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Urological Surgery

Renal Ectopia in the Pelvic Area: A Rare Case

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Abstract **Case Report**

Renal ectopia is a positional defect during development, consistently accompanied by malrotation, always involving abnormal vascularization with one or more ectopic arteries and a ureter of appropriate length for the location of the kidney. It is distinct from renal ptosis. Several types of ectopias are distinguished: on one hand, simple ectopias occurring in the vertical direction (intrathoracic kidney, low-lying kidney) or in the transverse direction (crossed ectopia), and on the other hand, ectopias with symphyses. Pathological pelvic ectopic kidney is rare. It is often revealed by pain, infectious complications, urinary lithiasis, or sometimes fortuitous discovery. We report the case of a 60-year-old patient with a history of hip prostheses, incidentally discovering, through a diagnostic assessment for nephritic colic due to contralateral ureteral lithiasis, a left ectopic kidney in the pelvic area on a CT scan. Based on this case and literature data, we will discuss the etiopathogenic, clinical, radiological, and therapeutic aspects of this malformation.

Keywords: Kidney, Pelvic, Ectopia, Lithiasis, Ultrasound.

INTRODUCTION

Renal ectopia is a malposition due to abnormal migration during embryonic development. It can be high, low, or even crossed. Low ectopia is most often pelvic (but can also be lumbar or iliac). The presence of associated dystopia is common, as is the existence of obstruction of the pyeloureteral junction. We report the case of a patient with a fortuitously discovered pelvic renal ectopia following nephritic colic on the contralateral side.

CASE REPORT

A 62-year-old female patient with a history of bilateral total hip replacement presented two days before her initial consultation with right-sided nephritic colic-type pain, evolving in a context of afebrility and preservation of general condition. Clinical examination revealed an afebrile, normotensive patient with a supple abdomen sensitive to palpation in the right iliac fossa. Ultrasound revealed a dilated right kidney in a normal anatomical position and a non-visualized left kidney. Laboratory tests showed normal renal function, leukocytosis at 12,000/mm3, CRP at 23 mg/L, with a normal cytobacteriological examination of urine.

In the context of severe pain, an urgent abdominopelvic CT scan was performed. The CT scan confirmed the pyelocaliceal dilation of the right kidney upstream of a 9 mm x 7 mm x 11 mm iliac ureteral stone (1407 HU), with a left ectopic kidney in the pelvic area without significant dilation (Fig 1 & 2).

The patient underwent a right rigid ureteroscopy with complete fragmentation of the ureteral stone and placement of a double-J stent. The stent was removed three weeks postoperatively. The postoperative clinical and laboratory follow-up was unremarkable.

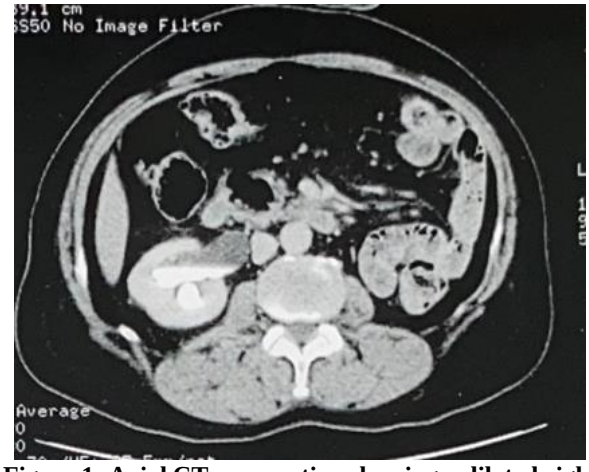

Figure 1: Axial CT scan section showing a dilated right kidney upstream of a ureteral stone with no visualization of the left kidney on the section

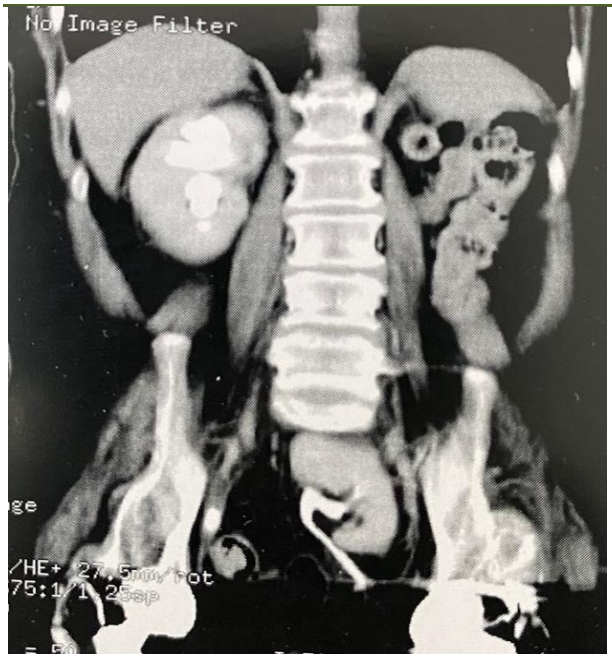

Figure 2: Coronal CT scan section showing the left kidney in a normal-appearing pelvic ectopic position without dilation and a right kidney in the normal anatomical position with moderate dilation of the cavities upstream of the ureteral stone

DISCUSSION

Pelvic renal ectopia is a rare malformation reflecting a defect in the ascent of the kidney during embryonic life [1]. It is defined by the kidney's position below a horizontal plane passing through the iliac crests. Its incidence varies significantly between clinical series (1/12,000 [2]) and autopsy studies (1/500 [3] to 1/1200 [4]). This difference is explained by the frequency of asymptomatic forms. The pelvically positioned kidney is often discovered through imaging requested in the assessment of digestive, general, or gynecological diseases, etc.

Pathological pelvic ectopic kidney is often revealed by pain and urinary signs. However, in our series, the discovery was fortuitous. The association of the pelvically positioned kidney with other malformations is common, especially urological malformations, including UPJ obstruction. Cases of vesicoureteral reflux, megaureter [5], retrocaval ureter [6], and genitourinary malformations [7] associated with pathological pelvic ectopic kidney have been reported. Malek [2] reported the association of the pelvically positioned kidney with cardiovascular, digestive, and skeletal malformations. In our case, the patient had a normal, non-pathological ectopic left kidney; however, it was on the contralateral side that a lithiasis was present.

The diagnosis of pelvic renal ectopia is based on ultrasound and intravenous urography (IVU). Ultrasound, a non-invasive method, allows for topographical diagnosis, studying renal parenchyma, searching for associated lithiasis or malformations, and studying the contralateral kidney [7]. It also enables prenatal diagnosis [8], providing close postpartum follow-up to intervene in case of complications. IVU or even contrast-enhanced CT remains the key examination, showing the kidney's position and any associated stones or malformations.

CT is useful in cases of tumoral pelvic kidney, especially for studying extension and relationships with neighboring organs [9]. It also finds its indication in cases of bilateral pelvic kidney in search of a possible renal fusion. Angiography specifies the vascular mapping and may be useful when endourological treatment is proposed. However, helical CT, being less invasive, can also detect an associated polar pedicle. In cases of spinal bone malformations with renal insufficiency, ultrasound may be limited by scoliosis and gas interposition. In such cases, magnetic resonance urography allows for the study of the spine and the urinary system [10].

Therapeutic approaches used in pathological pelvic ectopic kidneys are the same as those used in the case of the normally positioned kidney. When opting for surgical treatment, the approach chosen must overcome the difficulties related to different neighboring structures and vascular anomalies. Boujnah *et al.*, [11] propose the extraperitoneal iliopelvic approach for simple stones and UPJ obstruction, and the transperitoneal approach in cases requiring control of the renal pedicle.

CONCLUSION

Pathological ectopic kidney is rare. Diagnosis is often established through ultrasound and intravenous urography (IVU). Treatment and prognosis depend on the associated pathology and align with those of the normally positioned kidney. With the aid of prenatal ultrasound diagnosis, close monitoring allows for timely intervention in case of complications.

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