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Case report

Crossed fused renal ectopia: a rare congenital malformation

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Abstract

Crossed fused renal ectopia is a rare congenital malformation, in which the two kidneys are on the same side with one of the ureters and fusion between the two parenchyma. The ureter of the ectopic kidney crosses the midline and implants normally in the bladder. This anomaly is most often asymptomatic and of incidental discovery. We report the case of a patient without similar cases in his family, presenting a crossed fused renal ectopia discovered fortuitously during a prostate hypertrophy assessment.

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Introduction

Crossed fused renal ectopia (CFRE) is defined by the presence of one of the two kidneys on the contralateral side with a fusion between the two parenchyma. The ureter of the ectopic kidney crosses the midline and implants normally in the bladder. We report an observation of a patient in which we accidentally discovered a CFRE.

Patient and observation

It´s about a 62-year-old patient, with no previous medical history, who presented to consultation for lower urinary tract symptoms evolving in recent months, such as dysuria, day and night pollakiuria at the rate of four night-awakening. The clinical examination did not find any sensitivity or lumbar contact. The digital rectal found an about 50g normally rubbery and smooth prostate. On the laboratory tests, the serum creatinine was 12mg/l and the urine cytobacteriological exam was normal. A reno-vesico-prostatic ultrasound was performed, showing no visualization of the right kidney and a left kidney increased in volume with a duplication of the excretory system and without dilation of the pyelocaliciel cavities. The bladder was thin-walled and the prostate was homogeneous, but enlarged, measuring 58ml. The post-void residual was 66 ml. The imaging was supplemented by a computed tomography (CT) scan which revealed a crossed renal ectopia and fusion of the parenchyma of the two kidneys (Figure 1), the upper kidney being disrotated and the ureter of the lower kidney crossing the midline, just below the aortic bifurcation to get normally into the bladder on the right side (Figure 2). Our approach was to start an alpha blocker therapy for his benign prostatic hyperplasia, with ultrasound monitoring of the CFRE as there were no complications.

Discussion

Crossed fused renal ectopia is a rare birth defect. It is due to an abnormality in the embryonic development of the ureteral bud and metanephric blastema, between the fourth and the eighth week of gestation [1]. Its frequency is around 1/7000 with a male predominance (3/2) [2,3]. It is characterized by the presence of two kidneys on the same side. In 90% of these cases, the crossed ectopic kidney is fused to the orthotopically located kidney. Indeed, this fusion is often made between the upper pole of the kidney in ectopia and lower pole of the normally positioned kidney, we then talk about lower cross renal ectopia [3], which is the case for our patient. The ureter crosses the midline and joins the corresponding meatus. CFRE may remain asymptomatic until it is accidentally discovered on a radiological examination for another reason. In the case of our patient, the diagnosis was made during a prostate hypertrophy assessment. However, CFRE can be manifested by unclear abdominal pain, pyuria. Hydronephrosis and the occurrence of calculus can explain these symptoms and would be favored by a drainage failure (lack of kidney position, vascularization abnormality crossing the excretory system). In one third of the cases, the diagnosis is made in front of an asymptomatic abdominal mass [4]. Ultrasound is the initial examination that guides the diagnosis and looks for possible complications such as lithiasis and dilation of the excretory tract. The CT urography confirms the diagnosis and allows a better anatomical study, especially for the individualization of the tow ureters delivery [5]. The evolution of this abnormality is favorable without alteration of renal function or blood pressure [6]. However, the risk of complications, especially lithiasis, is not negligible [7].

Conclusion

The CFRE is generally asymptomatic and of incidental discovery. Ultrasonography is the first line examination. The

uroscanner offers a better anatomical study. Therapeutic management is based on abstention in the absence of complications.

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.

Figures

Figure 1: angioscan images, coronal section (A) and 3D reconstruction (B) showing the fusion of the two renal parenchyma

Figure 2: CT images in excretory time, sagittal section (A) and 3D reconstruction (B) showing fused cross renal ectopia; the normal kidney being disrotated and the ureter of the ectopic kidney crossing the midline above the promontory

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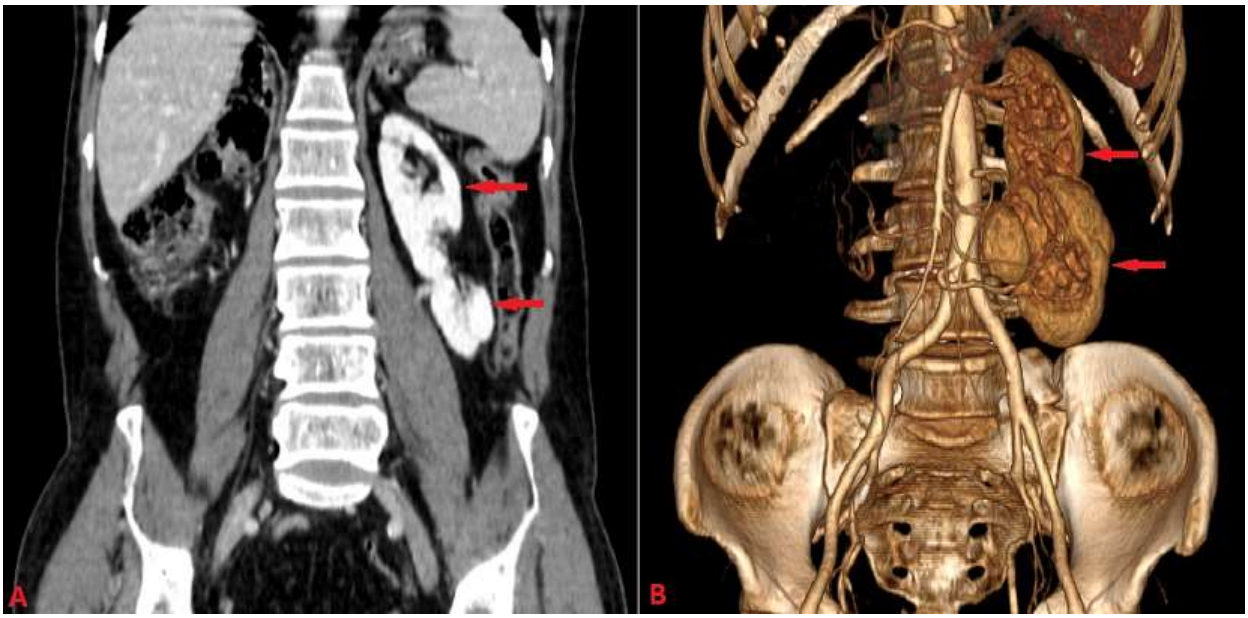

Figure 1: angioscan images, coronal section (A) and 3D reconstruction (B) showing the fusion of the two renal parenchyma

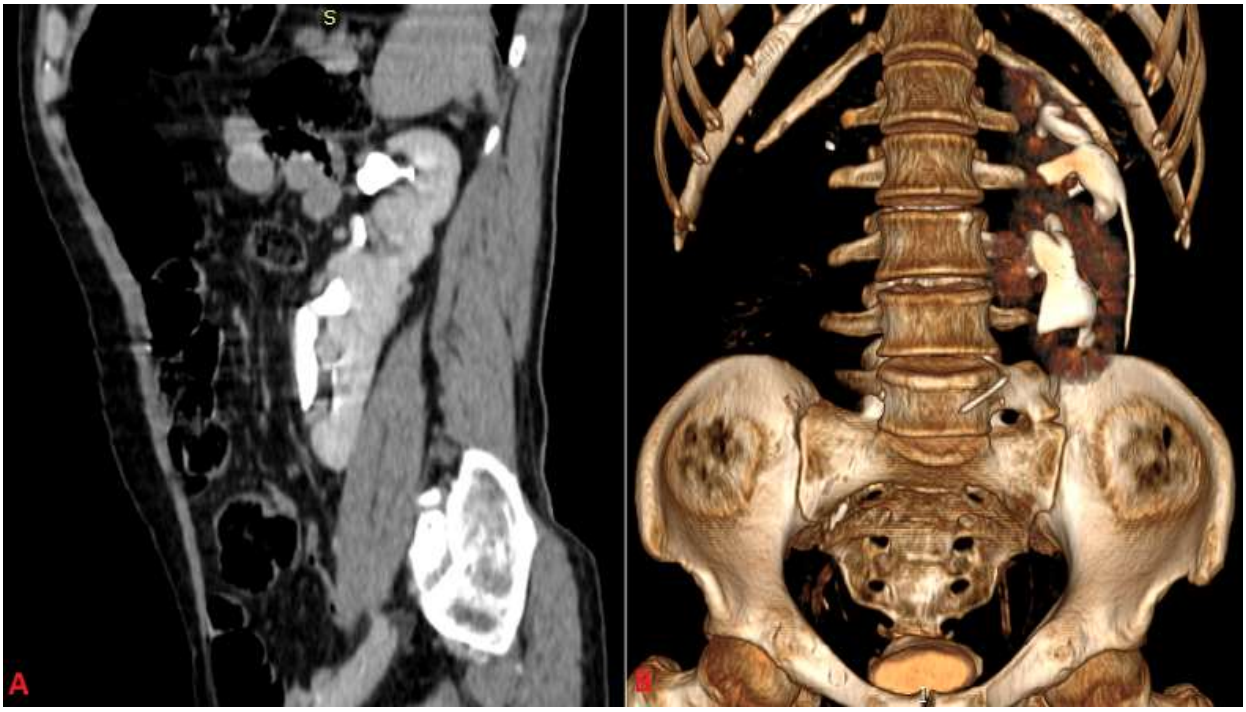

Figure 2: CT images in excretory time, sagittal section (A) and 3D reconstruction (B) showing fused cross renal ectopia; the normal kidney being disrotated and the ureter of the ectopic kidney crossing the midline above the promontory