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TREATMENT OF URETEROCELE IN CHILDREN: RESULTS OF A PILOT STUDY

Abstract: The aim of the study: to evaluate the results of treatment of children with ureterocele (UC). Materials and methods of the study: a retrospective analysis of the treatment of 106 children with UC was performed. Results: intravesical localization of UC was in 85.0% of cases, urethral – in 15.0%. Reflux was recorded in 34 children (32.1%). After dissection of the UC, reflux was detected in 12 cases (21.8%). Normalization of urodynamics was achieved in 93.4% of cases. Discussion: 55 patients (51.9%) had a duplication of the kidney.

Keywords:ureterocele, endoscopic treatment, vesicoureteral reflux, children.

INTRODUCTION

Ureterocele (UC) is a cystic dilation of the terminal ureter located in the urinary bladder (UB) or urethra. This is one of the variants of obstruction of the terminal part of the ureter, leading to the most severe urodynamic disorders of the upper urinary tract [1]. The incidence of UC in live newborns is 1:4000 [2]. The genetic cause of the formation of UC as part of the CACUT syndrome (congenital anomalies of the kidney and urinary tract) has not yet been clarified and is individual [3]. The age of detection of UC in children tends to decrease, and prenatal diagnosis of this developmental defect in the fetus is currently not so rare. Sonographic visualization of the UC is possible from the 16th week of intrauterine development, which allows planning fetal surgery for the purpose of decompression of the upper urinary tract [4].

MATERIALS AND METHODS

Minimally invasive interventions performed using laser and puncture techniques for orthotopic and ectopic UC in the fetus are highly effective [2]. Urodynamic disorders in UC affect the lower and upper urinary tract, accompanied by the formation of obstructive ureterohydronephrosis or infravesical obstruction with significant pathological changes in the kidneys [1]. The most common clinical manifestations of UC are urinary tract infection, infravesical obstruction, ureterohydronephrosis, in some cases with complete loss of function of the upper pole of the kidney. Rarely occurring in UC in children, by middle age, stones can form in the UC with a frequency of up to 90.2% by the age of 41 [3]. In this case, we are probably talking about “secondary” UC due to obstruction of the ureteral orifice by a stone.

RESULTS AND DISCUSSION

The leading role in diagnosis verification is played by radiation methods of examination, treatment measures are mainly aimed at preventing urinary infection, preventing further damage to the renal parenchyma, determining the timing and type of surgical treatment [4]. Surgical interventions for UC depend on its location (urethral or intravesical) and the effect on the urodynamics of the upper and lower urinary tract. Possible options are reconstruction of the urinary tract with removal of the UC and reimplantation of the affected ureter, removal of the additional segment of the kidney and ureter in case of loss of its function (upper heminephroureterectomy) [1]. A frequent concomitant disorder of the urodynamics of the upper urinary tract in UC is vesicoureteral reflux (VUR), which has a destructive effect on the corresponding segment or the kidney as a whole. In open surgery for UC, the

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number of complications requiring repeated interventions reaches 100%, which dictates the need to use precision decompression methods to prevent urodynamic disorders. The risk of repeated interventions is extremely high in ectopic UC and high-grade VUR in the ipsi- or contralateral ureter [2].

Inclusion criteria:

– children aged 0 months to 18 years with diagnosed UC;

– presence in the patient's medical history or electronic medical record of a protocol of endoscopic treatment of UC with or without simultaneous or delayed other surgical interventions.

Exclusion criteria:

– presence in the documentation of information on primary open surgical intervention on the kidney or ureter for UC aimed at decompression of the upper urinary tract, or on performing heminephrouterectomy;

– absence in the medical documentation of indications for performing minimally invasive surgical intervention in a patient diagnosed with UC;

– absence of information on a control examination after endoscopic intervention.

Sample characteristics. Medical data of 130 patients diagnosed with ureterocele treated in the urology department from 2013 to 2024 were assessed. According to the inclusion criteria, data of 106 (81.5%) patients were analyzed. Twenty-four children had exclusion criteria (no mention of endoscopic intervention, primary heminephroureterectomy due to loss of segment function with prolapsed ectopic ureterocele, no information on follow-up examination). Study characteristics. Patients for inclusion in the open, non-randomized, retrospective, single-center pilot study were selected from archival records and the results were tracked from the moment of ureterocele diagnosis until the age of 18 years or the upper time limit of the study duration.

In the vast majority of cases, children were admitted to the clinic with verified UC detected during examination in the prehospital period. Prenatal diagnostics was successful in 19 patients (17.9%), who were included in the youngest age group. In other cases, children were examined for pyelonephritis - 41 (38.7%), leukocyturia - 13 (12.3%), the symptom of "blockage" - 5 (4.7%), renal colic - 3 (2.8%), hematuria - 2 (1.9%). Asymptomatic course of the disease, in which the diagnosis was accidental during a routine ultrasound examination (US), was noted in 22 children of different ages with ecto- and orthotopic UC.

CONCLUSION

Kidney duplication detected in 55 patients (51.9%) was statistically significantly more common in girls. The relationship between the sign and gender and the prevalence of duplication in girls are consistent with literature data [2].

According to cystography data, VUR was detected in 34 children (32.1%) with 43 ureters with an approximately equal distribution on the affected sides. The frequency of reflux detection in the group corresponds to literature data [3].

The degree of VUR was Me=3 [4] (2=21.32, df=3, $p<0.001$).

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