Functional medicine

Retrocaval ureter: A case report and review of the literature

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ABSTRACT

Retrocaval ureter is a rare malformation. We report a case of right retrocaval ureter of type 1. The usual clinical manifestation being lumbar pain due to obstruction of the upper urinary tract, asymptomatic forms can also be encountered. Since the diagnosis was based on the CT-scan, the treatment was uncrossing with uretero-ureteral anastomosis by lumbotomy, with a satisfactory long-term result.

Introduction

Retrocaval ureter is a rare congenital malformation, characterized by a spiral path of the ureter around the inferior vena cava. It is an abnormality of the embryological development of the venous system and not of the urinary tract. It usually manifests itself as signs of ureteral obstruction. The clinical symptomatology is not specific to the abnormality and the diagnosis is based on imaging data, especially the CT-scan. Its treatment is most often surgical.

Clinical case

This was a 38-year-old patient referred to our hospital for the management of a right pyelocalicular dilation discovered on ultrasound, done in the context of right back pain that has been evolving for several weeks. This low back pain was isolated. The patient had no previous medical or surgical history. The clinical examination was normal, apart from painful of the right lumbar fossa on palpation. The biological assessment did not show renal failure or signs of infection, the diagnosis were confirmed by CT-scan with reconstruction, (Fig. 1). The patient benefited from a surgical cure, we performed a right subcostal lumbotomy, the exploration revealed the retrocaval passage of the ureter, with a moderate dilation of the pyelon (Fig. 3 A). A section, uncrossing, and uretero-ureteral anastomosis was performed by four points of Vicryl 3/0 around a double J CH 8 (Fig. 3 B), then a closure was performed in three planes above a drain placed in the right renal compartment. The postoperative follow-up was simple; removal of the ureteral catheter on the 30th postoperative day.

Discussion

Retrocaval ureter (circumcave or postcave) is a rare congenital abnormality of the relationship of the inferior vena cava to the ureter. Embryologically, the retrocaval ureter is a developmental abnormality of the venous system and not of the urinary system. The constitution of the inferior vena cava is made from three bilateral venous systems. The posterior cardinal veins, longitudinal in the dorsolateral position, the subcardinal veins in the medial position and the supracardial veins responsible for the final formation of the inferior vena cava. The persistence of the posterior cardinal vein is at the origin of the retrocaval ureter.

Apart from a few cases in which the discovery of the anomaly was fortuitous, the majority of retrocaval ureters are revealed by various clinical manifestations, which are related to upper urinary tract obstruction and its complications. Upper urinary tract infection is the revealing mode in 20% of cases. This infection would be most often revealing in the majority of cases in children, whereas pain in the right flank would be the revealing mode in adults.

The CT scan is the reference examination for this type of pathology; it allows us to objectify all the signs of this malformation: the pyelo ureteral dilatation, the intervertebro-cave passage of the ureter and then its anterior pre-cave path. The CT scan also makes it possible to make a differential diagnosis with primary idiopathic or secondary retroperitoneal fibrosis, and with any other cause of ureteral obstruction.

An anatomical classification, proposed by Kenawi and Williamsen in 1976, distinguishes two anatomical types according to the height of the retrocaval segment of the ureter. This is based on the radiographic appearance and the location of the ureter’s narrowing (Fig. 2). Type 1 is more frequent and occurs in 94% of cases. The path of the ureter is normal up to height L3, where it then passes behind the inferior vena cava.
cava. Type 2, the pelvis and the initial segment of the ureter occupy an almost horizontal position, whereas in type 1 the curve which the ureter forms when passing behind the inferior vena cava is slight, so that the degree of dilatation of the pyelocalic system and the ureter is less pronounced in this type, as was the case in our patient.

A classification of surgical interest has been adopted by Bateson and Atkinson, who consider that the obstruction mechanism is different for the two types of retro-caval ureter: Type 1 in which the obstructive syndrome is due to a intrinsic anomaly in the development of the retrocaval segment of the ureter requiring surgical resection, type 2 in which the obstruction is due to extrinsic compression of a normal ureter in its retrocaval portion, and for which the plasty is possible without resection.

The treatment depends on the degree of obstruction of the malformation. The fortuitous discovery of a retro-caval ureter justifies the therapeutic abstention and the establishment of a radioclinical follow-up. The nephrectomy is necessary in the rare cases of destroyed kidneys. Between these two extreme situations, the place of conservative surgery is preponderant and constitutes the treatment of symptomatic forms. The technique usually used is ureteral uncrossing with restoration of continuity of the excretory pathway by direct plasty and end-to-end uretero-ureteral anastomosis in type 2, and resection-anastomosis of the retrocaval segment in type 1.

Laparoscopic reconstructive techniques have been described by several authors who believe that it should be a technique of choice in the surgical treatment of the retrocaval ureter, this technique offers several advantages over conventional open surgery: it is minimally invasive, allows early emergence, absence of complications such as postoperative wall pain or gastrointestinal ileus, and a shorter recovery period.

**Conclusion**

Retrocaval ureteral can be asymptomatic or associated with non-specific symptoms, dominated by low back pain; the diagnosis is confirmed by the uroscanner, and the treatment is surgical in majority of cases.

**References**

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