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Modern trends in the formation of comorbid pathology of the esophagus and gastroduodenal zone in children

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Abstract.
The article presents modern views on trends and controversial issues in the formation of combined pathology of the gastroduodenal zone and esophagus in children. The purpose of the authors of this study: to identify the features of the formation, course and outcomes of

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gastroesophageal reflux disease (GERD) in children with pathology of the gastroduodenal zone (GDZ) based on endoscopic and morphological comparisons. Own long-term observations were analyzed depending on the type of pathology, the severity of motor disorders, endoscopic and morphological picture, infection Helicobacter pylori. Possible options for the formation of gastroesophageal reflux disease in children and adolescents with various diseases of the gastroduodenal zone were determined. It has been established that the combined nature of the pathology of the esophagus and gastroduodenal zone in children occurs in more than 75% of patients. The nature and severity of esophageal disorders depend on the nature of the nosology of the gastroduodenal zone and, as a rule, are secondary. The increase in the frequency of GERD in modern children, the increase in the proportion of its complicated variants (including ulcers and Barrett's esophagus), make it a priority in the study of diseases of the upper digestive tract in children at the present time. For this contingent of young patients, it is urgent and urgent to develop clear diagnostic criteria (including endoscopic and morphological criteria), therapy tactics, and a strategy for cancer prevention.

Keywords:
gastroesophageal reflux disease
gastroduodenal pathology
peptic ulcer disease
helicobacter infection
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Pathology of the digestive system occupies a leading position in the structure of somatic childhood morbidity throughout the world, including in Ukraine [1, 2]. According to the Ministry of Health of Ukraine, its frequency is 148.8 per 1000 children and tends to increase [3]. Among the gastroenterological diseases of children of different ages, the first place belongs to the pathology of the upper sections of the gastrointestinal tract. In recent years, it has accounted for 48-50% of the entire pathology of the digestive organs [1, 4]. It is known, that childhood is characterized by a combined nature of the pathology, which, in a chronic relapsing course, acquires a mutually aggravating effect [5, 6].

The predominant proportion of diseases of the digestive system in children (up to 75%) falls on the pathology of the gastroduodenal zone (GDZ), and peptic ulcer (PU) remains the most severe nosology. More than 2% of the child population of Ukraine suffers from PU, while every fourth one has a severe course [1]. In recent decades, more attention has been paid to changes in the esophagus, which in childhood often accompany the pathology of the stomach and duodenum. Over the past years, the pathology of the esophagus in children has significantly increased and diversified [5, 7], cases of severe variants of the course of combined pathology of GDZ and the esophagus in older children and adolescents have become more frequent [3, 8]. Improvement of our knowledge and ideas about the possibility of formation of functional and organic disorders of the esophagus (variants of gastroesophageal reflux disease) is very important, because the proportion of these diseases in the pathology of childhood is constantly increasing. Data on the prevalence of gastroesophageal reflux disease (GERD) in children are insignificant and contradictory (from 0.2% to 25% in the structure of diseases of the digestive system) [3, 4]. In addition, many researchers note the appearance or progression of changes in the esophagus in patients who often receive treatment for exacerbations of inflammatory-destructive diseases of GDZ, including eradication anti-Helicobacter therapy. The literature contains conflicting information about the role of Helicobacter pylori (Hp) infection and the

effect of eradication regimens on the development of upper gastrointestinal motility disorders in the form of duodenogastric, gastroesophageal (GER) reflux and terminal esophagitis [2, 5, 9]. Three possible options for the influence of Hp on the development of esophageal pathology are most reasonably discussed: 1) reducing the risk of developing GER and reflux esophagitis in the presence of Hp; 2) the negative role of Hp in the development of GERD; 3) the presence of Hp does not affect the development of GERD [10, 11]. In addition, scientists and clinicians from different countries unanimously note a negative trend: with an increase in the time (long history) elapsed after Hp eradication, the incidence of concomitant GERD in children and adolescents with duodenal ulcer increases inexorably [3, 12] .Summarizing the available data, we can say that even now the prevalence of GERD may exceed 100 per 10,000 children. [1, 4]. Attention to GERD is undoubtedly associated with a long-term prognosis of the disease, which is beyond the competence of only a pediatrician, since the risk of developing adenocarcinoma of the esophagus in its outcomes is high (according to European researchers) [4, 7, 13]. So, in 10% of adults there are signs of GER, among which reflux esophagitis is detected in 40% and in 10% - Barrett's esophagus. As it turned out, Barrett's esophagus occurs with the same frequency in children with GER. In such patients, the risk of developing adenocarcinoma of the esophagus increases by 30 times compared with the general population. All of the above confirms the relevance of the problem and the need for further study of the formation and mutual influence of the combined pathology of the upper digestive tract in children and adolescents, taking into account current trends and priorities. And if previously unfavorable variants of the course of PU were considered undoubtedly the most severe forms, now we are increasingly forced to talk about the impending danger of complicated variants of GERD in children and adolescents, including those with the formation of Barrett's esophagus [6, 14]. I would like to share fragments of my own research on this topic. We made an attempt to study and analyze the features of the esophageal lesion and the formation of GERD in children with GD pathology, based on the results of a comprehensive study.

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Purpose: to identify the features of the formation, course and outcomes of gastroesophageal reflux disease (GERD) in children with GD pathology based on endoscopic and morphological comparisons.

Materials and research methods.

Under observation were 388 children and adolescents aged 6-18 years with GD pathology (with functional dyspepsia - 19.3%; with chronic gastroduodenitis - 35.1%; with peptic ulcer - 45.6%) in combination with GERD . Patients were divided into three groups: group 1 - 75 (19.3%) patients with functional dyspepsia (FD), group 2 - 136 (35.1%) patients with chronic gastroduodenitis, group 3 - 177 (45 .6%) - with peptic ulcer (PU), predominantly duodenal localization. Among patients with peptic ulcer, in 78 (44.15%) patients (subgroup 1) PU was detected for the first time, and in 99 (55.85%) - again (subgroup 2). The final diagnosis was verified on the basis of clinical and anamnestic data, upper endoscopy, intragastric endoscopic pH-metry, determination of Hp infection; morphological study of fragments of the esophagus, gastric mucosa and duodenum.

Research results and discussion.

In children with FD (Group 1), gastroesophageal reflux of 1-2 degrees was noted predominantly without esophagitis (92%), in a third - in combination with duodenogastric reflux of 1-3 degrees. In FD, predominantly functional motor disorders of the esophagus are noted in the form of GER of I-II degree, and only in 1/3 of patients in combination with GHD. Gastroesophageal reflux is a pathogenetic mechanism and manifestation of FD, apparently, more significant in this contingent, compared with duodenogastric reflux.

In chronic gastritis/duodenitis (Group 2), 46% of patients had GERD with esophagitis, and one third had erosions of the esophagus. With common inflammatory diseases of GD, motor disorders in the esophagus progress (gastroesophageal reflux of II-III degree), are accompanied by a predominantly mixed nature of esophageal reflux (the proportion of bile increases), as a rule, they are always combined with severe motor disorders in the form of duodenogastric reflux II- III degree, sometimes with the prevalence of bile reflux. At the same time, 42% of patients develop persistent inflammatory

changes in the mucosa of the esophagus in the form of catarrhal reflux esophagitis, less often erosive esophagitis.

In 78% of patients with duodenal ulcer (Group 3), endoscopic signs of GERD were noted, with esophagitis in 85%, and 52% of them had erosions, ulcers, polypoid formations in the lower third of the esophagus. In 40% of patients with erosive and ulcerative changes in GD, persistent manifestations of esophagitis are noted against the background of pronounced motor disorders of the esophageal-gastric junction zone (GER, prolapse of the gastric mucosa, etc.) with the formation of long-term severe variants of GERD with erosions, ulcers, polypoid formations of the esophagus in 29.5% of patients. At the same time, despite the visual mixed nature of esophageal reflux, the figures of esophageal pH-metry (esophagus < 1.5) indicate a pronounced acid aggression with a superacid state in the stomach (corpus < 1.0) and decompensated alkalizing ability (antrum < 1 ,5).

During the control upper endoscopy (assessment of the quality of healing of erosions and ulcers of the esophagus) in patients of this group after 6 weeks, epithelialization of defects was noted only in 28% of patients, in a third - the phase of active granulations and the severity of the process, in the rest - at the site of erosions and ulcers - areas of hyperplastic (polypoid) growths along the contour, sometimes in combination with prolapse of the gastric mucosa. Morphologically, in this category of children, polyps of the esophagus of varying degrees of maturity were found in 16% of patients, areas of gastric metaplasia and hyperplasia with the formation of Barrett's esophagus in 19.5% of patients. At the same time, as a rule, in all patients with an initial exacerbation of the erosive and ulcerative process in the GD, complete healing or stable repair of defects and a significant decrease in the activity of concomitant inflammation were noted.

Given that the most unfavorable course of GERD occurs in patients with initial PU, we would like to analyze this group in more detail.

We examined 177 patients with duodenal ulcer at the age of 11-18 years. Boys predominated (more than 75%) of older

age. In 78 (44.15%) children, duodenal ulcer was diagnosed for the first time (subgroup 1), and in 99 (55.85%) - again (subgroup 2). The basis (65.1%) were patients with relapses of PU, ulcer history of which was 2-7 years. The overall infection rate of patients with Hp was 52%, with the primary manifestation of PU in 80-85% of cases it was Hp positive, while relapses of PU were Hp positive only in 25-30%. Pathological changes in the esophagus were detected in 22% of patients, more often in boys (68.2%) of the older age group, and signs of GER and esophagitis occurred twice as often in Hp negative variants of PU. Particular attention was paid to a group of patients (39 people) suffering from a frequently relapsing form (2 or more times a year) of duodenal ulcer and having a long (more than 3 years) ulcer history.

The diagnosis was verified clinically and endoscopically with the determination of Hp infection, in 70% of patients it was confirmed morphologically. Three years after the initial manifestation of PU, 88% of patients had persistent clinical and endoscopic signs of GERD, while inflammatory changes in the esophageal mucosa of varying severity occurred twice as often as isolated motor disorders. In a third of children, GERD, which arose against the background of duodenal ulcer localization, did not have clear clinical "esophageal" manifestations. Hp positive PU contributed to the formation of a predominantly non-erosive form of GERD with a predominance of motor disorders. Most often, catarrhal distal esophagitis was detected. Only 8 adolescents with Hp-positive PU had linear erosions in the distal esophagus.

All patients with Hp-negative duodenal ulcer who had a long history of ulcers, with frequent exacerbations, had pronounced endoscopic changes in the esophagus: erosive distal esophagitis, polyps of the esophagus above the Z line, ulcerative esophagitis (including circular ulcers thoracic esophagus) with morphological confirmation of metaplasia of the gastric type, catarrhal-fibrinous esophagitis with papillomas above the Z line (histologically - squamous papillomas). It is important to note that this group of patients has repeatedly received various regimens of therapy, including eradication. Severe (complicated) variants of GERD in children and adolescents aggravated the course of duodenal

ulcer, often prevailed clinically, required a surgeon's consultation, and were torpid in treatment.

Conclusions.

The combined nature of the pathology of the esophagus and gastroduodenal zone in children occurs in more than 75% of patients. The nature and severity of esophageal disorders depend on the nature of the nosology of GDZ and, as a rule, are secondary.

Undoubtedly, the increase in the frequency of GERD in modern children, the increase in the proportion of its complicated variants (including ulcers and Barrett's esophagus), make it a priority in the study of diseases of the upper digestive tract at the present time. In addition, it is for this contingent of young patients that the development of clear diagnostic criteria (including morphological ones), therapy tactics, and a strategy for cancer prevention is relevant and clearly acute.

In inflammatory diseases of the GDZ, motor disorders in the esophagus progress, reflux esophagitis develops in 42% of patients. In 88% of patients with duodenal ulcer, persistent manifestations of esophagitis are noted against the background of severe motor disorders with the formation of severe GERD variants (erosions, ulcers, polypoid formations of the esophagus in a third of patients). With Hp negative - PU, severe variants of GERD are often formed. Apparently, hereditary and genetic factors contribute to their occurrence, causing a combined unfavorable course of peptic ulcer and GERD with complications. In this case, the outcome of erosive-ulcerative esophagitis often becomes Barrett's esophagus or the formation of polyps and other neoplasias of the esophagus, which can be prognostically unfavorable. The development of GERD complicated by an ulcer, the formation of Barrett's esophagus already in childhood and adolescence requires a long, sometimes non-standard, complex, including surgical treatment.

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