TIBBIYOT
TA'LIMI & INNOVATSIYALARI

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- 14.00.01 - Akusherlik va ginekologiya;
- 14.00.02 - Morfologiya;
- 14.00.03 - Endokrinologiya;
- 14.00.04 - Otorinolaringologiya;
- 14.00.05 - Ichki kasalliklar;
- 14.00.06 - Kardiologiya;
- 14.00.07 - Gigiena;
- 14.00.08 - Oftal'mologiya;
- 14.00.09 - Pediatriya;
- 14.00.10 - Yuqumli kasalliklar;
- 14.00.11 - Dermatologiya va venerologiya;
- 14.00.12 - Tibbiy reabilitologiya;
- 14.00.13 - Nevrologiya;
- 14.00.14 - Onkologiya;
- 14.00.15 - Patologik anatomiya;
- 14.00.16 - Normal va patologik fiziologiya;
- 14.00.17 - Farmakologiya va klinik farmakologiya;
- 14.00.18 - Psixiatriya va narkologiya;
- 14.00.19 - Klinik radiologiya;
- 14.00.20 - Tibbiy genetika;
- 14.00.21 - Stomatologiya;
- 14.00.22 - Travmatologiya va ortopediya;
- 14.00.23 - Hamshiralik ishini tashkil etish;
- 14.00.24 - Sud tibbiyoti;
- 14.00.27 - Xirurgiya;
- 14.00.28 - Neyroxirurgiya;
- 14.00.41 - Xalq tabobati;
- 14.00.35 - Bolalar xirurgiyasi;
- 14.00.34 - Yurak-qon tomir xirurgiyasi

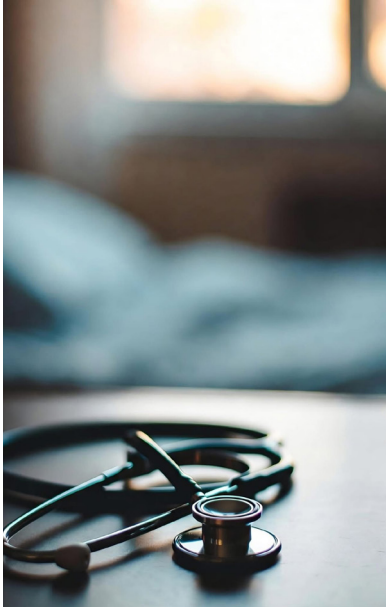
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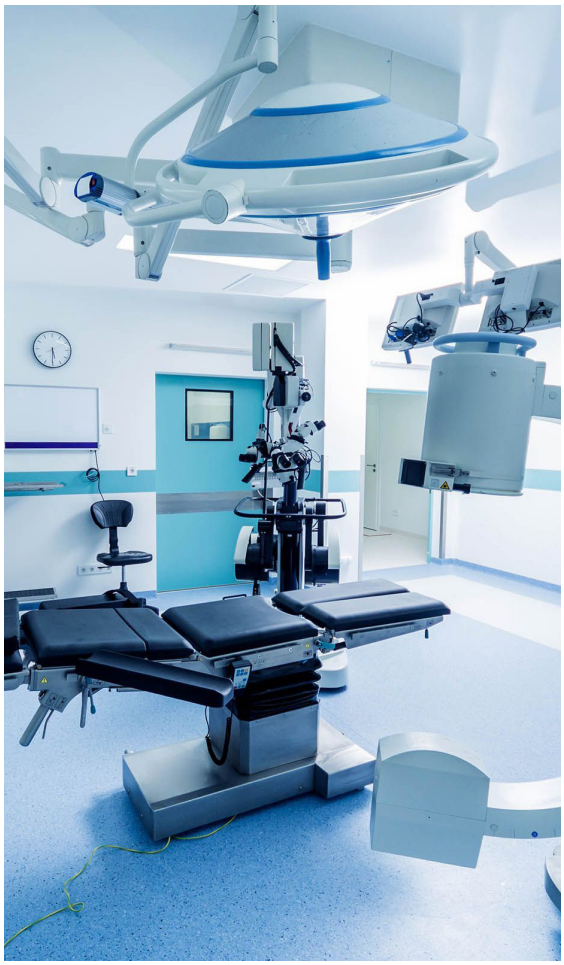
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MUNDARIJA

ОЦЕНКА РЕЗУЛЬТАТОВ КОМПЛЕКСНОГО ЛЕЧЕНИЯ ОСТЕОМИЕЛИТА ВЕРХНЕЙ ЧЕЛЮСТИ У БОЛЬНЫХ САХАРНЫМ ДИАБЕТОМ 2 ТИПА 22
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ENHANCING SURGICAL TECHNIQUES FOR CONGENITAL HYDRONEPHROSIS IN PAEDIATRIC PRACTICE

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Abstract: Ureteropelvic junction (UPJ) obstruction is among the most common causes of congenital hydronephrosis in the paediatric population. Laparoscopic pyeloplasty (LP) is routinely performed in older children, but data on feasibility, safety, and efficacy in newborns and young infants are limited. We evaluated the diagnostic and clinical outcomes of LP in infants <6 months and newborns <6 weeks of age compared with conventional open pyeloplasty (OP). A retrospective analysis of 120 paediatric patients with congenital hydronephrosis who underwent surgical correction in the Multidisciplinary Clinic of Samarkand State Medical University from 2025 to 2026 was carried out. Patients were classified into two groups: Group I (n = 65, age 0–1 year) and Group II (n = 55, age 1–3 years). All patients underwent preoperative renal ultrasound and excretory urography. Postoperative evaluations at 3, 6, 12 and 36 months included ultrasonography, excretory urography and diuretic renography. The therapeutic success was 95% in both age groups. Intrinsic UPJ stenosis was the cause of approximately 40% of the obstructions and 85% of the patients presented with Grade III hydronephrosis (Society for Fetal Urology [SFU] classification). There were no statistically significant differences in intra-operative or post-operative complication rates between the groups. The mean operating time was 161 min in the total LP cohort and 145 min in the <6-week subgroup showing that younger age does not prolong the duration of the procedure. The overall reoperation rate was 8% (6% persistent obstruction and 2% anastomotic leak), and 11% in the <6-week subgroup. The subsequent pyeloplasty was technically more difficult due to pelvic tissue inflammation secondary to placement of the nephrostomy tube preoperatively. At the 1-year follow-up, most patients had a significantly reduced postoperative renal pelvic diameter of less than 1 cm. Early surgical correction (<1 year of age) for severe UPJ obstruction restores normal urodynamic conditions for nephron development and prevents irreversible renal injury. Laparoscopic pyeloplasty can be safely performed by experienced paediatric surgical specialists and is highly successful and feasible even in newborns younger than six weeks of age.

Key words: congenital hydronephrosis, ureteropelvic junction obstruction, laparoscopic pyeloplasty, open pyeloplasty, excretory urography, newborns, neonates, paediatric urology.

Annotatsiya: Jom-siydik nay birikmasi (JSNB) obstruksiyasi pediatriya amaliyotida tug‘ma gidronefrozning eng ko‘p uchraydigan sabablaridan biridir. Laparoskopik pieloplastika (LP) odatda katta yoshdagi bolalarda bajariladi, ammo uning yangi tug‘ilgan chaqaloqlar va go‘daklardagi maqsadga muvofiqligi, xavfsizligi va samaradorligi haqida ma’lumotlar cheklangan. Ushbu tadqiqotda 6 oylikkacha bo‘lgan go‘daklar va 6 haftagacha bo‘lgan yangi tug‘ilgan chaqaloqlarda LP ning diagnostik va klinik natijalari an’anaviy ochiq pieloplastika (O‘P) bilan solishtirib baholandi. 2025–2026-yillar oralig‘ida Samarqand davlat tibbiyot universiteti ko‘p tarmoqli klinikasida jarrohlik amaliyoti o‘tkazilgan tug‘ma gidronefrozli 120 nafar bemor bolalar ishtirokida retrospektiv tahlil o‘tkazildi. Bemorlar ikki guruhga bo‘lindi: I guruh (n = 65, yoshi 0–1 yosh) va II guruh (n = 55, yoshi 1–3 yosh). Barcha bemorlarga operatsiyadan oldin buyrak ultratovush tekshiruvi (UZT) va ekskretor urografiya bajarildi. Operatsiyadan keyingi 3, 6, 12 va 36 oylardagi tekshiruvlar ultratovush tekshiruvi, ekskretor urografiya va diuretik renografiyani o‘z ichiga oldi. Terapiya muvaffaqiyati har ikki yosh guruhida ham 95% ni tashkil etdi. JSNBning ichki stenozi obstruksiyalarning taxminan 40 foiziga sabab bo‘lgan, bemorlarning 85 foizida esa III darajali gidronefroz (SFU tasnifi bo‘yicha) aniqlangan. Guruhlar o‘rtasida operatsiya vaqtida yoki operatsiyadan keyingi asoratlar chastotasida statistik ahamiyatli farqlar kuzatilmadi. O‘rtacha operatsiya vaqti umumiy LP guruhida 161 daqiqani, 6 haftagacha bo‘lgan kenja guruhda esa 145 daqiqani tashkil etdi, bu esa kichik yoshdagi bemorlarda muolaja davomiyligi oshmasligini isbotladi. Qayta operatsiya qilishning umumiy ko‘rsatkichi 8% ni (6% saqlanib qolgan obstruksiya va 2% anastomoz yetishmovchiligi), 6 haftagacha bo‘lgan guruhda esa 11% ni tashkil etdi. Operatsiyadan oldin nefrostoma o‘rnatilishi natijasida yuzaga kelgan tos to‘qimalarining yallig‘lanishi keyingi pieloplastikani texnik jihatdan qiyinlashtirdi. Operatsiyadan keyingi 1 yillik kuzatuv davrida ko‘pchilik bemorlarda buyrak jomining diametri sezilarli darajada kamayib, 1 sm dan past ko‘rsatkichga tushdi. Og‘ir turdagi JSNB obstruksiyasi uchun erta yoshda (1 yoshgacha) jarrohlik aralashuvini amalga oshirish nefronlar rivojlanishi uchun normal urodinamik sharoitlarni tiklaydi va buyrakning qaytarib bo‘lmaydigan shikastlanishining oldini oladi. Laparoskopik pieloplastika tajribali bolalar jarrohligi mutaxassislari tomonidan xavfsiz bajarilishi mumkin hamda hatto olti haftalikdan kichik yangi tug‘ilgan chaqaloqlar uchun ham yuqori samarali va maqsadga muvofiq amaliyot hisoblanadi.

Kalit so‘zlar: tug‘ma gidronefroz, jom-siydik nay birikmasining obstruksiyasi, laparoskopik pieloplastika, ochiq pieloplastika, ekskretor urografiya, yangi tug‘ilgan chaqaloqlar, neonatlar, bolalar urologiyasi.

Аннотация: Обструкция лоханочно-мочеточникового сегмента (ЛМС) является одной из наиболее частых причин врожденного гидронефроза в педиатрической практике. Лапароскопическая пиелопластика (ЛП) рутинно выполняется детям старшего возраста, однако данные о ее осуществимости, безопасности и эффективности у новорожденных и грудных детей остаются ограниченными. В данном исследовании мы оценили диагностические и клинические результаты ЛП у младенцев в возрасте до 6 месяцев и новорожденных в возрасте до 6 недель в сравнении с традиционной открытой пиелопластикой (ОП). Был проведен ретроспективный анализ 120 педиатрических пациентов с врожденным гидронефрозом, перенесших хирургическую коррекцию в Многопрофильной клинике Самаркандского государственного медицинского университета в период с 2025 по 2026 год. Пациенты были разделены на две группы: Группа I (n = 65, возраст 0–1 год) и Группа II (n = 55, возраст 1–3 года). Всем пациентам перед операцией были выполнены УЗИ почек и экскреторная урография. Послеоперационные обследования через 3, 6, 12 и 36 месяцев включали ультразвуковое исследование, экскреторную урографию и диуретическую ренографию. Терапевтический успех составил 95% в обеих возрастных группах. Внутренний стеноз ЛМС был причиной примерно 40% обструкций, а у 85% пациентов диагностирован гидронефроз III степени (по классификации Общества фетальной урологии, SFU). Статистически значимых различий в частоте интраоперационных или послеоперационных осложнений между группами не наблюдалось. Средняя продолжительность операции составила 161 минуту в общей когорте ЛП и 145 минут в подгруппе детей младше 6 недель, что доказывает отсутствие увеличения продолжительности процедуры у пациентов младшего возраста. Общая частота повторных операций составила 8% (6% — персистирующая обструкция и 2% — несостоятельность анастомоза) и 11% в подгруппе детей младше 6 недель. Последующая пиелопластика была технически более сложной из-за воспаления тканей таза, вызванного предварительной установкой нефростомического дренажа. Через 1 год после операции у большинства пациентов наблюдалось значительное уменьшение послеоперационного диаметра почечной лоханки менее чем до 1 см. Раннее хирургическое вмешательство (в возрасте до 1 года) при тяжелой обструкции ЛМС восстанавливает нормальные условия уродинамики для развития нефронов и предотвращает необратимое повреждение почек. Лапароскопическая пиелопластика может быть безопасно выполнена опытными специалистами детской хирургии, отличаясь высокой эффективностью и осуществимостью даже у новорожденных младше шести недель.

Ключевые слова: врожденный гидронефроз, обструкция лоханочно-мочеточникового сегмента, лапароскопическая пиелопластика, открытая пиелопластика, экскреторная урография, новорожденные, неонаты, детская урология.

INTRODUCTION

Congenital hypothyroidism is among the most frequent preventable causes of intellectual disability and developmental delay in children and necessitates early detection and lifelong therapeutic management. However, in addition to congenital metabolic and endocrine disorders, paediatric surgical practice often must deal with structural congenital anomalies requiring elaborate surgical correction. Ureteropelvic junction (UPJ) obstruction is the leading cause of congenital hydronephrosis in infants and if not treated in time can lead to progressive and irreversible damage to the renal parenchyma (1).

Traditional open pyeloplasty (OP) has been the gold standard surgical approach, but minimally invasive pyeloplasty (MIP) has gained popularity in paediatric urology with major clinical benefits such as reduced postoperative pain, shorter hospital stays and improved cosmetic results (2, 3). However, the very limited operative space and delicate anatomical structures make minimally invasive procedures in neonates and young infants technically challenging. Therefore, conventional open surgery is still in widespread use and robot-assisted laparoscopic pyeloplasty (RALP) has specific age and weight restrictions for patients due to the strict dimensions of the instrument ports.

LITERATURE REVIEW

The most promising treatment for this illness is thought to be percutaneous pyeloplasty (4–6). Minimally invasive pyeloplasty (MIP), which offers various benefits such as shorter hospital stays and better aesthetic results, has grown in popularity as a treatment option for children in addition to classic open pyeloplasty (OP) (7, 8). However, it is still technically difficult to undertake minimally invasive treatments on newborns (9–12). As a result, over 80% of pyeloplasties performed in the US still use classic open pyeloplasty, which continues to be the most popular method (13). Significant patient age and weight restrictions apply to robot-assisted laparoscopic pyeloplasty (RALP), which necessitates camera port widths of 8.5 mm and working port sizes of at least 5 mm (13). Because of technological limitations, RALP is used 40 times less often in babies under one year old than in older children (7), despite the fact that it is the recommended minimally invasive technique for older children in the USA (10). Except for one report from Beijing (14), patients less than three months were excluded from the research samples in published robotic surgical series (15–17).

Metzelder et al. (18, 19) showed that laparoscopic pyeloplasty (LP) is feasible for paediatric patients of all ages. Further research (20–23) demonstrated results equivalent to open surgery, confirming the viability and effectiveness of LP in babies under one year and under six months of age. Consequently, we switched all age groups from open pyeloplasty to the laparoscopic method. Despite these developments, there is still a dearth of precise information about the safety and effectiveness of laparoscopic pyeloplasty in newborns. To fill this important information vacuum, we thus carried out retrospective research assessing the results of LP in babies (under 6 months of age) and neonates (under 6 weeks of age) (24).

RESEARCH METHODOLOGY

In the period 2025–2026, comprehensive diagnostic and therapeutic results were studied in 120 children with congenital hydronephrosis (CH), operated in the Multidisciplinary Clinic of Samarkand State Medical University. To make the diagnosis, all patients had radionuclide renal scanning and renal ultrasonography prior to surgery. Patients were split into two representative groups: 55 children between the ages of one and three made up Group II, and 65 children from birth to one year made up Group I. Every patient had dismembered pyeloplasty using the method developed and used at this facility. Following surgery, the removed portion was examined histologically. Diuretic renography and excretory urography were used to assess results after three months, six months, one year, and three years.

Regardless of the method used, all patients had the same surgical indications: significant obstruction on radionuclide renal scanning, which is defined as clearance of less than 50% at 30 minutes after furosemide administration and voiding. Other indications included symptomatic manifestation even with borderline radionuclide scanning findings or increasing hydronephrosis with reduced renal function (less than 40%). The attending surgeon made the decision between laparoscopic and open surgery.

ANALYSIS AND RESULTS

In the first phase of the study, open surgery was selected for all children less than the age of six months. But as management evolved laparoscopy became the standard technique for this age group and there was a marked reduction in open operations. Since 2019, all primary pyeloplasties in patients younger than six months have been done laparoscopically. Nearly 40% of paediatric patients had intrinsic stenosis of the ureteropelvic

junction, which was the most frequent cause of UPJ obstruction. According to the Society for Fetal Urology (SFU) grading system, almost 85% of patients had Grade III hydronephrosis. High treatment effectiveness was shown by long-term follow-up: 95% of participants in both groups (infants under a year old) had favourable or acceptable results. The two groups' incidence of intraoperative and postoperative complications were similar. Surgical procedures in young newborns appear to have a good safety profile based on the absence of statistically significant differences. In most children, ultrasonography in the postoperative period revealed a considerable reduction in the renal pelvic diameter one year later to less than one centimetre, reaching normal values.

In paediatric practice, the effectiveness and safety of laparoscopic pyeloplasty have been well demonstrated, especially in babies younger than one year (5, 18, 20, 21, 25) and younger than six months (22).

Metzelder et al. (18) showed that the laparoscopic method is very effective in treating babies less than one year, leading to a progressive transition in all patients from open to laparoscopic repair. As far as we are aware, the youngest patient who had a laparoscopic pyeloplasty was just six weeks old. Data on a cohort with a mean age of 4.5 months (range: 3 to 5 months) was reported by Kutikov et al. (22). As a result, we looked at possible technical difficulties with laparoscopic access in young newborns. About 20% of the patients in our research were less than six weeks at the time of surgery, even though the whole study group comprised children younger than six months. As a result, to the best of our knowledge, this group of patients undergoing minimally invasive pyeloplasty is among the youngest (mean age: 2.6 months; youngest patient: 1 week). Our study group's weight distribution also reflects this: the lowest patient weight at the time of laparoscopic surgery was 2600 g (mean weight: 5791 g), which is lower than the lowest weight (4000 g) documented in earlier research (18).

The limited operating area in babies exacerbates the technical difficulties in performing intracorporeal laparoscopic suturing, which may lead to longer operating periods and higher risks in neonates and young infants (26). Our operating timeframes are consistent with previously published data on laparoscopic (20, 27) and robotic techniques in older children (15, 28, 29), even though the laparoscopic group's surgical length was much longer than that of the open surgery group. Importantly, the mean operating time for the overall laparoscopic cohort was 161 minutes, compared to 145 minutes for the <6-week subgroup, indicating that the surgical length in the subgroup of patients under 6 weeks was not higher than that in older laparoscopic patients. This demonstrates that young age has no negative impact on the length or viability of surgery. Severe hydronephrosis was seen in most children younger than six weeks (100% SFU Grade IV in the LP group and 60% in the OP group). If there was rapid progression, high serum creatinine levels, or a history of intraamniotic membrane implantation, a postnatal nephrostomy was strongly advised (23% in the <6-week LP group; 30% in the <6-week OP group). Interestingly, those who had not undergone previous renal treatment did not show pronounced inflammation in the pelvic tissue. The Anderson-Hynes repair was riddled with technical problems. In these individuals, avoiding preoperative renal decompression in favour of direct primary pyeloplasty would maximize intraoperative conditions while avoiding recurrent anesthesia and related problems (such as tube dislodgement, bleeding, and infection).

The main outcome indicator for the effectiveness of the therapy was recurrent or persistent obstruction. The LP group did not exhibit higher rates of recurrent or permanent obstruction than the control group in our clinical series.

Reoperation rates after laparoscopic pyeloplasty are reported in the literature from 0 to 17% (15, 21, 25, 28, 29). These patterns are reflected in our main cohort results with an 8% reoperation rate (6% for persistent obstruction and 2% for anastomotic leak). Only one patient in the cohort that had surgery during the first six weeks of life needed another procedure because of obstruction, resulting in a recurrence rate of 11% in this subgroup, which is consistent with published statistics. We frequently support early release following surgery with an indwelling nephrostomy tube, regardless of the age of the patient. However, the very young age of this cohort sometimes resulted in parental concerns about catheter care, sometimes leading to prolonged hospitalization. Such confounding factor makes hospital stay time a less useful metric for reliable comparison. Since this research is retrospective, not all patients had the same follow-up procedures. After the publication by Kiblawi et al. in 2020 (30), routine 6-week postoperative radionuclide scanning was discontinued, except in patients with symptoms (such as pain or recurrent urinary tract infections (UTIs)) or an increased anteroposterior pelvic diameter on 6-week ultrasonography. The comparison between the two treatment groups might be restricted because of the retrospective research design, which may not completely remove selection bias. However, this did not diminish the favourable results demonstrated in the laparoscopic pyeloplasty group. Compared to open and robotic pyeloplasty series, overall results for patients under 6 months and under 6 weeks of age receiving laparoscopic pyeloplasty are encouraging. However, it should be mentioned that senior consultants or attending paediatric surgeons, not novice residents, were the only ones who did laparoscopic pyeloplasty in this age range. We believe that open surgery still requires less technical skill than laparoscopic surgery.

CONCLUSION

This study demonstrates that prolonged active surveillance in cases of severe ureteropelvic junction (UPJ) obstruction is ineffective and inappropriate. Surgical intervention conducted at an early age (under one year) sustains renal functionality and fosters the ideal urodynamic environment essential for proper nephron maturation as the child develops. The regenerating potential of paediatric renal tissue may be fully utilized when urinary tract patency is promptly restored in the absence of infection. Furthermore, laparoscopic pyeloplasty can be safely performed by experienced paediatric surgical specialists, showing high success rates, feasibility, and safety even in neonates and young infants under six weeks of age.

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