

“LONG-TERM RESULTS OF SURGICAL TREATMENT FOR CONGENITAL HYDRONEPHROSIS IN CHILDREN”

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Relevance. Despite the rapid development and adoption of modern high-tech methods, the issue of congenital hydronephrosis remains relevant and is a relatively common condition of the urinary system. In the arsenal of surgical treatment methods for congenital hydronephrosis (CH), laparoscopic pyeloplasty has become a more preferred and widely popular alternative to the classical approach, as it fully meets these new requirements. However, the outcomes of surgical treatment for CH are still not entirely satisfactory, due to a relatively high rate of postoperative complications and mortality. The significant proportion and inconsistency of treatment outcomes in patients with hydronephrosis necessitate a systematic approach to treatment tactics, accumulating experience from recent years. This will allow for the substantiated choice of either surgical or conservative treatment.

Objective of the study. To analyze the outcomes of surgical treatment for children with hydronephrosis.

Materials and methods. The study was based on an analysis of the treatment outcomes of 691 children with congenital hydronephrosis, aged 3 to 15 years, treated in urological departments of three medical institutions in the Fergana Valley: Andijan Regional Children's Multidisciplinary Medical Center (ARCMC), Namangan Regional Children's Multidisciplinary Medical Center (NRCMC), and Fergana Regional Children's Multidisciplinary Medical Center, from 2013 to 2022.

According to the study objective, patients were divided into two groups: the comparison group, consisting of 337 (48.8%) children treated according to the accepted CH patient management standards from 2013 to 2017, and the main group, consisting of 354 (51.2%) children treated from 2018 to 2022 based on a developed therapeutic-diagnostic algorithm and a modified pyeloplasty technique, considering the stages of CH development and the possibilities of minimally invasive surgery (laparoscopy). Among the children included in the study, boys (72.9%) outnumbered girls (27.1%).

Most of the children (45.1%) were aged 8-15 years (school age) due to late visits by patients and their parents, despite the implementation of mandatory antenatal and postnatal ultrasound screening of the kidneys and urinary tract.





The majority of children presented with pronounced clinical symptoms when the kidney had grown to a significant size, with associated dysfunction in the urinary system.

Hydronephrosis of grade III was the most frequently detected, with 247 (73.3%) cases in the comparison group and 273 (77.2%) in the main group. Grade II (13.9% - 9.8%) and grade IV (12.2% - 12.7%) were much less common, respectively. Among the 337 children in the comparison group, 215 (63.7%) were admitted in satisfactory condition, 105 (31.1%) in moderate condition, and 17 (5.1%) in serious condition. In the main group, these indicators were 222 (62.7%), 109 (30.8%), and 23 (6.5%), respectively.

Thus, in the overwhelming majority of cases, clinical signs of CH were absent, and the diagnosis was established by ultrasound, with most patients showing changes in urine tests.

Surgical intervention was performed in 330 (97.9%) patients from the comparison group and 352 (99.4%) from the main group. It is important to note that in the comparison group, the primary surgical method was open surgery (93.7%), whereas in the main group, the proportion of open surgery was only 20.1% (71 patients), with 281 (79.3%) children undergoing laparoscopic procedures.

The main group showed an increase in the proportion (from 20.1% to 79.3%) of laparoscopic surgeries, replacing open surgical interventions with the use of laparoscopic technologies (93.7% and 4.1% in the comparison group).

It is noteworthy that 5 (1.5%) children with grade I and II hydronephrosis and 2 (0.6%) children with grade IV hydronephrosis and comorbidities (chronic renal failure) underwent conservative treatment, with dynamic observation chosen for these patients.

Results and discussion. Recovery, based on urological examinations conducted 6-8 months post-treatment (restoration of upper urinary tract urodynamics, improved kidney function), was observed in 97.6% (675 children).

Long-term results were tracked in 325 out of 350 children. Excellent results were achieved in 213 (60.2%) patients in the main group and 10 (2.9%) in the comparison group, characterized by the complete absence of symptoms post-surgery; the patient was practically healthy, with no pain, no need for diet, and full restoration of the pelviureteric junction (PUJ) in urine tests and excretory urography.

Good results were observed in 135 (38.1%) patients in the main group and 78 (23.1%) in the comparison group. These patients experienced occasional



mild heaviness in the lumbar region. Ultrasound, excretory urography, and urinalysis showed no signs of changes or clinical manifestations such as pain syndrome, reduction of the collector system of the operated kidney on ultrasound, restoration of urine flow through the newly created pyeloureteral anastomosis, and improvement of differential renal function.

Satisfactory outcomes were achieved in 2 (0.5%) patients in the main group and 230 (68.3%) in the comparison group, characterized by tenderness around the postoperative scar, minor kidney dysfunction, episodes of chronic pyelonephritis exacerbation with periodic lumbar pain, transient changes in urine analysis (mild leukocyturia and proteinuria), occasional clinical symptoms of the disease, and delayed emptying of the pyelocaliceal system (grade I hydronephrosis - pyelectasis). All these manifestations were corrected with conservative treatment.

The group of patients with unsatisfactory long-term outcomes deserves special attention. In cases with unsatisfactory results, pain in the lumbar region was reported, episodes of pyelonephritis exacerbation were noted, and ultrasound showed hypoplasia with wrinkling of the operated kidney or signs of grade II-III hydronephrosis. Excretory urography showed no function of the operated kidney, and diuretic renography indicated deterioration of differential kidney function.

Unsatisfactory results were noted in 18 (5.3%) patients in the comparison group, with none in the main group.

Conclusion. Optimized management tactics for congenital hydronephrosis create optimal conditions for healing the newly created anastomosis and increase the proportion of excellent results by 57.2% (from 2.96% to 60.2%), good results by 15.0% (from 23.1% to 38.1%), and reduce satisfactory outcomes by 67.6%

