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OUR EXPERIENCE IN SURGICAL TREATMENT OF CONGENITAL HYDRONEPHROSIS IN CHILDREN

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ANNOTATION: The authors provide an analysis of the results of diagnosis and treatment of congenital hydronephrosis in children 691 children with congenital hydronephrosis. The effectiveness of differentiated management tactics for patients with congenital hydronephrosis in children has been demonstrated, depending on age and the nature of the lesion.

The authors concludes that optimized tactics for managing patients with congenital hydronephrosis, depending on the nature of the lesion, will eliminate the need for repeated traditional interventions with an increase in the proportion of patients with no complications in the postoperative period, reduce the incidence of mortality.
Key words: Congenital hydronephrosis, pyeloplasty, improved ureteropyelonastomosis.

ANNOTATSIYA: Mualliflar tug‘ma gidronefrozli 691 bolalarda ushbu xastalik tashxisi va davolash natijalarini tahlil qiladi. Bolalarda tug‘ma gidronefroz bilan og‘rigan bemorlarni differensial davolash taktikasining samaradorligi yoshga va zaralanish tabiatiga qarab ko‘rsatildi.

Mualliflar xulosasiga ko‘ra, tug‘ma gidronefrozli bemorlarni davolashning optimallashtirilgan taktikasi, yoshga va zaralanish tabiatiga qarab, operasiyadan keyingi davrda asoratlari bo‘lmagan bemorlarning ulushini ko‘paytirish bilan takroriy an'anaviy aralashuvlarga bo‘lgan ehtiyojni yo‘q qiladi, o‘lim holatlarini kamaytiradi.

Kalit so‘zlar: Tug‘ma gidronefroz, peloplastika, takomillashtirilgan ureteropelonastomoz.

Relevance. Congenital malformations of various organs and systems are recorded with a frequency of 50-60 per 1000 newborns. At the same time, congenital hydronephrosis (HC) accounts for more than 50% of all "obstructive uropathies" and is 1:800 newborns, while the disease is characterized by asymptomatic course, and the leading place in the cause of its occurrence is occupied by stenosis of the pyeloureteral segment [4, 7, 8, 9, 10].

At the same time, a lot of questions and problems related to the patient's long stay in the hospital, prolonged recovery, led to the search for the most gentle methods of surgical treatment of this pathology [3, 7, 11]. This will allow rational use of existing methods, taking into account the modern possibilities of minimally invasive surgery, rather than the use of traumatic lumbotomic approaches.

In this regard, despite the constant interest in the problem of HCV, questions about clear criteria for surgical treatment are still debatable [1, 2, 6].

The purpose of the study. Improvement of surgical treatment results and optimization of management tactics for children with hydronephrosis based on the use of a modified method of ureteropyeloanastomosis.

Materials and methods. The study included an analysis of the treatment results of 691 children with congenital hydronephrosis aged 3 to 15 years on the basis of urological departments in three medical institutions of the Ferghana Valley, which are conditionally divided into two groups:

- comparison group - 337 (48.8%) children, (from 2013 to 2017) where surgical tactics (therapeutic and diagnostic program, choice of surgical intervention methods, preoperative preparation and postoperative management) are based on generally accepted principles

- the main group consisted of 354 (51.2%) children (from 2018-2022), where treatment is based on improved tactical therapeutic and diagnostic algorithms and developed ureteropyeloanastomosis.

With congenital hydronephrosis in children under the age of 3 years, 143 (20.7%) were diagnosed, 236 (34.2%) and 312 (45.1%) patients aged 4-7 years and 8-15 years, with a predominance of boys - 504 (72.9%), compared with girls - 187 (27.1%) (Fig. **1).**

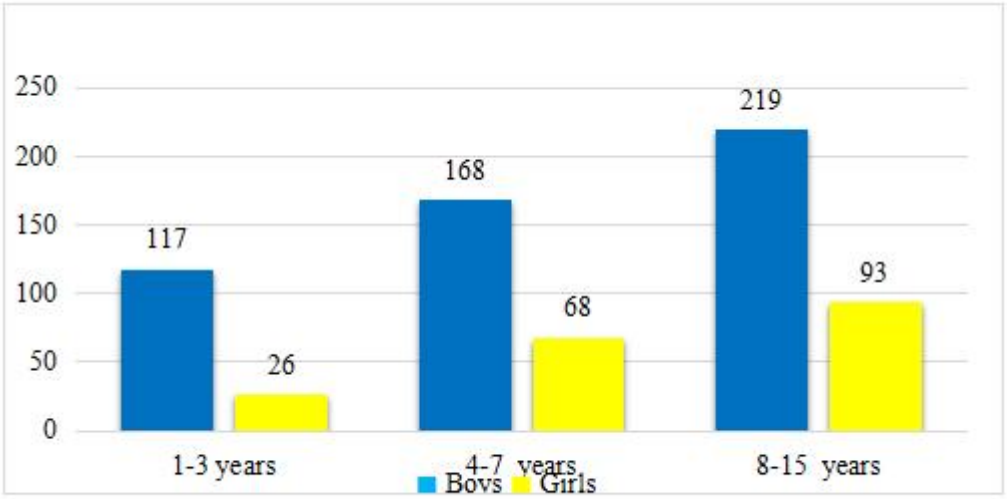
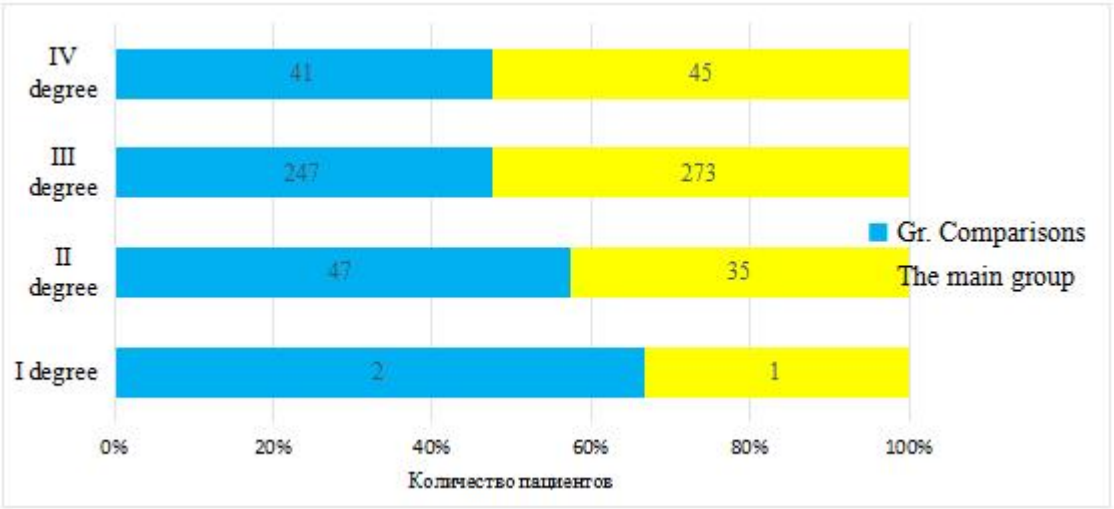


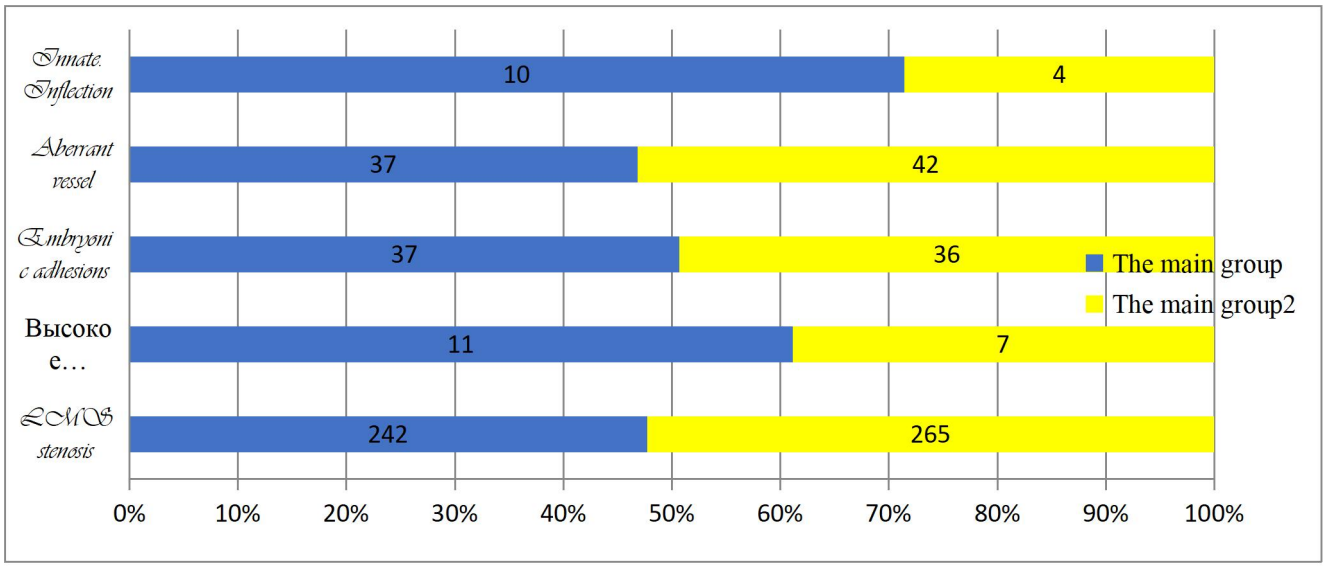
Figure 1. Distribution of patients according to age and gender
The maximum number of children enrolled in urological departments with stage III hypertension, which amounted to 75.3% of the total number of hospitalized.



At the same time, hydronephrosis of the III degree was most often detected in 247 (73.3%) in the comparison group and 273 (77.2%) children of the main group, much less often - II (13.9% -

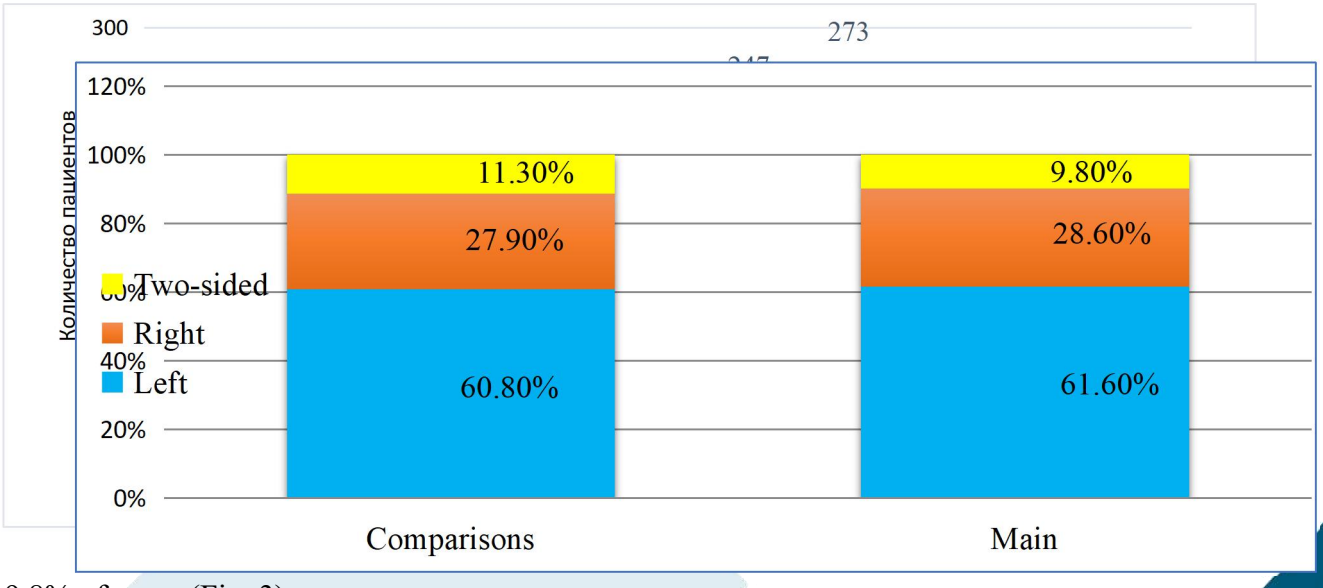
9.8%) degrees and IV (12.2% - 12.7%) degrees, respectively (Fig. 1). Figure 1. Distribution depending on the degree.

In most patients, the cause of hypertension was internal factors such as LMS stenosis, which amounted to 242 (71.2%) and 265 (74.8%), respectively, high ureteral discharge 11 (3.2%) and 7 (1.9%), embryonic adhesions in 37 (10.9%) and 36 (10.1%) children. Among the external causes operated on in the period from 2013 to 2017 (comparison group), an aberrant vessel was detected in 37 (10.9%) patients, congenital ureteral inflection in 10 (2.9%) children, in the period from



2018 to 2022 (main group) in 42 (11.8%) and 4 (1.2%) of patients.

To determine the severity of PUS obstruction, we used the classification proposed in 2007 by the Society for Fetal Urology [12] modified by Onen A. (fig. 2).
Figure 2. Degrees of hydronephrosis in groups of sick children. In children with HYPERTENSION, the predominance of left–sided lesions was noted - 205 (60.8%) and 218 (61.6%), right-sided localization was noted in 27% and 28.5% of cases, bilateral - in 11.2% and



9.8% of cases (Fig. 3).

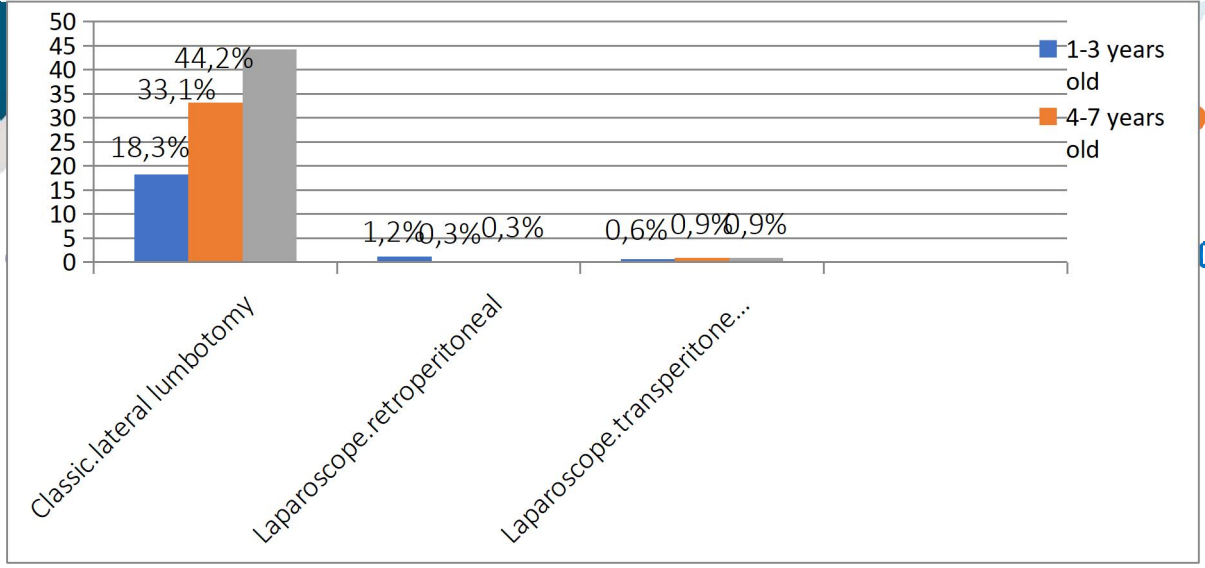


Figure 3. Localization of congenital hydronephrosis.

It should be noted that, despite the early appearance of signs of hydronephrosis, the detailing and clarification of the diagnosis in 20.7% of cases was carried out later than 3-5-7 years of the disease, after repeated manifestations of pyelonephritis. Since in some cases hydronephrosis is detected as an accidental finding (16.8%), during ultrasound examination of the abdominal cavity and retroperitoneal space.

The complex of preoperative examination of children included:

1. Assessment of the general somatic status of the patient;
2. Instrumental research methods to clarify the level and cause of obstruction of the pelvic ureteral segment;
3. The choice of treatment method.

To reduce radiation exposure, in case of suspected hydronephrotic transformation, computed tomography was performed against the background of the excretory phase of intravenous urography.

In the comparison group, classical lateral lumbotomy with a wide Federov incision up to 10 cm prevailed in 316 (93.7%) children, especially in young children (18.3%), which subsequently led to the occurrence of postoperative hernias, scarring of the skin of the younger generation of children (Fig. 4).**Figure 4. Applied accesses in the comparison group**

Laparoscopic approaches were used in the early stage of the introduction of minimally invasive techniques, which was used only in 14 (4.1%) children, with conversion to traditional access in 6 (42.8% of 14) of them. Laparoscopic retroperitoneal accesses have been attempted in children aged 1-3 years (1.2%). Laparoscopic transperitoneal access was used in 8 (2.4%) children.

It should be noted that conservative measures were carried out in 5 (1.5%) children with grade I and II hydronephrosis and in 2 (0.6%) children with grade IV hydronephrosis with concomitant diseases (chronic renal failure). It was decided to conduct dynamic follow-up in these patients (Fig. 4).

Andersen-Hines pyeloureteroanastomosis was performed in 92 (27.2%), LMS resection with end-to-end pyeloureteroanostomosis in 58 (17.2%), laparoscopic dissection of embryonic cords in 14 (4.1%), Foley surgery in 119 (35.3%), in 6 (1.7%) children with Stage IV of hydronephrosis produced nephrectomy on the one hand, crossing of an aberrant vessel in 37 (10.9%) children. In

the comparison group, after all operations, the pelvis was drained for about 10-15 days.

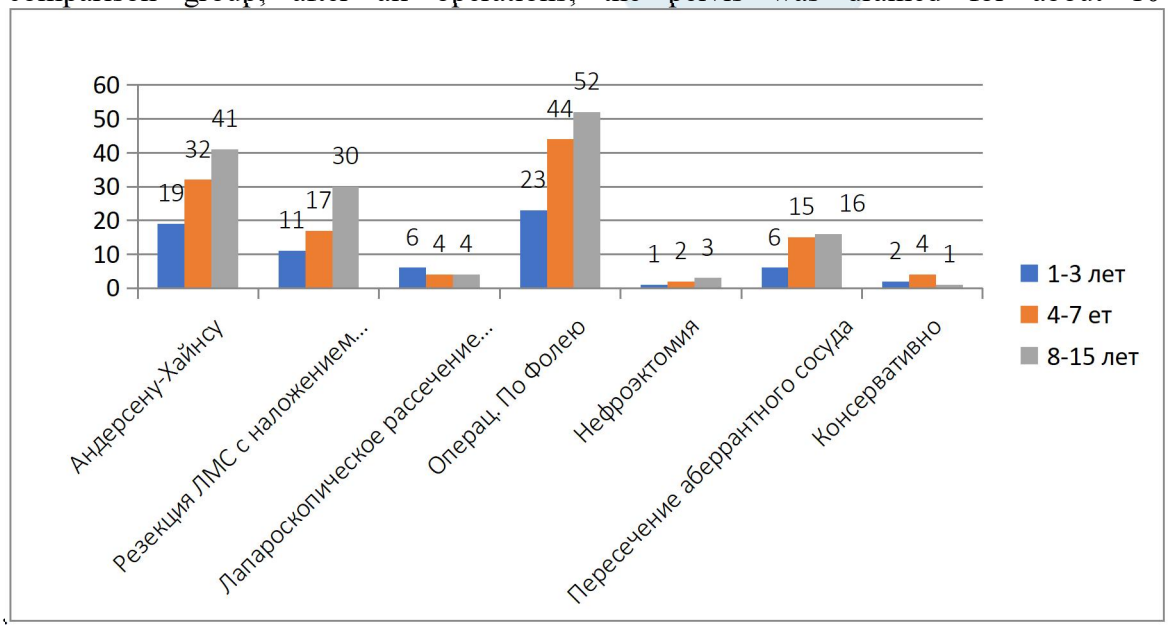


Рисунок 4. Виды операций в группе сравнения по возрастным группам

The average duration of open pyeloplasty using traditional access in the lumbar region (according to Fedorov) was 91 ± 12 minutes ($p < 0.05$). The average duration of surgery using laparoscopic access is 120 ± 11 minutes ($p < 0.05$).

In the main group of patients, we adhered to the following principle when choosing the method of pyeloplasty with the open method: minimal trauma - maximum effect.

In the main group, pyeloplasty was performed using an improved posterolateral lumbotomy with a mini-access with an incision of no more than 5 cm in 71 (20.1%) children, especially in young children (9.8%) (Fig. 5).

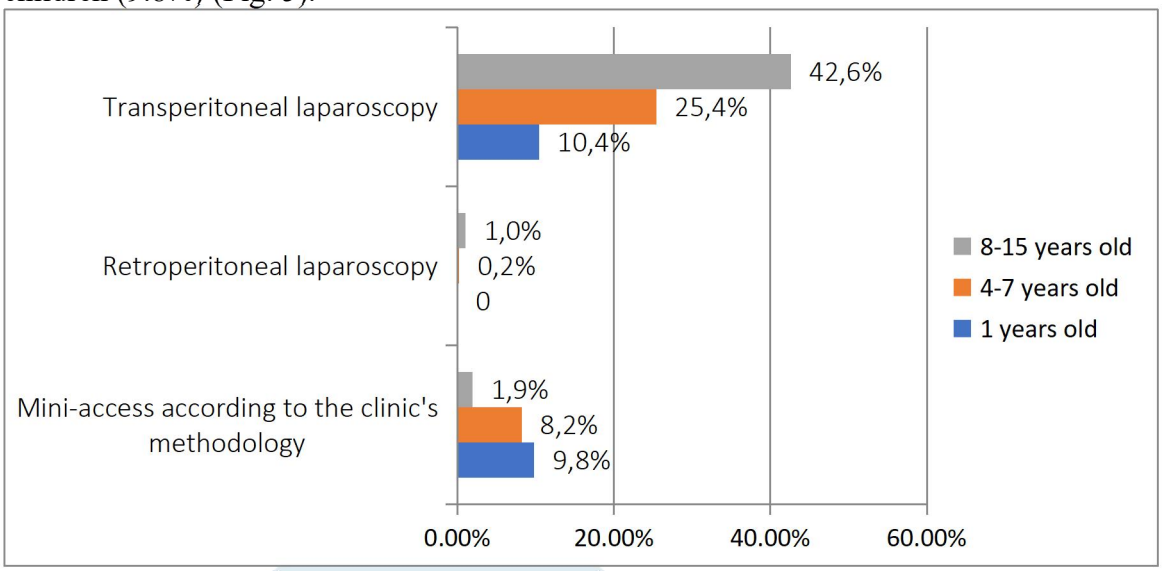


Figure 5 . Applied accesses in the main group.

The experience of using laparoscopic operations has shown that with minimally invasive operations, it becomes necessary to use such incisions that, without being so traumatic, would create wide and convenient access for the surgeon to all departments of the LMS.

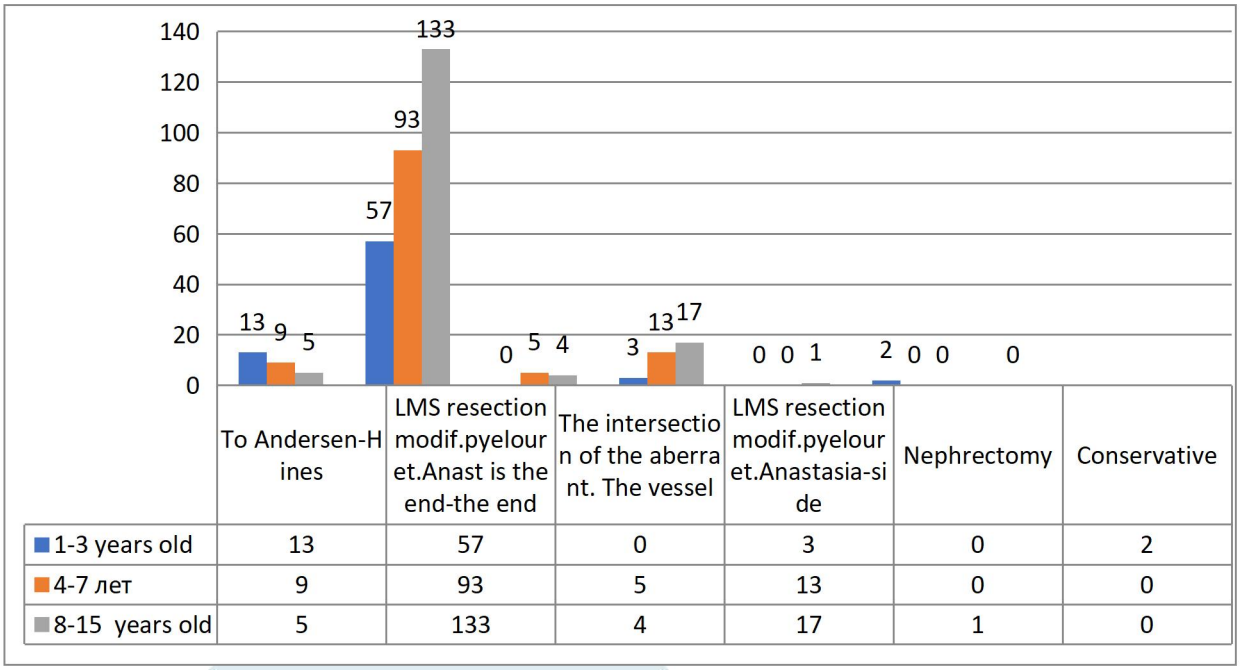
Based on the shortcomings and omissions in the comparison group and the accumulation of experience in the use of minimally invasive methods of kidney surgery (laparoscopy), it led to an increase in the number of laparoscopic accesses - in 281 (79.3%) children, with conversion to a modified posterior-lateral mini-access in only 1 (0.3% of 281) of them.

It should be noted that in 1 (0.28%) child with grade I hydronephrosis and in 1 (0.8%) child with grade IV hydronephrosis, conservative measures were carried out due to the refusal of parents from surgery due to the severity of the child's condition. It was decided to conduct dynamic follow-up in these patients.

The average duration of open pyeloplasty using a modified mini-access in the posterolateral surface of the lower back (according to the clinic method) was 61 ± 7 minutes, 30 ± 5 minutes shorter than in the comparison group (91 ± 12 minutes). ($p < 0.05$). The average duration of the operation using laparoscopic access is 70 ± 8 minutes, i.e. 50 ± 3 minutes shorter than in the comparison group (120 ± 11 minutes) ($p < 0.05$).

In the main group, Andersen-Hines pyeloureteroanastomosis was performed in 27 (7.6%), LMS resection with the imposition of modified pyeloureteroanostomosis "end-side" in 283 (79.9%), aberrant vessel crossing in 9 (2.5%) after preliminary examination of the blood supply to the kidney by its compression, LMS resection with the imposition of modifications.pyeloureteroanostomosis "end-side" with displacement of the aberrant vessel in 23 (6.5%), 1 (0.28%) children with stage IV hydronephrosis underwent nephrectomy on one side (Fig. 6).

Here it is necessary to clarify that the resection of LMS with the formation of pyeloureteroanostomosis should comply with the following rules: eliminate the causes of obstruction, the newly formed LMS should have a sufficient area devoid of a site of dysplastic cells, and the formed site should function well and improve the general condition of patients, rid them of various ailments, i.e. adhere to the principle: elimination of the focus of obstruction, normalization functions and tow truck functions.



	To Andersen-Hines	LMS resection modif.pyeloureteroanastomosis the end-the end	The intersection of the aberrant. The vessel	LMS resection modif.pyeloureteroanastomosis-side	Nephrectomy	Conservative
1-3 years old	13	57	0	3	0	2
4-7 лет	9	93	5	13	0	0
8-15 years old	5	133	4	17	1	0

Figure 6. Types of operations in the comparison group by age group

It should also be noted that conservative measures were carried out in 2 (0.5%) children with grade I hydronephrosis. In these patients, the resolution of the patency of LMS was noted in

dynamics with a return to the initial parameters within an acceptable period and normal functionality in one child, and in one subsequently, with the transition to changes in LMS with impaired patency, an operation was performed with an excellent outcome.

Results and discussion. Comparison of immediate treatment results according to the following parameters:

1. Duration of intervention and anesthesia.

2. The amount of blood loss.

3. The severity of the pain syndrome.

4. The timing of drainage.

5. The frequency of intra- and postoperative complications.

6. The need for bed-day analgesics.

7. Postoperative bed day.

Immediate results of treatment with ureteropyeloanastomosis by a modified method:

The duration of the manipulation (minutes) with the open method using mini-access is 61 ± 7.2 minutes (in the comparison group 91 ± 12 minutes), the duration of the operation using laparoscopic access is 70 ± 8.1 minutes (in the comparison group 120 ± 11 minutes)

The duration of anesthesia (minutes) with the open method using mini-access is 68.3 + 1.5, with laparoscopic access 80 ± 3.1 minutes.

Blood loss (milliliters) 30.1+1.5 ml

The duration of bed rest (day) with the open method using mini-access is 1.8 ± 1.2 days, with laparoscopic access 1 ± 0.3 knocks.

The time of wound drainage (day) is 2.6± 0.1 days.

Complications of the I/o period in the main group were 5 (1.4%), in the comparison group 41 (12.4%).

The need for injection of narcotic analgesics after classical open surgery for 3.9±0.6 bed days, in the main group after a modified posterolateral mini-access they were needed for 1.3±0.6 bed days, after laparoscopic ureteropyeloanastomosis 1.0±0.2 bed days.

The postoperative bed day was significantly shorter and amounted to 6±0.42 days compared with patients who underwent classical traditional open lumbotomy - 20.8±3.2.

In the comparison group, iatrogenic lesions were generally found in 41 (12.4%) patients. With the traditional open method of surgery, bleeding from the retroperitoneum (3.9%) and wounds (2.7%) with a wide incision were most often noted. Kidney damage was noted in 3 (0.9%), damage to the renal vessels during their isolation and mobilization in 7 (2.1%) children. In the initial period of mastering laparoscopic surgery techniques in the comparison group, intraoperative complications were noted in 9 (2.7%) children, with conversion to traditional access in 6 (1.8%) - (42.8% of 14). Of these, damage to the intestinal wall in 1 (0.3%), damage to the omentum in 1 (0.3%), damage

to the renal vessels in 2 (0.6%) children, bleeding from the retroperitoneum was noted in 1 (0.3%) when attempting retroperitoneal laparoscopy.

In the main group, during open mini-access surgery, iatrogenic lesions were observed only in 2 (0.5%) in the form of bleeding from the wound and retroperitoneum, in 1 (0.28%) case from the wound, while the incision length did not exceed 6 cm. The bleeding was stopped mainly by conservative measures. In laparoscopic ureteropyeloanastomosis, complications were observed only in the form of bleeding from a trocar wound 3 (0.8), with a conversion of access to a "mini-access" of 1 (0.2%).

Comparative analysis showed that in the main group, in relation to the comparison group, the frequency of iatrogenic injuries decreased by 11% (from 12.4 to 1.4%), with a decrease in the number of conversions by 1.6% (from 1.8 to 0.2%).

In the comparison group, postoperative complications associated with surgery were noted in 31 (9.4%) children with a total number of relumbotomies in 3 (0.9%), relaparoscopy in 2 (0.6%) children.

Of these, external urinary congestion was noted in 5 (1.5%), anastomosis failure in 4 (1.2%), hematuria in 3 (0.9%), impaired drainage function in 5 (1.5%), frequent and painful urination in 7 (2.1%).

In the main group, postoperative complications associated with surgery The intervention was noted in 3 (0.8%) and in none of the cases were relaparoscopy and relaparotomy performed.

In the postoperative period, the cosmetic effect of the postoperative wound is also noteworthy. The average incision size after open operations in the comparison group was 10.4 cm (± 2.6), the minimum incision size was 80 mm, the maximum was 100 mm. In the main group, the average wound size after open mini-access operations was 40.2 mm (± 2.8), the minimum incision size was 40 mm, the maximum was 50 mm.

Comparative analysis showed that in the main group, in relation to the comparison group, the frequency of postoperative complications associated with surgery decreased by 8.6% (from 9.4 to 0.8%), with a decrease in the number of relumbotomies by 0.9% (from 0.9% to 0%) and relaparoscopy by 0.6% (from 0.6 to 0%).

General complications in the comparison group as a whole were diagnosed in 20 (5.9%) patients with a fatal outcome in 5 (1.5%) cases, whereas in the main group - in 2 (0.5%) patients with a fatal outcome in 1 (0.2%) case (a decrease in general complications by 5.1% and mortality rate by 1.3%).

Conclusions. Thus, by optimizing the management tactics of patients with congenital hydronephrosis, we achieved an increase in the proportion of patients with no complications in the postoperative periods by 25.6%, and reduced the number of repeated operations from 0.9% to 0%. The developed improved ureteropyeloanastomosis creates optimal conditions for the healing of the newly created anastomosis and allowed to reduce the frequency of general and specific complications from 5.9% to 0.5%, eliminate the need for repeated traditional interventions and the likelihood of long-term recovery of renal function (P=0.005).

References /Iqtiboslar/References

1. Agzamkhodzhaev S.T. The current state of the problem of treatment of congenital hydronephrosis in children // Pediatrics. - Tashkent. - No.3. - 2017. - S. 121-125. (14.00.00, № 16).

2. Beknazarov Zh.B., Agzamkhodjaev S.T., Abdullaev Z.B., Sanginov Sh.A. The results of surgical correction of congenital hydronephrosis in young children // original research. RUSSIAN BULLETIN of Pediatric Surgery, Anesthesiology and Intensive Care. - 2018. - T VIII. - No. 1. - pp. 31-35.

3. Burchenkova N.V. Long-term results of surgical treatment of congenital hydronephrosis in children: abstract. diss. ...candidate of Medical Sciences. Tver, 2020. - 25 p.

4. Vrublevsky S.G., Shmyrov O.S., Vrublevskaya E.N., Lazishvili M.N., Kulaev A.V., Korochkin M.V., Vrublevsky A.S. Laparoscopic pyeloplasty in children: technique, drainage, complications. Pediatric surgery. 2017; 6: 299-302.

5. Hasanov D.A., Barskaya M.A., Terekhin S.S. and others. Analysis of surgical treatment of congenital hydronephrosis/ // Medical sciences. International Journal of Applied and Fundamental Research. - 2016. - No. 12. - pp. 799-802.

6. Minaev S.V., Pavlenko I.V., Chumakov P.I., et al. The peculiarity of morphological manifestations of connective tissue dysplasia in children with abnormalities of the urinary system // Bulletin of Urology. - 2017. - Vol. 5. - No. 3. - pp. 22-29.

7. Nikitina N.A., Kalashnikova E.A., Galich S.R., Sochinskaya T.V. Diagnosis, clinic, treatment and prognosis for kidney hydronephrosis/ // Integrative anthropology. - 2018. - №1.

8. Obukhov N.S., Voronina E.A., Danilyuk S.A. Surgical treatment of congenital hydronephrosis in children of the first year of life // Bulletin of the Ural Medical Academic Science. - No. 1. - 2016, pp. 33-36.

9. Pavlova V.S., Kryuchko D.S., Podurovskaya Yu.L., Pekareva N.A. Congenital malformations of the kidneys and urinary tract: analysis of modern principles of diagnosis and prognostically significant markers of renal tissue damage // Neonatology: news, opinions, training. - 2018.- Vol. 6. - No. 2. - pp. 78-86.

10. Menon P. et al. Outcome analysis of pediatric pyeloplasty in units with less than 20% differential renal function // J Ped Urol. 2016. Vol. 10. P. 11–18..

11. Metzelder M.L. Laparoscopic transabdominal pyeloplasty in children is feasible irrespective of age / M.L.Metzelder, F.Schier, C. Petersen // J. Urol. - 2006. -V. 175, №2. - P. 688-691.

12. Onen A. An alternative grading system to refine the criteria for severity of hydronephrosis and optimal treatment guidelines in neonates with primary UPJ-type hydronephrosis // J Pediatr Urol. - 2007. - Vol. 3. - P. 200-205.