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RENAL DUPLICATION IN PEDIATRIC PATIENTS: CASE REPORTS

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Abstract: Introduction: Congenital RIM and urinary tract (Cakut) abnormalities are one of the main causes of morbidity in children, being the most common renal duplication of the upper urinary tract. Mesonefro differs from the fourth week of development, through the most caudal cell clusters of the Nefrogenic cord, where they form mesonégric vesicles that become mesonefractive tubules. When growing, they communicate sideways with Dewolff duct (DW), which suffers evolination, forming the Ureteral button (bu). Thus, duplication depends on the BU division. **Methodology:** The authors performed a retrospective review of the clinical records of 5 children with prenatal diagnosis of renal duplicity. In this study, sex parameters, age group, symptomatology, complementary exams made (pre and post-natals) and respective changes, instituted treatment and clinical evolution. **Case Report:** 5 cases of renal doubling were analyzed, of these 4 are female and 1 male. The majority referring to the upper pole, of which 3 are located on the left and 2 on the right. The diagnosis was obtained through prenatal exams, urotomography and renal scintigraphy with DMSA. Chemoprophylaxis was used in all patients to surgery. Endoscopic treatment was performed only in a patient, but without success. All were operated up to 1 year and 6 months of life and the surgery was characterized by partial nephrectomy with open-routed ureterectomy. In the postoperative period, the patients presented good evolution, without complications and followed with outpatient follow-up. **DISCUSSION:** When renal duplication is partial, it occurs due to the bifurcation of the ass rod and, when it is complete, it occurs through the growth, separately, of more than one in which is completely developed. This may occur due to a flaw in the signs of embryology in the budding of BU and the regression of the mesonecimal mesenchyme. There is a

predominance in female, but still without explanation for this pattern. On clinical repercussions of supranumeric kidneys, there is a reflux or ureterocele promotion with obstruction, as well as pain and evolution for hypertension and renal failure. **Conclusion:** It is deprecated that the viability of early identification of renal duplication and other cakut in prenatal care is an important form of intervention and therefore must have its widespread practice.
Keywords: Congenital anomaly, Renal duplication, Urinary tract.

INTRODUCTION

Congenital RIM and urinary tract (Cakut) abnormalities are one of the main causes of morbidity in children, being the most common renal duplication of the upper urinary tract. Most of these diseases are only clinically accompanied by, making it necessary a correct diagnosis of the morphological alteration, as well as the correct evaluation of possible complications.

Renal duplication is a common cause of asymmetry of dimensions between kidneys during childhood and occurs at 1% to 2% of the population, being more prevalent in female sex. This duplication can be complete or incomplete, with the most common unilateral form than bilateral, and is often associated with various complications. RIM with double collector system has larger size, especially on its longitudinal axis, and higher volume of parenchyma.

In complete duplicity there are two collecting systems for a single kidney and two urethers of the same side, which endeavor in separate holes. The association of duplicity is frequent to other congenital nephro-urological anomalies, namely the vesic-ureteral reflux (RVU), ureterocele and ectopic ureter which, by their comorbility, must be diagnosed early. In addition, reflux in the collector system of the lower segment can produce scars and deformities of this segment.

Incomplete duplicity there are two collector systems and two urethers that merge, at any level, between kidney and bladder, to give a unique ureter that usually discloses in the Vesical Base (Maranhão, 2013).

Embrygically, the Mesonephro differs from the fourth week of development, through the most caudal cell clusters of the Nefrogenic cord, where they form themselves mesonéfric vesicles that become mesonefractive tubules. When growing, they communicate sideways with Dewolff duct (DW), which suffers evolination, forming the Ureteral button (bu). Thus, duplication depends on the BU division.

Being considered a major asymptomatic entity, especially in the early years of life, its identification is done very often, during the investigation of other clinical conditions. When symptomatic, renal duplicity may manifest by a broad clinical spectrum: urinary infection, urinary incontinence, palpable abdominal mass, poor weight evolution, or purulent leukorrector. This set of symptoms must be aware of, in order to initiate an appropriate investigation and follow-up.

The follow-up of this pathology is debatable. According to some authors, if duplication is asymptomatic there is no need for complementary evaluation. On the other hand, in complex double systems, those associated with other nephro-uropathy, a multimodal approach is often used that necessarily integrates renal ultrasound and the milder serial cistouterography. Additional image assessment, such as scintigraphy, intravenous urography, computerized axial tomography or nuclear magnetic resonance imaging, may be indicated for better morphological and functional characterization of the affected kidney.

For follow-up, antibiotic prophylaxis, beginning on the first day of life, and

cystography would be recommended to those presenting suggestive signs of hydronephrosis. Complementary research would be reserved for those presenting bilaterality of duplicity, vesico-ureteral reflux, ureterocele or associated ectopic ureter, intercurrence of urinary infection, clinical deterioration or surgical intervention planning - the surgery can be necessary to correct obstruction or vesicoureteral reflux (Rodrigues, 2008).

METHODOLOGY

The authors performed a retrospective review of the clinical records of 5 children with prenatal diagnosis of renal duplicity. The age group varied from 1 to 4 years of age. The suspicion was based on the imaginological findings found through ultrasonographic prenatal exams and follow-up to urotomography or renal scintigraphy with DMSA. In each patient, the decision to carry out complementary studies was at the medical-patient criteria of necessity, especially, surgical clinic.

In this study, sex parameters, age group, symptomatology, complementary exams made (pre and post-natals) and respective changes, instituted treatment and clinical evolution were reported. The sample, however, is composed of patients referred to pediatric surgery already with clinical manifestations of renal duplication, therefore, no case of duplication without symptoms.

CASE REPORT

5 cases of renal doubling were analyzed, of these 4 are female and 1 male. Most renal duplications have been referring to the upper pole, of which 3 are located on the left and 2 on the right. The most common clinical manifestations were referring to urinary repetition infection, one of them of urinary incontinence.

The diagnosis was obtained by prenatal examinations, urotomography and renal scintigraphy with DMSA by evidencing absence of the function in the upper pole in all patients - except in which it had exclusively in lower polo. Overall, the most common changes included hydrorshipeteronephrosis with higher pole dilation in 4 cases and dilatation only from the lower polo in 1, which occurs more rarely.

Chemoprophylaxis was used in all patients to surgery. Endoscopic treatment was performed only in a patient, but without success. All were operated up to 1 year and 6 months of life and the surgery was characterized by partial nephrectomy with open-routed ureterectomy. In the postoperative period, patients presented good evolution, without complications and followed with outpatient follow-up.

DISCUSSION

When renal duplication is partial, it occurs due to the bifurcation of the ass rod and, when it is complete, it occurs through the growth, separately, of more than one in which is completely developed. This may occur due to a flaw in the signs of embryology in the budding of BU and the regression of the mesonecimal mesenchyme. There is a predominance in female, but still without explanation for this pattern.

On clinical repercussions of supranumeric kidneys, there is a reflux or ureterocele promotion with obstruction, as well as pain and evolution for hypertension and renal failure. In the pediatric band, urological malformations relate with greater development of urinary repetition infections and urinary dysfunction frameworks.

CONCLUSIONS

Congenital RIM and urinary tract (Cakut) abnormalities are one of the main causes of morbidity in children, being the most common renal duplication of the upper

urinary tract. Most of these diseases are only clinically accompanied by, making it necessary a correct diagnosis of the morphological alteration, as well as the correct evaluation of possible complications.

That said, all reported cases had their renal duplications identified since prenatal, which culminated in a timely and resolutive treatment. Thus, it is possible that the viability of early identification of renal duplication and other cakut in prenatal care is an important form of intervention and therefore must have its widespread practice.

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