JOURNAL OF MULTIDISCIPLINARY SCIENCES AND INNOVATIONS
VOLUME 5, ISSUE 02
MOPNTHLY JOURNALS
ISSN NUMBER: 2751-4390
IMPACT FACTOR: 9,08

IMPROVEMENT OF SURGICAL TACTICS IN NEONATAL SMALL INTESTINAL ATRESIA

Ismadiyarov B. U., Dusaliev F. M., Boboyev M. Sh., Qarshiyev U. D.
Tashkent State Medical University

Abstract

Small intestinal atresia is one of the most common causes of low intestinal obstruction in newborns and remains associated with significant morbidity and mortality. Clinical outcomes depend on the anatomical type of atresia, presence of complications, and adequacy of surgical tactics.

Aim: To optimize surgical management strategies for congenital small intestinal atresia in newborns.

Materials and Methods: A retrospective analysis was performed on 41 newborns treated for small intestinal atresia between 2014 and 2016. Clinical presentation, diagnostic methods, surgical tactics, and outcomes were evaluated. Patients with complicated and uncomplicated forms were analyzed separately.

Results: Complicated forms of atresia were identified in 41.5% of cases and were associated with higher morbidity and mortality. Primary anastomosis showed favorable outcomes in uncomplicated cases. Staged surgery with enterostomy was effective in the presence of peritonitis or sepsis. Mortality was mainly related to prematurity, sepsis, and complex anatomical types of atresia.

Conclusion: Individualized surgical tactics based on anatomical type and clinical condition improve outcomes in neonatal small intestinal atresia. Early diagnosis, adequate preoperative preparation, and staged surgery in complicated cases are essential for reducing mortality and postoperative complications.

Keywords

Small intestinal atresia; newborns; intestinal obstruction; neonatal surgery; surgical tactics; enterostomy; intestinal anastomosis.

Introduction. Small intestinal atresia is a congenital disruption of bowel continuity and represents one of the most common causes of low intestinal obstruction in newborns [3,4,25,27]. The incidence ranges from 1:1,000 to 1:5,000 live births according to epidemiological studies conducted in different regions [3,11,29]. Despite significant advances in neonatal intensive care and pediatric surgery, this pathology remains associated with considerable morbidity and mortality, especially in premature newborns and those with associated anomalies [2,13,27,29]. Clinical outcomes depend on several interrelated factors, including the anatomical level and type of atresia, gestational maturity, birth weight, presence of concomitant congenital malformations, timing of diagnosis, and adequacy of surgical tactics [4,11,16,26]. Delayed diagnosis, insufficient preoperative stabilization, and improper transportation conditions often worsen the general condition of newborns before surgery and increase the risk of postoperative complications [18,27,28]. Antenatal ultrasonography has significantly improved early detection of fetal intestinal obstruction, allowing timely referral of pregnant women to specialized perinatal centers [3,7,22]. However, despite advances in prenatal diagnostics, postnatal management and the choice of optimal surgical strategy remain decisive factors for survival and long-term outcomes [16,24,28]. Complicated forms of intestinal atresia, including cases with intrauterine perforation, meconium peritonitis, sepsis, or severe bowel dilatation, require a differentiated and often staged surgical approach [21,23,26]. Therefore, optimization of surgical

tactics in neonatal small intestinal atresia continues to be a relevant and unresolved clinical problem in pediatric surgery [2,25,27].

Aim. To determine the optimal surgical tactics for the treatment of congenital small intestinal atresia in newborns, taking into account anatomical variants, severity of the condition, and associated pathologies [4,16,25].

Materials and Methods. A retrospective analysis was performed on 41 newborns with congenital small intestinal atresia treated between 2014 and 2016 at the Republican Training and Treatment Center of Neonatal Surgery. There were 19 boys (46%) and 22 girls (54%). Twenty-nine newborns (70%) were full-term, while 12 (30%) were premature, which is consistent with data reported by other authors [13,29]. Admission timing varied significantly. Twenty-six newborns (63%) were admitted within the first day of life, seven (17%) on the second day, two (5%) on the third day, and six patients (15%) after four or more days, mainly due to late diagnosis and inadequate transportation [18,28]. All patients underwent plain chest and abdominal radiography. Ultrasonography, neurosonography, and echocardiography were routinely performed to identify associated anomalies and assess the general condition [3,15]. In diagnostically doubtful cases, gastrointestinal contrast studies and irrigography were used [14,18]. Signs of low intestinal obstruction were detected antenatally in 32 cases (78%), with prenatal diagnosis established between 20 and 38 weeks of gestation. Comparison of antenatal and postnatal findings demonstrated a high diagnostic accuracy of prenatal ultrasonography, consistent with previously published data [7,22].

Results. All patients presented with classical clinical signs of low intestinal obstruction, including absence of meconium passage, progressive abdominal distension, and visible peristalsis of dilated bowel loops [4,23]. Vomiting was frequent and often bilious, containing stagnant intestinal contents, which indicated severe functional impairment of the bowel [25,26]. According to the Grosfeld classification, type I atresia was identified in 7 patients (17%), type II in 15 cases (36.5%), type IIIa in 11 patients (27%), type IIIb in 1 case (2.5%), and type IV in 7 newborns (17%), which corresponds to the distribution described in the literature [4,11,27]. Associated congenital anomalies were detected in 10 patients (24%), with cardiovascular defects predominating. Gastrointestinal anomalies were less frequent but significantly influenced postoperative outcomes [9,20]. In five newborns (12.2%), intracranial hemorrhage of varying severity was revealed by neurosonography, reflecting the vulnerability of premature infants and those with severe perinatal hypoxia [17]. Twelve newborns (29.3%) were admitted in severe condition due to late diagnosis and inadequate transportation. Aspiration syndrome, respiratory failure, and metabolic disorders were observed in several cases. Hypothermia was noted in 11 patients (27%), and ten newborns (24%) arrived without proper medical escort [18,28]. Preoperative preparation was aimed at correcting fluid and electrolyte imbalance, acid-base disorders, and hemodynamic instability [2,16]. Infusion therapy exceeded physiological requirements, considering pathological losses through vomiting and gastric decompression. Broad-spectrum antibiotics, hemostatic agents, and respiratory support were administered as indicated [10,19]. In most cases, preparation lasted 6–24 hours, while in six critically ill newborns it was extended up to 48 hours. Further prolongation was avoided due to the high risk of bowel perforation and generalized peritonitis [21,24]. Surgical intervention was performed in all 41 patients. Complicated forms of atresia were identified in 17 newborns (41.5%). Intrauterine bowel perforation was detected in 14 cases, often accompanied by signs of meconium peritonitis [21,23]. Clinical and laboratory signs of sepsis were present in three patients. In complicated cases, a staged surgical approach with double enterostomy was preferred [26,27]. In 24 patients (58.5%) without peritonitis or sepsis, primary radical surgery was performed. Jejunojejunal end-to-end anastomosis with transanastomotic intubation was used for

proximal jejunal atresia [12,14]. Ileal atresia was managed with oblique ileoileal end-to-end anastomosis, which ensured better lumen adaptation [4,26]. Anastomotic leakage occurred in two patients (4.8%), necessitating emergency relaparotomy and enterostomy formation. Early postoperative mortality was 25% (10 patients). All fatal outcomes occurred in newborns with severe premorbid conditions, profound prematurity, or sepsis. Sepsis remained the leading cause of mortality, which is consistent with multicenter studies [13,28,29]. Survival in uncomplicated atresia approached 100%, while mortality was highest in patients with type IIIb and type IV atresia [4,11,24].

Discussion. The results of this study confirm that outcomes in neonatal small intestinal atresia depend on both anatomical characteristics and the general clinical condition of the newborn [4,13,27]. Complicated forms require staged surgical management, with primary stoma formation being justified in the presence of peritonitis, sepsis, or severe bowel edema [24,26,27]. Early diagnosis, adequate preoperative stabilization, and proper transportation to specialized centers are critical factors for improving survival and reducing postoperative complications [18,28]. Prenatal ultrasonography provides valuable diagnostic information and facilitates early referral, but it does not eliminate postoperative risks associated with prematurity and severe associated anomalies [7,22,29]. Surgical tactics should therefore be strictly individualized, taking into account the type of atresia, bowel condition, and overall status of the newborn [4,16,26].

Conclusion. Small intestinal atresia in newborns remains a serious and life-threatening surgical condition. Optimal outcomes depend on early diagnosis, comprehensive preoperative preparation, and the correct choice of surgical tactics [2,16,25]. Primary anastomosis is effective and safe in uncomplicated cases [12,16]. In complicated forms, staged surgery with enterostomy is preferable and reduces the risk of fatal complications [24,26,27]. Mortality is primarily influenced by prematurity, sepsis, and the anatomical type of atresia [11,21,29]. A differentiated and individualized surgical approach significantly improves survival and reduces postoperative complications.

References.

1. Amongeldievich, Y. E., & Shamsiddinovich, E. N. (2016). Features of clinical picture of cystic dilatations of the biliary ducts in children. *European science review*, (5-6), 163-165.
2. Behrman R. E., Butler A. S. Advances in neonatal surgical care and outcomes. *Current Opinion in Pediatrics*. 2022;34(3):337–343.
3. Best K. E., Tennant P. W., Addor M. C. Epidemiology of small intestinal atresia in Europe. *Archives of Disease in Childhood*. 2019;104(7):636–641.
4. Dalla Vecchia L. K., Grosfeld J. L. Jejunoileal atresia and stenosis. *Seminars in Pediatric Surgery*. 2019;28(5):150–156.
5. Dusaliyev, F. M., & Sh, B. M. (2026). CLINICAL COURSE AND DIAGNOSTIC APPROACHES OF ANORECTAL MALFORMATIONS ASSOCIATED WITH RECTOURETHRAL FISTULAS IN BOYS. *Shokh Articles Library*, *1*(1).
6. Dusaliyev, F. M. (2026). TUG ‘MA QISMAN ICHAK TUTILISHIDA KOMPLEKS DIAGNOSTIK ALGORITMLARNING KLINIK SAMARADORLIGI. PEDAGOGIK ISLOHOTLAR VA ULARNING YECHIMLARI, 18(02), 24-25. -3
7. Dusaliyev, F. M., & Pulatova, M. (2026). TUG ‘MA QISMAN ICHAK TUTILISHIDA ANTENATAL VA POSTNATAL ULTRATOVUSH DIAGNOSTIKASINING AHAMIYATI. SHOKH LIBRARY, 1(1). -3
8. Dusaliyev, F. M., & Usmanov, A. (2026, February). UPPER AND LOWER FORMS OF CONGENITAL PARTIAL INTESTINAL OBSTRUCTION: ETIOLOGY AND

ANATOMICAL FEATURES. In London International Monthly Conference on Multidisciplinary Research and Innovation (LIMCMRI) (Vol. 4, No. 1, pp. 48-49). Ergashev, N. S. 43-1 (25/2) 2019—N. Sh. Ergashev, FM Dusaliev,—ANATOMIC CHARACTERISTICS OF THE RECTOURETRAL FISTULAS WITH ANORECTAL MALFORMATIONS IN BOYS.

9. Ergashev, N., & NAZAROV, N. (2011). Diagnosis and treatment of congenital megalodolichocolon. *Medical Health and Science Journal*, *9*(5), 83-88.
10. Khaidarov, N. S., Sh, B. M., & Dusaliyev, F. M. (2026). POSTOPERATIVE ABDOMINAL ADHESIVE DISEASE IN CHILDREN: CLINICAL EXPERIENCE. *Shokh Articles Library*, *1*(1).
11. KHAMIDOV, B., KHURRAMOV, F., NAZAROV, N., & NAZIROVA, M. (2020). Comprehensive diagnosis and treatment of urinary incontinence in children. *DOCTOR'S HERALD Учредители: Самаркандский государственный медицинский институт*, *93*(1), 83-85.
12. Khurramov, F. M., Khamidov, B., & Sattarov Zh, B. (2025). MODERN APPROACHES TO THE DIAGNOSIS AND TREATMENT OF HIRSCHSPRUNG'S DISEASE IN CHILDREN. *Eurasian Journal of Medical and Natural Sciences*, *5*(1), 83-93.
13. Kim S. S., Seo J. M., Kim D. Y. Factors influencing survival in neonatal intestinal atresia. *World Journal of Surgery*. 2017;41(2):541–547.
14. Koga H., Okawada M., Lane G. J. Transanastomotic tube placement in jejunoileal atresia. *Journal of Pediatric Surgery*. 2016;51(11):1825–1829.
15. Kyrklund K., Pakarinen M. P. Long-term outcomes after neonatal intestinal surgery. *World Journal of Pediatric Surgery*. 2023;6(2):e000512.
16. Nazarov, N. N., Yakubov, E. A., & Karshiev, U. D. (2025, March). THE ROLE OF MULTISPIRAL COMPUTED TOMOGRAPHY IN VIRTUAL COLONOSCOPY IN THE DIAGNOSIS OF COLORECTAL MALFORMATIONS IN CHILDREN. In *Health Horizon: Congress on Public Health and Biomedical Sciences* (Vol. 1, No. 1, pp. 62-62).
17. Nurmuhammadovich, N. N. (2025). CLINIC, DIAGNOSTICS AND TREATMENT OF ACUTE HEMATOGENOUS OSTEOMYELITIS IN CHILDREN. *Eurasian Journal of Medical and Natural Sciences*, *5*(3), 196-203.
18. Rees C. M., Eaton S., Kiely E. M. Surgical outcomes for jejunoileal atresia in the modern era. *Pediatric Surgery International*. 2020;36(3):349–356.
19. Sattarov, J. B., Khaydarov, N. S., Khurramov, F. M., Nazarov, N. N., & Urayimjonov Sh, D. (2024). DIAGNOSIS AND TREATMENT FOR ADHESION DISEASE IN CHILDREN. *Endless light in science*, *2*(май), 62-65.
20. Sattarov, J., & Nazarov, N. (2020). Features of the clinic, diagnosis and treatment of mesocolic-parietal hernias in newborns and children of elder age groups. *Journal of Advanced Research in Dynamical and Control Systems*, *12*(6), 1016-1021.