidney is heavier than normal kidney. Increased risk due to associated ureteric and vascular abnormalities because of ectopic position adds to the risk of solitary kidney. This leads us to multiply our efforts in such patients to control infections and manage renal failure from various causes. In our patient, moderate hydronphrosis was already present. He was not having any gross abnormality of renal glomerular function yet.

So it was important that any urethral stricture which might be the cause of hydronephrosis and urinary tract infections, get treated as soon as possible. It was also necessary to find out any other contributing factor to development of hydronephrosis.

Solitary kidney is compatible with normal longevity and does not predispose the solitary kidney to greater-than-normal risk but such persons should have annual surveillance, including a blood pressure measurement, serum creatinine if not initially normal, and urinalysis to detect proteinuria. There are different studies with conflicting results. In a study on single kidney persons, the late effects of solitary kidney including proteinuria (19%), hypertension (47%), and mild renal insufficiency (13%), in middle-aged patients were reported[10]. In another study, increased incidence of hypertension, hyperuricemia, and decreased renal function was found but no proteinuria[11].

But another study based on 155 patients between age of 2–84 years with single kidney with mean follow- up of 44 years, most (79%) had a normal serum creatinine. Only 5 patients had an abnormal elevation in creatinine (above 2.0 mg/dL). Significant proteinuria (2+ or greater) was found in only 8%, and hypertension occurred in 21%[12]. In view of these studies, annual checkup of such patients is recommended to look for hypertension, impairment of glomerular function by serum creatinine levels, proteinuria and serum uric acid levels. Dietary restriction of proteins is recommended in chronic renal failure patients with single kidney as excess protein is deleterious in such cases[13].

CONCLUSION

Awareness of the anatomical variations and anomalies of renal system are important for physicians, surgeons and radiologists likewise to avoid misdiagnosis, perioperative complications and in management of the complications arising from the anomaly itself and its associated abnormalities. All cases of solitary kidney and ectopic kidneys should be under regular, preferably annual surveillance, of physician and surgeon or urologist to detect any pathology at the earliest to treat it and prevent further progression.

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