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Unilateral laparoscopic nephrectomy due to incomplete ureteral triplication: Pediatric case report

Nefrectomia unilateral videolaparoscópica devido triplicação ureteral incompleta: Relato de caso pediátrico

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INTRODUCTION

Ureteral triplication is due to the abnormal development of the ureteral bud that begins in the 4th week of gestation. The ureteral bud, originating from the mesonephric duct, meets the nephrogenic blastema, and then the methampical mesenchyme induces the ureteral bud to divide. Interferences with this branching process can result in some anomalies, such as duplication or tripling of the ureter.[4] Ureteral triplication is a very rare congenital disease.[1.2] It is slightly more often found in females and is usually associated with other congenital anomalies.[6]

CASE REPORT

Girl, 3 years old, under follow-up with the Pediatric Surgery Team due to unilateral hydronephrosis. She has a previous history of esophageal atresia and imperforate anus with recto-vaginal fistula confirmed by contrast-enhanced radiography, submitted to esophagoplasty and colostomy on the 2nd day of life, evolving in the postoperative period with recurrent urinary tract infections. At 7 months, the patient underwent urinary tract ultrasound, showing moderate dilatation on the right, protrusion of the bladder floor, duplication of the pyeloureteral system, and uretero-o-oeloectasia on the right. At 2 years of age, with the condition of recurrent UTIs maintained, she underwent dynamic and static renal scintigraphy with DMSA revealing a right kidney with significant functional deficit, associated with hypouptake, and voiding

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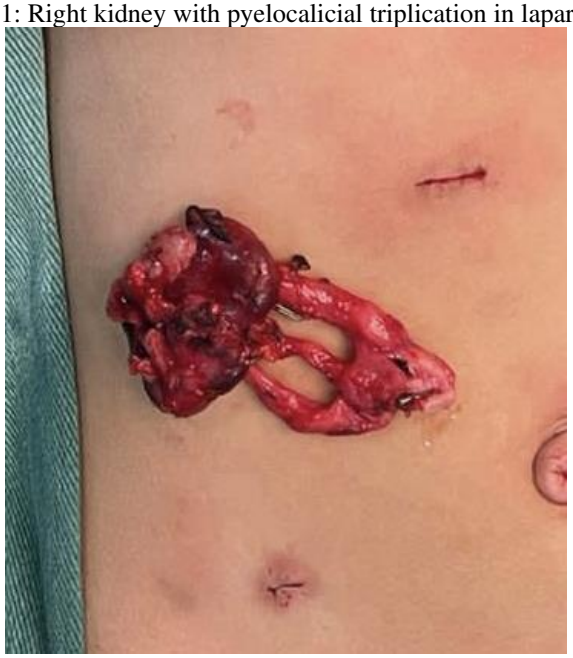
urethrocystography with bilateral vesico-urethral reflux, grade III on the passive left and grade IV on the passive and active right, in addition to an elongated bladder with irregular contours, After questioning, functional exclusion of the right kidney is possible inflammatory process or bladder dysfunction. Laparoscopic nephrectomy on the right is indicated. The procedure was uneventful, showing a hypotrophic, malformed right kidney with three ureters converging in a distal third, with incomplete duplicity (Figure 1). Right adrenal release, ligation of the renal vessels, and dissection of the ureters up to the distal third were performed. Resection of the specimen through the umbilical incision without difficulty. The patient progressed with significant clinical improvement within 24 hours, appetite preserved, no nausea or vomiting, urinating normally. The patient was discharged on the second day and returned on the 10th postoperative day, asymptomatic, with preserved diuresis, without dysuria. He is awaiting endoscopic treatment for vesicourethral reflux.

Figure 1: Right kidney with pyelocalicial triplication in laparoscopic surgery



DISCUSSION

Ureteral triplication is an extremely rare anomaly, and about 100 cases have been described in the literature since the first report in 1870.[4] Triplication of the ureter can be classified by Smith's classification, which divides it into 4 types: (1) triple ureters or complete triplication (35%), (2) incomplete triplication where two of the three ureters join on their way to the bladder, resulting in two holes present in the bladder (21%), (3) tripid ureters that join and drain through a single hole (31%), and (4) double renal ureters with an inverted Y-bifurcation

draining into three orifices (9%).[2,1] In the present case, we can observe a triplication of Smith's type 3. The presence of contralateral duplication, as in our case, occurs in 37% of the patients, ureteral ectopy in 28% and renal dysplasia in 8%. More rarely, vesicoureteral reflux occurs, which is also present in this case.[2]

Patients with triplication may present with varied and nonspecific symptoms, such as low back pain, voiding discomfort, and fever. [5] Reflux, obstruction, kidney stones, ectopy, and ureterocele may also be found.[5] Recurrent urinary tract infection (UTI) is also common in this condition, in addition to urinary incontinence and renal colic. However, it is often asymptomatic.[2, 3, 6]

Diagnosis is made difficult by the absence of specific clinical signs and the need for high diagnostic suspicion.[2] Renal ultrasound will be diagnostic in most cases.[3] Other imaging tests, such as renal scintigraphy, computed tomography urography, cystoscopy and, especially, intravenous urography, can also help in the diagnosis, when necessary.[1,3] Treatment is individualized and depends on the extent of the clinical picture, the anatomical and functional evaluation of the urinary tract, but is mainly by partial or total nephrectomy.[2] The laparoscopic approach in the present case was chosen due to the lower risk of complications and rapid recovery.

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