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"CLINICAL-ANAMNESTIC AND PHENOTYPICAL CHARACTERISTICS OF INFANTS WITH BORDERING DISEASES OF THE DIGESTIVE SYSTEM OCCURING WITH VOMITING SYN-DROME"

Mamutova Evelina Sergeevna
Assistant of the Department of Propaedeutics of Infant Diseases, Samarkand State Medical University. Samarkand, Uzbekistan

Rabbimova Dilfuza Toshtemirovna
Doctor of Medical Sciences, Head of the Department of Propaedeutics of Infant Diseases Samarkand State Medical University, Samarkand, Uzbekistan

Shamsiev Azamat Mukhiddinovich
Doctor of Medical Sciences, Professor of the Department of Pediatric Surgery No. 1 Samarkand State Medical University Samarkand, Uzbekistan

Annotation: The article presents the results of the study of the diagnostic features of infant vomiting syndrome, as well as data on the frequency of occurrence of functional and organic pathology of the gastrointestinal tract with vomiting syndrome in this age group.

Infant vomiting syndrome is considered here as a "bordering" disease at the intersection of pediatrics and pediatric surgery, where the edge, continuity in the diagnosis and treatment of these pathologies can be traced. Rational and timely treatment and diagnostic tactics in each specific case often have a decisive effect on the results of the treatment. Making a choice of treatment method is often a difficult task, and it is important, in order to make the best solution, that this issue is resolved at the sick child's bedside jointly by a pediatrician and a pediatric surgeon.

In this perspective, it is necessary to optimize the diagnosis of the causes of infant vomiting syndrome, which, in turn, will help to promptly select the correct and sufficient amount of treatment measures.

Key words: children, early age, vomiting syndrome.

Relevance. Vomiting is a common symptom of many pathological conditions of infants, from a single episode that does not pose a danger to the child, to repeated episodes that often indicate a life-threatening condition of the patient. In all situations, to clarify its causes, it is necessary to conduct a thorough analysis of the anamnesis and, if possible, a full comprehensive examination of the child. When collecting anamnesis of a patient, performing clinical, instrumental and laboratory examination, a health worker should strive to determine the main pathogenetic mechanism of vomiting and, depending on this, clarify the plan for diagnosing and treating the patient. It should be remembered that repeated vomiting often leads to serious clinical and metabolic disorders, threatening the life of the child.

In modern pediatrics, a certain syndrome can often be a functional or organic disease requiring surgical treatment, and vomiting syndrome is of particular interest in this regard. The term "bordering" is used specifically for such diseases, where the edge, continuity in diagnostics and treatment of these pathologies between a pediatrician and a pediatric surgeon can be traced. Rational and timely treatment and diagnostic tactics in each specific case often have a decisive effect on the results of the treatment. Making a choice of treatment method is often a difficult task, and it is important, in order to make the best decision, that this issue is solved at the sick child's bedside jointly by a pediatrician and a pediatric surgeon. Experience shows that two extremes are observed in the diagnostic process and in choosing treatment tactics: a) the pediatrician delays conservative therapy, does not prescribe the necessary range of diagnostic measures in time and thereby misses the optimal time for surgical intervention; b) the surgeon expands the indications for surgical intervention, underestimating the capabilities of modern diagnostic methods.

Infant vomiting is often the main symptom of the disease. Vomiting of children of the first months of life can take a peculiar form of regurgitation, which differs from vomiting that occurs very easily without preliminary nausea, abdominal tension, pale face and any unpleasant sensations. The mechanism of regurgitation consists of contraction of the stomach with an open cardia and occurs under the influence of a reflex that goes through the autonomic innervation system of the stomach, i.e. through local ganglia embedded in the wall of the stomach in the area of the cardiac and pyloric parts. The frequency of regurgitation varies from 18 to 40% of cases in children seeking advice from a pediatrician. It is known that at least 67% of all four-month-old children regurgitate at least once a day. In 23% of children, regurgitation is considered by parents as a cause for concern. According to Nelson SP et al. (1997), half of children under 3 months have regurgitation. The peak frequency is at 4 months (67%), the most pronounced decline is observed at the age of 6 to 7 months. And by 10-12 months the frequency of regurgitation decreases to 5%.

Persistent regurgitation and vomiting that do not respond to traditional diet therapy require differential diagnostics with malformations of the digestive tract that require urgent surgical intervention. Such malformations include esophageal atresia, malformations of the duodenum, obstruction of the duodenum with annular pancreas, atresia of the small or large intestine, and some forms of diaphragmatic hernia. Primary pathology of neurons of the intestinal nervous system include achalasia of the cardia; congenital stenosis of the esophagus; congenital pyloric stenosis of the VP; intestinal pseudo-obstruction syndrome. The inconstant nature of vomiting with simultaneous periodic retention of stool makes one suspect partial intestinal obstruction as a result of its incomplete rotation or from stenosis of the digestive tract due to embryonic cords and adhesions in the abdominal cavity that compress one or another section of the gastrointestinal tract.

Based on the above, it becomes obvious that there is a need for an even more in-depth study of vomiting syndrome in young children, from the perspective of a “bordering” disease at the intersection of pediatrics and pediatric surgery.

Purpose of the study: To study the diagnostic features and frequency of occurrence of functional and organic pathology of the gastrointestinal tract in the structure of vomiting syndrome in young children.

Research objectives:

1. To determine the ratio of functional and organic pathology of the gastrointestinal tract in the structure of infant vomiting syndrome.
2. To determine the frequency and characteristics of diagnostic errors in the management of young patients with vomiting syndrome.
3. To study some clinical and anamnestic characteristics of infant vomiting syndrome (features of the course of the perinatal period, anthropometric characteristics, presence of concomitant pathology).

Material and methods of research: We studied the medical records of 233 patients aged from birth to 4 months of age, hospitalized with the main complaints of frequent regurgitation and vomiting. The patients were examined and treated at the Multidisciplinary Specialized Children's Surgical Clinic from 2019 to 2024. We divided the patients into two groups, depending on the cause of the vomiting syndrome. Group I consisted of patients with functional disorders of the gastrointestinal tract. Group II included patients with identified organic pathology. In addition, we examined 100 healthy children, who formed Group III, the control group.

Research results and their discussion: When analyzing the medical cases of patients with vomiting syndrome in groups I and II, as well as by comparative analysis of data from patients of both groups with each other and with the comparison group, we obtained the following data:

Functional disorders were most often represented by such nosological entities as pylorospasm, perinatal damage to the nervous system (with a syndrome of increased neuroreflex excitability; hypertensive-hydrocephalic syndrome), alimentary dyspepsia, and intestinal absorption disorder. (Table 1.)

Organic disorders were represented by congenital disorders of the gastrointestinal tract, such as pyloric stenosis, Ladd's syndrome, congenital intestinal obstruction, esophageal atresia, intestinal intussusception, ulcerative necrotic enterocolitis. (Table 1.)

Table 1. Distribution of nosological forms of vomiting syndrome in groups.

Group I: Functional disorders of the gastrointestinal tract			Group II: Organic pathology of the gastrointestinal tract		
pylorospasm	18	7.7%	pyloricstenosis	38	16.3%
alimentarydyspepsia	20	8.6%	Ladd'ssyndrome	5	2.1%
intestinalmalabsorption	34	14.6%	congenitalintestinalobstruction	17	7.3%
perinatal damage to the nervous system (with syndrome of increased neuroreflex excitability; hypertensive-hydrocephalic syndrome)	73	31.3%	esophagealatresia	3	1.3%
Others: (Prolonged hyperbilirubinemia, nephropathy, esophageal foreign body, neurotoxicosis)	7	3.0%	intussusceptionoftheintestine	2	0.8%
			ulcerativenecroticenterocolitis	16	6.8%
Total:					**34.8%**

As can be seen from the obtained results, in the structure of patients with vomiting syndrome, organic, and therefore surgical pathology accounted for 34.8%, and functional disorders of the gastrointestinal tract accounted for 65.2%.

Of all patients, the referring diagnosis did not match the final clinical diagnosis in 42.1% (98) of cases.

Late diagnosis and the presence of complications such as aspiration pneumonia, protein-energy malnutrition, etc. occurred in 123 (52.7%)

The average age of mothers in the group of healthy children was 24.7 ± 0.3 years, and mothers of children with functional and organic changes in the gastrointestinal tract were higher, and were 26.8 ± 0.4 and 27.9 ± 0.6 years, respectively ($p < 0.001$). For mothers aged 16 to 20, the probability of giving birth to children with both functional and organic lesions of the gastrointestinal tract is minimal and increases with the age of the mother. Pregnancy in 80% of mothers of children with functional and 72% of mothers of children with organic pathology of the gastrointestinal tract occurs with pathology. However, the study of the pregnancy structure makes it possible to say that in mothers of children with functional gastrointestinal pathology, pregnancy proceeds more severely, mainly in the II-III trimesters, whereas in mothers of children with organic pathology, pregnancy proceeded relatively well in the II-III trimesters and with pathology, mainly in the I trimester. Childbirth proceeded with pathology in mothers of children of both groups in equal proportions. Analysis of perinatal risk factors showed that a more severe course of the perinatal period was noted in children with organic gastrointestinal pathology. Despite the high percentage of complicated pregnancy and childbirth, more than 90% of children, both with functional gastrointestinal disorders and with organic gastrointestinal pathology, were born on time. Only 6% of children in groups I and II were premature. However, 48% of children with functional gastrointestinal disorders and 21% of children with organic gastrointestinal pathology had signs of morphofunctional immaturity ($p < 0.05$). Among children with organic gastrointestinal pathology, there are more morphofunctionally immature boys (28.7%) than girls (18.2%, $p<0.05$). Children of both groups were found to have a syndrome of increased neuroreflex excitability, muscle dystonia, and a syndrome of vegetative-visceral dysfunction of ischemic-hypoxic genesis, which were interpreted as perinatal lesions of the nervous system. In children with functional gastrointestinal disorders, these manifestations were noted significantly more often (74.3%) than in children with organic gastrointestinal pathology (25.6%, $p<0.05$). In boys, the consequences of ischemic-hypoxic damage to the nervous system were encountered 2 times more often than in girls ($p<0.05$). Anthropometric indices at birth of children with organic gastrointestinal pathology were significantly and more profoundly behind the norm (due to the increase in the number of children with low weight-height indices compared to the control group) than in children with functional gastrointestinal disorders. In group II, deviations in the weight-height index ranged from -1CO to -3CO and accounted for about 100% of all examined children, while in group I, deviations were within -1CO to -2CO and accounted for 62% of patients. In children of the control group, anthropometric indices at birth did not deviate from the norm in 95% of children.

Among the children of group II, there were more premature babies - 39.2% with a gestational age of 26 to 36 weeks, which occurred in the subgroup of patients with congenital intestinal obstruction and esophageal atresia. These children also had the lowest anthropometric characteristics at birth not only in comparison with the control group, but also with group I, as well as with the subgroup of children with pyloric stenosis. Examination of children for intrauterine infection (Table 1) gave a negative result in both groups of patients. Concomitant malformations were detected in 57% of children of group II and in 5% of group I. Children of both groups have a spectrum of distribution of concomitant malformations, among which malformations located in the chest area predominate. A distinctive feature is that among the defects in children of both groups, congenital heart defects prevailed (in children with organic gastrointestinal pathology - 44%, in children with functional gastrointestinal pathology - 52%). The timing of admission of children to hospital is associated with the maximum manifestation of the clinical picture of the disease. Children of group I were admitted to hospital much later than children of group II ($p < 0.001$). The exception were children with congenital hypertrophic pyloric stenosis, who were admitted to hospital relatively later (from 7 days to 3 months, which depended on the degree of hypertrophy of the pyloric muscle). Children of both groups were admitted to hospital with different referring diagnoses.

It should be noted that in children with VGP with signs of morphofunctional immaturity and consequences of ischemic hypoxic damage to the nervous system, regurgitation and vomiting were noted earlier (from 2-3 weeks of life) and the symptoms of the disease increased gradually, the severity of the clinical picture did not correspond to the degree of pyloric stenosis. In full-term, morphofunctionally mature children without neurological disorders, clinical manifestations of the disease appeared later, from 3-4 weeks of life and developed "avalanche-like" and children were admitted to hospital 1-4 days after the first manifestations of clinical symptoms. It should be noted that boys were diagnosed with stage I VGP upon admission to hospital 2 times more often, and girls with stage II. No differences in the timing of diagnosis of stage III pyloric stenosis were noted between boys and girls.

CONCLUSIONS

1. Among the causes of infant vomiting syndrome, the predominance of functional disorders of the gastrointestinal tract is obvious, however, the proportion of organic pathology of the gastrointestinal tract is also significant, which explains the importance of presenting this syndrome as a “bordering” disease at the junction of pediatrics and surgery.
2. Today, there is a certain difficulty in timely diagnosis of the causes of infant vomiting syndrome. As a result, there is late hospitalization of patients, frequent discrepancies between the referral and clinical diagnoses and, subsequently, frequent development of complications such as aspiration pneumonia, protein-energy malnutrition, etc.
3. The perinatal period of infants with functional and organic gastrointestinal pathology proceeds with pathology. However, a more severe course of the II and III trimesters occurs among mothers of children with functional, and mainly the first trimester among mothers of children with organic gastrointestinal pathology.
4. The main anthropometric indicators at birth of children with organic pathology of the gastrointestinal tract and with functional disorders of the gastrointestinal tract often lag behind the norm.
5. Children with organic gastrointestinal pathology and children with functional gastrointestinal disorders have a similar spectrum of concomitant developmental defects, among which congenital heart defects predominate.
6. All of the above leads us to the fact that the diagnosis and treatment tactics of infant vomiting syndrome require further optimization through the joint work of specialists of two profiles - pediatricians and pediatric surgeons.

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