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Case Report

Bilateral pelvic kidneys with renal pelvis stone: A Case Report

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Abstract

Introduction: Bilateral pelvic kidneys occur when the two kidneys fail their ascent and remain in the pelvic area during embryologic development. It is a rare even observed for 10% of patients with renal ectopia. The aim of this case is to report a rare renal abnormality.

Case report: A 60 year-old male presented with intermittent pain in his left lower abdomen since the past 4 years. Physical examination and biological tests were normal. Contrast enhanced CT revealed bilateral pelvic kidneys with a stone in left kidney pelvis and hydronephrosis.

Conclusions: This congenital abnormality is usually found incidentally but may be painful when complications are associated. The best evaluation of the patients is the key for their proper management.

Keywords: Bilateral; Pelvic; Kidneys; Stone

Introduction

When the mature kidney fails to reach its normal location in the lumbar fossa, the condition is known as renal ectopia. When the kidney remains in the pelvic area it becomes pelvic kidney. Pelvic ectopia has been estimated to occur in 1 of 2100 to 3000 autopsies [1-3]. Bilateral ectopic kidneys are even more rarely observed and account for only 10% of all patients with renal ectopia. As far as renal malrotation is concerned it is found in 1 of 939 autopsies [1].

It is then a very rare abnormality. The ectopic kidney is more susceptible to disease than the normally positioned kidney like the development of calculi and hydronephrosis [1,4]. Even though this association is known, it is rarely reported in medical literature. We report uncommon case of bilateral pelvic kidneys associated with left renal stone.

Case Report

A 60 year-old male presented with complaints of intermittent pain in his left lower abdomen since the past 4 years. He had been managed in a local hospital center. Because of the recurrence of the symptoms he was referred to urology department. He described descending moderate pain in the left abdomen region that spontaneously resorbed at the beginning of the disease. But the lower abdomen become more and more painful. The patient had to take usual drugs when pain occurring. There was no history of dysuria, hematuria or fever. On admission, the temperature was 36.8°C; blood pressure was 140/90mmHg and pulse rate 75 beats per minute. Physical examination was normal. On laboratory investigations, renal biochemical parameters and urine analysis were normal.

Ultrasound showed two intra pelvic kidneys with a calculus in the left kidney. For more characterization he underwent contrast enhanced computed tomography (CT) of the abdomen and pelvic region. It revealed that the two kidneys were not located in their normal anatomical position and were instead found in pelvic region (Figure 1). The ectopic kidneys were malrotated with their pelvis oriented anteromedially (Figure 2). CT scan also showed a 39mm X 39mm stone in the left renal pelvis associated

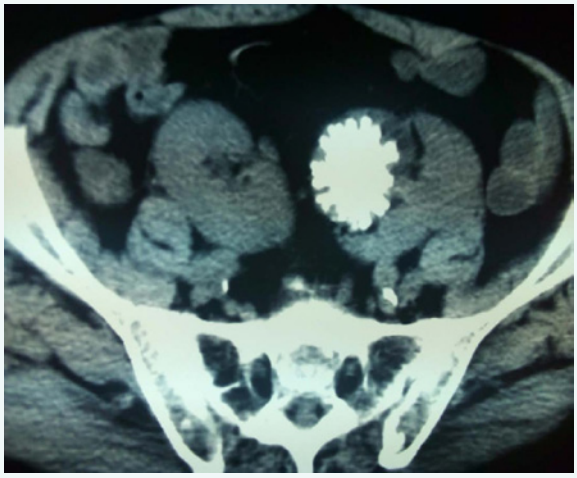

Figure 1 Bilateral pelvic kidney with calculus within left kidney seen on CT scan.

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with hydronephrosis (Figure 1, 3). The two kidneys were normal in size and function.

Discussion

During embryologic development definitive kidneys ascent to their normal retroperitoneal position. It is thought that medial rotation of the collecting system occurs simultaneously with renal migration. The kidney starts to turn during the sixth week, just when it is leaving the true pelvis, and it completes this process by rotating 90 degrees toward the midline by the time ascent is complete at the end of the ninth week of gestation. When this alignment is not exact, the condition is known as malrotation. Between the sixth and ninth weeks the kidneys ascend to a lumbar site just below the adrenal glands. When the kidney fails to ascend properly its location becomes ectopic. If its ascent fails completely it remains as a pelvic kidney [1; 5].That is the situation presented in this case report.

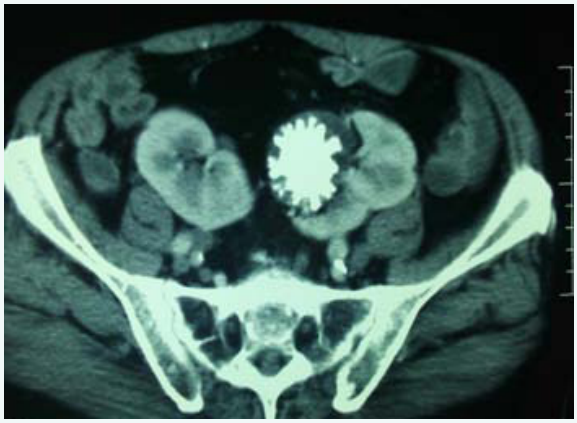

Figure 2 Coronal view on CT Scan showing two malrotated kidneys in the pelvis.

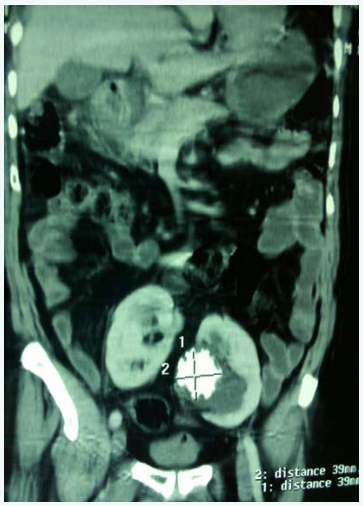

Figure 3 CT scan coronal view of abdomen and pelvis showing a stone measuring 39mm X 39mm with hydronephrosis of the left pelvis kidney. There is no kidney in the lumbar region.

Bilateral ectopic kidneys are a rare abnormality including only 10% of all patients with renal ectopia [1]. The causes of this abnormality are not clear identified. But hypotheses include abnormalities of the ureteral bud and metanephric blastema, genetic variants, teratogenic effects, various medications ingested by the mother and anomalous vasculature physically blocking ascent. Most cases, however, are idiopathic [4,5,6,7].

Pelvic kidneys may be associated with other congenital abnormalities involving the skeletal, genito-urinary and cardi-ovascular systems [8].In our case, the ectopic position of the kidneys was associated with malrotation. Furthermore a big stone was located in the kidney pelvis. Even though this encountered situation is rare in publications, its explanation is known. Urinary calculi commonly occur in association with urinary stasis or infection in patients with upper urinary-tract abnormalities [1]. Anterior position in the renal pelvis due to malrotation of the kidney, high insertion of the ureter, the renal vasculature, or both can partially obstruct the passage of urine and impair drainage of a major calix [4].

The majority of the patients with renal ectopia are asymptomatic. The diagnosis is often made incidentally during routine antenatal or postnatal abdominal ultrasound examinations [9,10].The most common symptoms related to an ectopic kidney that lead to diagnosis include urinary-tract infections, abdominal pain or a lump that can be felt in the abdomen [11]. Our patient was suffering of intermittent lower abdomen pain likely related to stone obstruction.

Conclusions

Pelvic kidneys are infrequent abnormality. This congenital abnormality is found incidentally most of the time when doing imaging for other diseases. But it may be symptomatic and potentially dangerous disease because of complications related to renal obstruction like stones formation or hydronephrosis. The best evaluation of the patients is mandatory to detect and manage early these abnormalities.

References

1. Bauer SB. Anomalies of the upper urinary tract. In: Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA, eds. Campbell Walsh Urology. 10th ed. Philadelphia: Saunders Elsevier; 2012:3136-3281.
2. Zafar FS, Lingeman JS. Value of laparoscopy in the management of calculi complicating renal malformations. J Endourol. 1996;10:379-83.
3. Knipe HC. A Case of Bilateral Pelvic Kidneys. J Med Imaging Radiat Oncol. 2019 Oct;63(5):639-40.
4. Cinman N, Okeke Z, Smith A. Pelvic kidney: associated diseases and treatment. J Endourol. 2007; 21: 836-42.
5. Pal DK, Jain P, Banerjee M. Bilateral Pelvic Kidneys: A Rare Anomaly. J Case Rep. 2016;6(3):411-14.
6. Gulsun M, Balkanci F, Ekirge SC, Deger A. Pelvic kidney with an unusual blood supply angiographic findings. Surg Radiol Anat.2000;22(1):59-61.
7. Hertz M, Rubinstein ZJ, Shahin N, Melzer M. Crossed renal ectopia

clinical and radiological findings in 22 cases. Clin Radiol. 1977 May;28 (3): 339-44.

8. Lin VC, Weng HC, Kian-Lim E, Lin IC, Yu TJ. An atrophic crossed fused kidney with an ectopic vaginal ureter causing urine incontinence. Urology. 2010 Jul; 76(1): 55-6.

9. Weiner E, Haratz K, Ram M, Leibovitz Z. Bilateral maternal pelvic kidneys presenting as a tumor previa: sonographic diagnosis and obstetric management. Case Rep Obst Gynecol. 2015; 2015: 1-3.

10. Eid S, Iwanaga J, Loukas M, Oskouian RJ, Tubbs RS. Pelvic kidney: a review of the literature. Cureus 2018 Jun; 10(6): e2775.

11. Bhoil R, Sood D, Singh YP, Nimkar K, Shukla A. An ectopic pelvic kidney. Pol J Radiol. 2015 Sep; 80: 425-7.