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## CLINICAL AND RADIOLOGICAL CHARACTERISTICS OF COLOSTASIS IN CHILDREN

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### ABSTRACT

At the present stage of development, one of the most common pathological conditions of the gastrointestinal tract (GIT) in children is chronic constipation. Chronic constipation is a serious medical and social problem in all countries of the world, due to its wide prevalence, low effectiveness of therapy, reduced social activity, impaired quality of life of patients and increased use of healthcare resources.

### KEYWORDS

Colostasis, independent stool, chronic constipation in children.

### INTRODUCTION

According to modern literature, from 10 to 40% of children in the population suffer from constipation. However, it is impossible to establish the true frequency of constipation in childhood, because due to the low level of medical culture of a part of the population and the lack of sanitary propaganda, the number of doctors consulting about this remains low

[2,19,22,24,26]. In most cases, the first complaints of constipation appear at the age of 2–4 years, but the pathological complex itself begins to form much earlier. Very often, not considering constipation in a child as a disease, parents independently use enemas, laxatives and go to the doctor already with the

development of certain complications of the disease [1,12,18,21,23,25].

Despite the fact that in 95% of cases chronic constipation is initially functional in nature and can be stopped by non-drug methods, late seeking medical help, the patient's unwillingness to change the nature of nutrition and physical activity, low patient confidence in therapy lead to decompensation and the formation of organic pathology of the colon. intestines [3,7,14,21,27,28]. Long-term retention of contents in the intestine adversely affects the development of the child, contributes to the occurrence of various complications and diseases of the colon [4,9,15,20].

According to some authors, 35% of girls and 55% of boys aged 6 to 12 suffering from constipation develop anal incontinence (encopresis), which can lead to their social exclusion. According to the clinical observations of some authors, very often a misunderstanding of the concept of "constipation" only as "rare defecation" leads to late seeking medical help already at the stage of decompensation with the development of complications [5,11,16,17]. Full intestinal peristalsis is the result of the functioning of the enteric nervous system, muscles and connective tissue. Malfunction of any of these components leads to a violation of peristalsis, which can cause constipation in children [8,10,17,29].

When analyzing the literature data, there is quite a lot of material on the problems of constipation in children, but they do not have a systematic, complete review

and analysis. To this day, there are no clear indications for surgical treatment of colostasis, the timing of the operation, the problem of determining clear indications and contraindications for the operation has not been resolved. Surgeons in carrying out interventions are based on their own experience and knowledge gleaned from well-known literary sources. That is why, there are still a large number of intra- and postoperative complications, there are no standards for the care of patients before and after surgical interventions.[6,15,17]. There are no diagnostic, clinical criteria for colostasis in the age aspect in children, which determine the relevance of conducting in-depth experimental and clinical studies in this direction.

**Purpose of the study.** The study of the features of the clinical and radiological picture of chronic colostasis in children.

**Materials and research methods.** INThe basis of this work included data from the examination and treatment of 149 sick children aged from 1 month to 14 years with colostasis. The analysis of patients who received treatment in the Department of Pediatric Surgery of the Bukhara Regional Children's Multidisciplinary Medical Center for the period 2020-2023 was carried out. The main criterion for inclusion of patients in our study was the presence of colostasis, patients' complaints about the lack of independent stool. The work does not include patients with the total form of Hirschsprung's disease.

All children underwent a comprehensive examination used in pediatric surgery, including clinical and laboratory, x-ray studies: detailed study and history taking, clinical objective examination, if necessary, rectal digital examination; general clinical tests - a general analysis of blood, feces and urine; X-ray contrast study - irrigography of the colon with a solution of barium sulfate according to the method of A.I. Lenyushkin.

Discussion of results. According to our data, of the currently existing research methods, polypositional irrigography is the most accessible, valuable and reliable for optimizing the diagnosis of colostasis in children. When it was used at the time of batch filling of the contrast, all sections of the large intestine were filled with contrast and a series of images were taken in different positions (position) of the patient: lying on his back, standing, on the right and left side, and after emptying the contrast.

This allows you to determine the physiological state, the presence of additional bends, elongation, incomplete fixation, rotation and rigidity of the colon, which allows you to determine the degree of violation of transient function.

Dolihosigma according to A.I. Lenyushkin is diagnosed in 15% of healthy children, taking into account the elongated multi-loop or two-loop sigmoid colon, when the loops are located in the abdominal cavity, reaching the splenic or hepatic flexure of the colon. In this case, the intestine is excessively mobile, freely moves in the

abdominal cavity, additional loops remain after bowel emptying.

A common cause of sub- and decompensated forms of colostasis in children is the rare appeal of the parents of a sick child to a specialist at an early stage of the disease, the lack of awareness of general practitioners, pediatricians, gastroenterologists and pediatric surgeons in primary and secondary health care about early diagnosis and treatment of the disease. Sometimes, as a result of prolonged and excessive drug treatment of patients with an incorrect diagnosis, without x-ray examination and pathogenetic justification, by a general practitioner or gastroenterologists, the patient receives symptomatic and unreasonable treatment. On the other hand, pediatric surgeons, leaning toward the diagnosis of Hirschsprung's disease, resort to surgical treatment, which cannot be considered pathogenetically substantiated.

Therefore, in our opinion, it is reasonable to conduct an X-ray contrast study with a solution of barium sulfate - irrigography of the colon in sick children suffering from constipation. Irrigography is a mandatory study in all children with suspected constipation. The sensitivity and specificity of the method, according to some literature data, reaches up to 90%, respectively. The timing of the X-ray examination depends on several factors, the main of which is the efficiency of emptying the colon. It is advisable to perform the examination not immediately after the patient's admission to the

hospital, but delayed, after stopping the effects of fecal intoxication.

In order to study the anatomical and physiological state of the colon, radiopaque irrigography is performed, which makes it possible to assess the evacuation function of the colon and the presence of its structural changes. By the nature of the evacuation of the contrast agent, the contour of the intestine, the state of the haustra (increased or smoothed) and the presence of spasm (local or total), one can speak of a hypotonic, atonic or spastic condition of the colon.

This well-studied and long-used method of examination makes it possible to establish the correct diagnosis in most cases. However, the known radiological criteria do not always allow to do this accurately enough in the group of children with chronic colostasis, where dolichocolon, functional constipation, Hirschsprung's disease are most common.

Dolichocolon has specific features in the form of additional loops of the large intestine, often extending beyond its anatomical zone. The diagnosis of functional constipation is established in the presence of a uniform expansion of the distal colon, with the exclusion of other causes that cause colostasis.

For long forms of Hirschsprung's disease, the most characteristic is the presence of a narrowed aganglionic zone, suprastenotic expansion and a funnel-shaped transition zone. At the same time, the reliability of X-ray examination is 80%, and in

Hirschsprung's disease with a supershort segment, it exceeds 20%. To assess the condition of the mucous membrane of the colon, an endoscopic examination (rectoscopy, colonoscopy) with targeted biopsy for histological and, if necessary, histochemical analysis is indicated. They allow you to identify acute and chronic inflammatory diseases of the colon, determine the stage of the disease, and evaluate the effectiveness of treatment.

Histochemical study of cholinesterase activity is necessary in the differential diagnosis of Hirschsprung's disease from functional megacolon, in which this reaction is negative.

Currently, in the literature there are such terms as "dolichosigma", "megadolichosigma", "megasigma", "dolichocolon", etc., which are used to refer to supposedly independent nosological forms, which only creates confusion in the terminology and assessment of the lesion. Dynamic observation with X-ray control allows in some cases to note the appearance of dilatation of the lumen of the sigmoid colon, which was not previously observed in this patient. There is a certain relationship between an increase in the lumen of the sigmoid colon and the duration of persistent constipation. This suggests that the occurrence of dilatation is not a new form of the disease, but represents the progression of dysfunction of the sigmoid colon in dolichosigmoid.

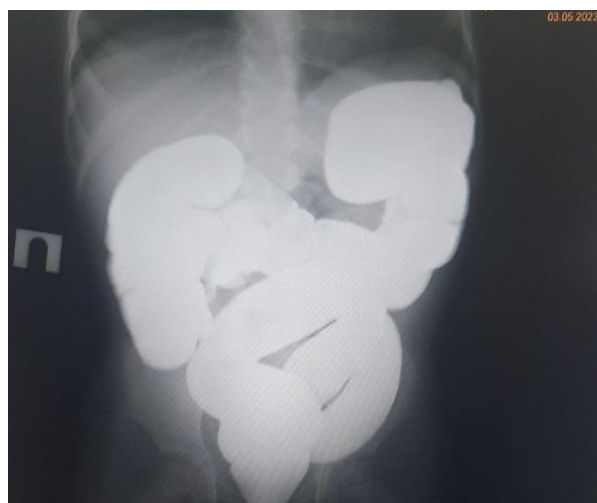
The patient's irrigogram shows (Fig. 1) a two-loop dolichocolon with dilatation of the colon,

transversoptosis with a bend of the splenic angle.

Figure 2 shows colonic expansion with dilatation throughout, a “multi-loop” kink that forms acute

angles, and radiographic evidence of transversoptosis

with a 180-degree kink in the splenic angulation.



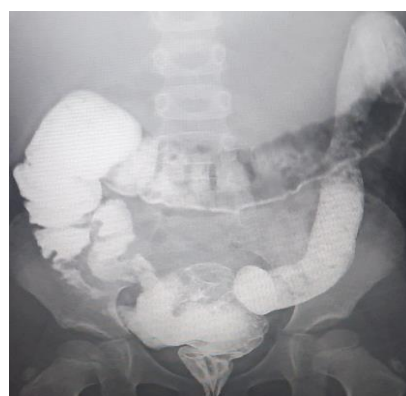
**Fig.1. Dolichocolon, "two-loop" with dilation**



**Fig.2. Dolichocolon, "multi-loop" with dilation**

The following figures (Fig. 3 and 4) show a single-loop dolichocolon with dilatation of the colon, transversoptosis with a bend in the splenic angle. The drawings show the expansion of the colon with

dilatation along its entire length, a “one-loop” bend that forms acute angles, and there are also radiological signs of transversoptosis with a bend in the splenic angle by 180 degrees.



**Fig.3. Dolichocolon, "one-loop" with dilation, bending of the splenic angle**



**Fig.4. Dolichocolon, "single-loop" with dilation bending of the splenic angle**



These radiographic criteria in patients with sub- and compensatory courses of dolichosigmoid were evaluated in a point system, which is important for optimizing indications for surgical treatment (Table No. 1).

### Criteria for evaluating polypositional irrigography to optimize indications for surgical treatment of colostasis in children

Table 1

Curvature of the colon	Condition of the corners of the colon (in degrees) and scores (in points) with irrigography		
	Normal angles ( $75^{\circ}$ <) (1 point)	sharp corners ( $25-75^{\circ}$ ) (2 points)	Too sharp corners ( $25^{\circ}$ >) (3 points)
anorectal	20	2	3
Recto-sigmoid	1	2	3
Sigmoid-decendal	1	2	3
Splenic	1	2	3
Hepatic	1	2	3
Additional loops	1	2	3 or more
<b>Points</b>	6	12	18 and over

When interpreting the data obtained, we took into account the sum of points scored during polypositional irrigography, as well as during the collection of anamnesis and objective clinical examination, as well as on the basis of general clinical, laboratory, rectal examinations.

Those patients with a total score of more than 6 points underwent complex conservative treatment. If the total score was over 12, we performed multiple (3 or more times) complex conservative treatment, and if it was ineffective, we determined the relative indications for surgical treatment. The total score was over 18, not

only the pathology of the colon was often detected, but also other defects in the form of a violation of the fixation of the pelvic floor muscles with clinical complete disorders of the motor-evacuation function of the colon, was determined as a direct indication for surgical treatment. At the same time, many issues of conservative treatment in 149 sick children who came to us with different genesis of colostasis, issues of conservative treatment were resolved jointly with a gastroenterologist, nutritionist, endocrinologist, neuropathologist.

Based on the above data, we have developed an approximate management scheme (algorithm) for sick children with colostasis. Of the 149 patients examined, 131 (88.0%) patients were treated conservatively, the remaining 18 (12.0%) patients were treated surgically. In the long-term period of treatment, the condition of the patients is satisfactory, no complication was observed.

## CONCLUSION

Thus, the assessment of the clinical and radiological characteristics of patients with constipation in children makes it possible to determine the indications for conservative and surgical treatment tactics. The conditions for the effectiveness of the prevention and treatment of constipation, improving the quality of life of sick children is the interaction of the doctor and the patient in choosing the timing of surgical correction, suitable for each individual child with organic constipation, as well as the optimal management tactics for functional constipation.

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