DOI: 10.38095/2181-466X-20231124-12-16 UDK 616.34-007.272: 616-053.3

PARTIAL INTESTINAL OBSTRUCTION IN NEWBORN AND INFANTS

A. V. Ibragimov, J. B. Sattarov
Tashkent pediatric medical institute, Tashkent, Uzbekistan

Key words: congenital partial intestinal obstruction, diagnosis, clinical presentation, newborns, children of weaning age.
Tayanch so‘zlar: tug‘ma qisman ichak tutilishi, tashxislash, klinik ko‘rinish, yangi tug‘ilgan chaqaloqlar, ko‘krak yoshdagi bolalar.
Ключевые слова: врожденная частичная кишечная непроходимость, диагностика, клиника, новорожденные, дети грудного возраста.

The article presents the results of examination and treatment of 123 newborns with congenital partial intestinal obstruction, specific clinical course and diagnostic features are reflected. The frequency of certain forms of congenital partial intestinal obstruction was determined, the complexity of preoperative diagnosis was noted, clinical manifestations of upper and lower intestinal obstruction are presented. Factors aggravating the course of congenital partial intestinal obstruction are shown and measures to improve diagnosis are suggested.

YANGI TUG‘ILGAN VA KO‘KRAK YOSHDAGI BOLALARDA QISMAN ICHIK TUTILISHI

A. V. Ibragimov, J. B. Sattarov
Toshkent pediatriya tibbiyot instituti, Toshkent, O‘zbekiston

Maqolada tug‘ma qisman ichak tutilishi bilan og‘rigan 123 nafar yangi tug‘ilgan chaqaloqni tekshirish va davolash natijalari keltirilgan bo‘lib, o‘ziga xos klinik kechishi va diagnostikasi xususiyatlari aks ettirilgan. Tug‘ma qisman ichak tutilishining ayrim shakllarining chastotasi aniqlangan, operatsiyadan oldingi tashxisning murakkabligi qayd etilgan, yuqori va pastki ichak tutilishining klinik ko‘rinishlari keltirilgan. Tug‘ma qisman ichak tutilishining kechishini og‘irlashtiradigan omillar ko‘rsatiladi va tashxisni yaxshilash choralari taklif etiladi.

ЧАСТИЧНАЯ КИШЕЧНАЯ НЕПРОХОДИМОСТЬ У НОВОРОЖДЕННЫХ И ДЕТЕЙ ГРУДНОГО ВОЗРАСТА

А. В. Ибрагимов, Ж. Б. Саттаров
Ташкентский педиатрический медицинский институт, Ташкент, Узбекистан

В статье представлены результаты обследования и лечения 123 новорожденных с врожденной кишечной частичной непроходимостью, отражены особенности клинического течения и диагностики. Установлена частота отдельных форм врожденной кишечной частичной непроходимости, отмечена сложность дооперационной диагностики, представлена клиническая манифестация при высокой и низкой кишечной непроходимости. Указаны факторы, отягощающие течение врожденной кишечной частичной непроходимости и предложены меры по улучшению диагностики.

Relevance. In many countries around the world, congenital malformations (CMD) are considered the most common pathologies in newborns and children. Perinatal and childhood mortality in European countries and the United States is occupied by congenital malformations. [1,9]. The mortality rate of newborns with this pathology can be reduced through the introduction of organizational measures. 40-50% of children with pathological developments can be saved if the congenital defect is diagnosed and surgically treated in the first days of life. [1,5].

WHO states that every year 4-6% of children in the world are born in with hereditary pathologies, the mortality rate is about 30-40%. The incidence of this pathology in the first year of life reaches 5%. In the structure of causes of perinatal mortality, congenital malformations are in first place. According to V.I. Kulakov (2007) [3], E.N. whitby et al. (2003) [1,3,13], the overall structure of mortality is influenced by the age of a given pathology. Countries conducted different methods of evidence and showed that 25-30% of perinatal losses are caused by anatomical defects of organs. Among stillborns, congenital malformations are detected in 15-20% of cases. [1,9].

In the structure of congenital malformations, gastrointestinal tract anomalies range from 21.7% to 25%. In 33% of cases they manifest as intestinal obstruction and are the most common reason for hospitalization of newborns in a surgical hospital and surgical intervention [2,12,14]. Congenital malformations occurrence development with read diverse, are usually divided into the following groups: violations of the formation of the intestinal tube itself; anomalies of rotation and fixation of the midgut; malformations of other organs leading to compression of the intestine (ring-shaped pancreas, aberrant vessels, tumor-like formations); meconium intestinal obstruction caused by cystic fibrosis of the pancreas [7-8].

Congenital malformation should be diagnosed in the antenatal period. When a pathology is

identified, a perinatal consultation is necessary with the participation of doctors of various specialties in order to determine the possibilities of correction and operability of the defect; define feasibility of termination of pregnancy and choose delivery tactics. In recent years, the detection of congenital malformations has increased significantly, including the introduction of antenatal diagnostic methods. However, prenatal detection of gastrointestinal abnormalities remains incomplete. The accuracy of prenatal diagnosis of gastrointestinal anomalies in different regions and institutions at different levels ranges from 20% to 90% [4,10]. Methods of diagnosis and treatment for congenital partial intestinal obstruction are diverse, mostly due to different approaches of definition and interpretation of the obstruction itself [6,11].

Purpose of the study: to study frequency of HFCI in newborns and infants and analyze the results of treatment for this pathology.

Materials and research methods. In the Republican Training, Treatment and Methodological Center for Neonatal Surgery at the Russian Orthodox Church, at the base of the Department of Hospital Pediatric Surgery of the Tashkent Pediatric Medical Institute in 2015-2022, there were 463 children with various surgical diseases of the abdominal organs with symptoms of congenital intestinal obstruction. 123 (26.6%) of newborns and infants aged from 1 day to 1 year: 99 (80.5%); up to 3 months – 19 (15.5%); up to 7 months – 3 (2.4%); up to 1 year – 2 (1.6%). In 45 (36.6%) patients, high partial intestinal obstruction was established, in 14 (11.4%) - low. 64 (52.0%) of children with defects of intestinal rotation and fixation, high intestinal obstruction was detected in 60 (93.8%), low intestinal obstruction in 4 (6.2%). There were 51 boys (41.5%), 72 girls (58.5%). The patients were examined by clinical, laboratory and radiation diagnostic methods (ultrasound, radiological - plain radiography of the abdominal organs, contrast study of the gastrointestinal tract), irrigography and CT). For an objective assessment of the somatic status, the course of transient conditions, determining the form of CSCI, the nature of concomitant developmental anomalies that affect the outcome of the disease.

Results and discussion. In most cases, HFCI manifests itself in the early neonatal period. In case of partial disorders, a subacute course of a relapsing nature was observed. This is evidenced by the terms of hospitalization of newborns in a surgical hospital: 1 day - 11 (11.1%) children, 2 days - 10 (10.1%), 3-4 days - 19 (19.2%), 5-7 days - 17 (17.2%), 8-14 days - 23 (23.2%), 15-22 days - 15 (15.2%), 23-30 days - 4 (4.0%) children. In 6.5% of cases, despite the acute signs of intestinal obstruction, newborns were transferred to a surgical hospital with a delay due to late diagnosis. Earlier hospitalization was observed among newborns with low intestinal obstruction and intestinal malrotation defects due to a clear clinical picture and worsening of their condition. In 5 cases of partial obstruction, due to unclear clinical signs, the pathology was recognized late, it led to late hospitalization of children in a surgical hospital. Delayed diagnosis happened due to obscured signs of intestinal obstruction, symptoms of such concomitant diseases as intrauterine infection, trauma during childbirth, perinatal damage to the central nervous system, asphyxia alone or in a combination of these conditions. To identify risk factors for the development of early neonatal maladjustment in newborns, a comparative analysis of the anamnestic and clinical and laboratory data of mothers was carried out, taking into account the nature of adaptation of their children. The results showed the relationship between the severity of maladjustment in newborns and CSCI, the clinical status of the mother, and the course of the birth process.

With HCCI, the physiological course of the early period of adaptation was noted in 13.8% of children with partial high or low CI without concomitant anomalies and somatic diseases. In 86.2% of children, despite the tendency towards normalization of the Apgar score by the 5th minute of life, on the 1st day of life the condition was considered moderate-severe in 48.1%, severe in 12.6%. The severity of the condition was due to a transient disturbance of hemo-cerebrospinal fluid dynamics in the form of a syndrome of increased neuro-reflex excitability of hypoxic origin in 18.4% of children; intrauterine malnutrition of the 1st degree and morphofunctional immaturity - in 7.8%, increasing respiratory failure against the background of respiratory distress syndrome - in 14.1%. In 40.6% cases, complications were identified as a long anhydrous period, rapid labor, primary weakness of labor, requiring drug stimulation, pelvic and breech presentation, and double tight entanglement of the umbilical cord around the fetal neck. Childbirth was spontaneous in 74.8% of cases, operative (cesarean section for severe gestosis, preeclampsia, weakness of labor, pelvic and breech presentation of the fetus, placenta previa) in 25.2% cases. 12.6% of newborns

with CCCI required resuscitation. Intrauterine growth retardation, as an aggravating factor in neonatal adaptation, aggravates the course of congenital intestinal obstruction, complicates surgical intervention and negatively affects treatment results. These phenomena, individually and collectively, determined the severity of the condition of newborns in the form of hypoxic-ischemic damage to the central nervous system - in 42 (34.1%); respiratory distress syndrome – in 49 (39.9%); hyperbilirubinemia – in 3 (2.4%); intrauterine growth retardation – in 7 (5.7%); edematous syndrome – in 2 (1.6%); DIC syndrome – in 3 (2.4%). The combination of several disorders - in 71 (57.7%) children - led to disturbances in the dynamics of body weight, early and late neonatal adaptation. The likelihood of developing neonatal maladaptation in newborns with CCCI increases with concomitant developmental defects. In 94 (76.4%) newborns, CSCI was an isolated malformation. Our observations confirm the literature data on the high incidence of concomitant malformations in CCCI. Of 29 (23.6%) newborns, 20 (69.0%) had associated anomalies. Congenital heart defects - in 7, genitourinary system - in 3, developmental defects of the central nervous system - in 5, gastrointestinal tract - in 3, musculoskeletal system - in 2. 9 children had more than two combined defects. Multiple malformations were detected in 9 newborns (31.0%): more often among patients with high intestinal obstruction. Congenital heart defects and Down syndrome were noted in this group.

Depending on the level of obstruction, we distinguished between high and low intestinal obstruction. The anatomical boundary is the ligament of Treitz. With high obstruction in 105 (85.4%) patients, the obstruction is localized in the duodenum, as well as low, in 18 (14.6%) patients, obstruction occurs in any part of the jejunum, ileum and colon. The differences in clinical and radiological manifestations, the nature of complications characteristic only of high or low obstruction depend on the cause causing the obstruction of the corresponding localization. High obstruction is characterized by a large loss of body weight, the development of exicosis and electrolyte imbalance. With low intestinal obstruction, there is a high risk of intestinal perforation, the development of peritonitis against the background of progressive dysbiosis and secondary infection of the peritoneum due to increased permeability of the wall of the overstretched intestine. Intestinal malrotation, a common component of which is volvulus, along with signs of high intestinal obstruction, signs of impaired circulation of the intestinal wall and peritonitis increase. With high partial obstruction, anatomical obstacles within the duodenum cause: stenosis - 6 (5.7%); annular pancreas – 10 (9.5%); external compression of the duodenum by periduodenal adhesions – 11 (10.5%); membranes with a hole – 18 (17.1%). In 60 (57.2%) cases, duodenal obstruction was caused by malrotation.

The cause of partial low intestinal obstruction was different localization within the membrane with an opening: jejunum – 3 (16.7%); ileal – 1 (5.5%). Stenosis in 3 (16.7%) patients, compression of the small and large intestine by adhesions and pathological formations in 7 (38.9%) became the causes of partial intestinal obstruction. In 4 (22.2%) children, various forms of intestinal malrotation were determined by clinical and radiological signs of low intestinal obstruction.

Ultrasound examinations made it possible to identify concomitant malformations of other organs, determine the characteristic data of high and low intestinal obstruction, and signs of peritonitis. The main echographic sign of congenital intestinal obstruction is the visualization of the peristaltic part of the intestine expanded above the obstruction site with liquid contents in the lumen, making pendular movements. Below the site of the obstruction, collapsed intestinal loops are determined in the form of a cord without contents inside. More promising in diagnosing congenital intestinal obstruction and identifying intestinal malrotation to determine indications for urgent laparotomy is Doppler ultrasound examination of the superior mesenteric vessels and the state of mesenteric circulation.

The most accessible informative method for diagnosing CSCI in newborns is x-ray examination. The examination begins with a survey x-ray of the chest and abdominal cavity in two projections with the child in an upright position. The most common findings are two gas bubbles with a horizontal fluid level, which corresponds to a distended stomach and duodenum and indicates obstruction of the distal duodenum. Multiple levels are characteristic of low intestinal obstruction. These data are sufficient to stop further X-ray examination. A distended stomach, uneven distribution of gas in the intestines, and accumulation of fluid in the lower abdominal cavity are characteristic of intestinal malrotation. In case of partial obstruction, radiographs in the presence of charac-

teristic signs of high or low intestinal obstruction reveal a decrease in pneumatization in the distal sections or a predominant accumulation of gas to the right or left of the spine, in the mesogastric region. This may be an indirect sign of impaired intestinal rotation and requires further x-ray examination.

For contrast irrigography, verografin and urografin were used. At the same time, the position, length and diameter, characteristic bends of the colon are determined. However, not in all cases it is possible to determine the type of malrotation, especially when parts of the small intestine are involved in the pathological process. With incomplete and mixed rotation on irrigograms, the colon is on the left side. Some patients do not have additional bends. Reverse alternation and malrotation with midgut volvulus are not pathognomonic signs on irrigograms; Only the location typical for parts of the large intestine is determined. Anomalies of fixation in the form of pathological fusion of the ascending colon and cecum with the transverse colon, localized in the upper abdominal cavity, can be considered excessive rotation. In Ladd syndrome, the left half of the colon has a normal location on the irrigogram, and the cecum and ascending colon are located in the right hypochondrium or along the midline of the abdomen. The conglomerate is formed from loops of the small intestine, the right sections of the large and transverse colon.

If plain radiography and irrigography are insufficiently informative, the patient is usually observed with partial intestinal obstruction, passage of a contrast mass through the gastrointestinal tract (GIT). The phenomena of partial duodenal obstruction are more often observed. Along with these malrotations, the anatomical shape of the duodenum changes due to the absence of bends, syntopy with surrounding organs, or deviation of the organ to the left and right relative to the spine.

Conclusions. Among children with congenital intestinal obstruction, CSCI was observed in (26.6%) cases. The disease is characterized by a subacute and chronically relapsing course, mainly in neonatal (80.5%) and early infancy (19.5%) age. HFCI in newborns and infants is presented in the form of a violation of the formation of the intestinal tube itself (25.2%); intestinal malrotation (52.0%); malformations of other organs leading to intestinal compression (22.8%). Analysis of anamnestic data shows the complexity of diagnosis and the lack of alertness among doctors of different specialties regarding intestinal malrotation. The high frequency of concomitant anomalies (23.6%), somatic diseases and a burdened obstetric history (86.2%) contribute to a complicated course and negatively affect the results of surgical treatment.

References:

1. Bozhbanbaeva N.S., Urstemova K.K., Duisenbaeva M.K., Karibaeva D.K., Umarova G.A. Congenital malformations in the structure of stillbirth and mortality of newborn children in Almaty // Bulletin of KazNMU - 2012, No. 3. https://kaznmu.edu.kz/press/.
2. Karpova I. Yu., Parshikov V. V., Zheleznov A. S., Batanov G. B., Nikolaychuk V. A. Congenital malformations of the gastrointestinal tract as a joint problem of pediatric surgeons and pediatricians // Medical almanac, 2010. – No. 4 (13). – pp. 208-210.
3. Kulakov V.I. Reproductive health of the Russian population // Gynecology. – 2007. – T.9, No. 1. – P. 6-9.
4. Savvina V.A., Varfolomeev A.R., Okhlopkov M.E., Nikolaev V.N. Results of treatment of newborns with developmental defects // Far Eastern Medical Journal. – 2012. – N 1. – P.74-77.
5. Ergashev N.Sh. Sattarov Zh.B. Congenital intestinal obstruction in children // Textbook. Tashkent. P.122. 2020
6. Ergashev N.Sh., Sattarov Zh.B., Ergashev B.B. Ledd syndrome in newborns // Pediatric surgery, Moscow - 2015. 19 (2). No. 2. P.26-29.
7. Abdul-Mumin A, Anyomih TTK, Owusu SA, Wright N, Decker J, Niemeier K et al (2020) Burden of neonatal surgical conditions in Northern Ghana. World J Surg. 44(1):3–11. https://doi.org/10.1007/s00268-019-05210-9.
8. Cheung M, Kakembo N, Rizgar N, Grabski D, Ullrich S, Muzira A et al (2019) Epidemiology and mortality of pediatric surgical conditions: insights from a tertiary center in Uganda. Pediatr Surg Int. 35(11):1279–89. https://doi.org/10.1007/s00383-019-04520-2.
9. Kouame BD, N'guetta-Brou IA, Kouame GSY, Sounkere M, Koffi M, Yaokreh JB et al (2015) Epidemiology of congenital abnormalities in West Africa: results of a descriptive study in teaching hospitals in Abidjan: Cote d'Ivoire. African J Paediatr Surg. 12(1):51–5.

10. Livingston MH, Dcruz J, Pemberton J, Ozgediz D, Poenaru D (2015) Mortality of pediatric surgical conditions in low and middle income countries in Africa. J Pediatr Surg. 50(5):760–4. https://doi.org/10.1016/j.jpedsurg.2015.02.031.
11. Sattarov Zh.B., Ibragimov A.V. Diagnostics and treatment of congenital intestinal obstruction in newborns and children of different age groups //New Day in Medicine 3 (35)202195-99 https://cutt.ly/RQDYizG.
12. Vinocur D. N., Lee E. Y., Eisenberg R. L. Neonatal Intestinal Obstruction // AJR (Boston). – 2012. – Vol.198. – P. 1-10.
13. Whitby E.N., Paley M.N., Smith M.F., Springg A. N., Woodhouse, and PD Griffiths Low field strength magnetic resonance imaging of the neonatal brain //Archives of Disease in Childhood (fetal and Neonatal). – 2003. – №88 (3) - P.203-208.
14. Wright NJ, Leather AJM, Ade-Ajayi N, Sevdalis N, Davies J, Poenaru D et al (2021) Mortality from gastrointestinal congenital anomalies at 264 hospitals in 74 low-income, middle-income, and high-income countries: a multicentre, international, prospective cohort study. Lancet 398(10297):325–339.