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EARLY PROGNOSTIC SIGNS OF DUODENAL ULCER COMPLICATIONS IN CHILDREN

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Abstract.

Relevance. Duodenal ulcer bleeding is one of the most severe complications and ranks among the leading causes of mortality associated with duodenal ulcers. **Purpose of the study.** This study aimed to identify key predictors of a complicated duodenal ulcer course in pediatric patients. **Materials and methods**. The research included 42 children diagnosed with recurrent duodenal ulcers who received treatment at the 2nd SamMU clinic between 2021 and 2024. The primary group comprised 12 patients (28.6%) with complicated cases involving bleeding, while the comparison group included 30 patients (71.4%) with an uncomplicated course. The study analyzed anamnesis, clinical characteristics, and pH levels in affected children. Several prognostic factors for complicated duodenal ulcers were identified, including gender, age, genetic predisposition, erosive gastroduodenitis, multiple ulcerations, high bacterial colonization, and low pH levels in the antroduodenal region. **Results and discussion**. Analysis of medical history showed that 75% of children in the primary group had a family history of duodenal ulcer, with 33.3% of relatives experiencing complicated forms of the disease. In the comparison group, hereditary factors were present in 46.7% of cases, though none of their relatives had complications. Helicobacter pylori infection was detected in all patients from the complicated ulcer group (100%), while 80% of the control group tested positive. Additionally, elevated IgG titers against HP were significantly more common in the complicated ulcer group. **Conclusions**. Key prognostic markers for complicated duodenal ulcers in children include male gender, older school-age status, hereditary factors, extensive ulcerated areas, and multiple ulcerations. Early diagnosis and proactive medical supervision can help minimize the risk of severe complications in these patients.

Key words: duodenal ulcer, pediatric patients, ulcer bleeding, complication predictors.

INTRODUCTION

Duodenal ulcer disease (UDD) is a chronic condition characterized by alternating phases of exacerbation and remission. Its primary pathological mechanism involves the formation of ulcerative lesions in the intestinal wall. Potential complications include gastrointestinal bleeding, perforation, penetration, pyloric stenosis, and malignant transformation. The high prevalence of UDD, increasing incidence among younger patients, its complex progression, and limited treatment efficacy make this condition a significant concern in clinical medicine [1,3,4,5].

Genetic predisposition plays a crucial role in the development of UDD. The disease is often inherited in an autosomal dominant or autosomal recessive manner, independent of sex [2,5].

In recent years, the clinical presentation of UDD has evolved. The disease frequently manifests with mild or even absent symptoms, making early detection more challenging. Among older children, complications occur in over 5% of cases. Additionally, seasonal exacerbations have become less pronounced, while resistance to conventional therapy has increased. Despite advances in treatment, the rate of complications remains high, with studies indicating that 26–42% of patients with duodenal ulcers experience severe outcomes. The most common complications include gastrointestinal bleeding (30–40% of cases) and ulcer perforation (21–27%).

A significant factor in the pathogenesis of duodenal ulcer disease is infection with Helicobacter pylori, which is typically acquired during childhood. The rising incidence of H. pylori-associated diseases is largely attributed to worsening socio-economic conditions, environmental factors, and poor dietary habits [1,5].

In recent years, the clinical presentation of peptic ulcer disease has shifted. Many cases now exhibit mild or completely asymptomatic courses, complicating early diagnosis. Among older children, duodenal ulcer complications are identified in over 5% of patients. Seasonal exacerbations have become less pronounced, while resistance to conventional treatment approaches and the frequency of complications remain high [2].

Research indicates that complications develop in 26–42% of duodenal ulcer patients, with gastrointestinal bleeding accounting for 30–40% of cases and ulcer perforation occurring in 21–27% [1,4].

The prevalence of Helicobacter pylori infection in school-aged children increases by approximately 10% annually, reaching its peak in adulthood. Currently, H. pylori is detected in 60% of the global population, making it one of the most widespread infections worldwide. This high infection rate suggests that the incidence of gastroduodenal diseases linked to H. pylori will continue to rise. In patients with chronic gastritis and gastroduodenitis, the pathogen is found in 82–98% of cases involving erosive and ulcerative lesions [1,3].

Gastrointestinal bleeding remains the most severe complication of duodenal ulcers and is a leading cause of mortality associated with this disease [3,5]. According to various sources, overall mortality rates range from 10–14%,while postoperative mortality reaches 12–35%. Despite advancements in surgery, endoscopic diagnostics, anesthesiology, and pharmacotherapy, mortality rates have not significantly declined. Moreover, recurrent bleeding increases the risk of death by 1.5–2 times.

Key factors contributing to gastroduodenal bleeding include the widespread prevalence of peptic ulcer disease, uncontrolled use of nonsteroidal anti-inflammatory drugs (NSAIDs) and anticoagulants, and the absence of a unified treatment protocol for managing ulcer-related bleeding [2,5].

Despite extensive research, the factors influencing the risk of recurrence and complications in duodenal ulcer disease remain insufficiently understood. Existing data on the impact of individual predictors are often contradictory, highlighting the need to identify reliable prognostic markers for complicated disease progression.

PURPOSE OF THE STUDY

This study aims to determine prognostic markers that increase the likelihood of complications in pediatric duodenal ulcer disease.

MATERIALS AND METHODS

The study included 42 pediatric patients diagnosed with recurrent duodenal ulcer disease, who received treatment at the 2nd clinic of SamMU between 2021 and 2024.

The primary group consisted of 12 patients (28.6%) with complicated cases involving ulcer bleeding, while the comparison group included 30 patients (71.4%) with an uncomplicated disease course.

The average age of patients in the primary group was 16 ± 1.0 years, whereas in the comparison group, it was significantly lower at 12 ± 2.4 years ($P < 0.01$).

All participants underwent esophagogastroduodenoscopy (EGDS), IgG antibody testing for Helicobacter pylori, and intragastric pH-metry to assess potential risk factors.

RESULTS AND DISCUSSION

An analysis of the patients' medical histories revealed a family predisposition to duodenal ulcer disease in 75% of individuals from the primary group, with 33.3% of their relatives having experienced complicated forms of the condition. In contrast, 46.7% of patients in the control group had a hereditary predisposition; however, no cases of complications were recorded among their relatives.

A detailed overview of risk factors and clinical characteristics in children with duodenal ulcers is presented in Table 1.

Table-1

Risk factors and clinical manifestations of duodenal ulcer in children

№	Indicator	Main group n=12	Control group n=30
1	Hereditary burden of ulcerative colitis	9 (75%)	14 (46,7%)
2	Hereditary burden of bleeding	4 (33,3%)	-
3	Duration of the disease	1,4±0,3 года	3,1±0,6 года
4	Relapses of DU	5 (41,6%)	22 (73,3%)
5	Seasonality of exacerbations	4 (33,3 %)	17(56,7 %)
6	Absence of pain syndrome	4 (33,3%)	2 (6,7%)
7	Significant intensity of pain	боли 3 (25%)	12 (40%)
8	Material and living conditions	8 (66,7%)	11 (36,7%)

In patients with a complicated course of the disease, ulcer progression occurred more rapidly—the average duration of ulcer history was 1.4 ± 0.3 years, compared to 3.1 ± 0.6 years in the control group ($P < 0.01$). Pain syndrome in the primary group was less severe and less intense, with nocturnal pain occurring less frequently. In 33.3% of cases, pain syndrome was entirely absent.

Endoscopic examination revealed multiple ulcerative lesions in 33.3% of patients from the primary group, compared to 10% in the control group. Additionally, erosive gastroduodenitis was diagnosed in 58.3% of patients with a complicated disease course.A detailed summary of endoscopic findings in children with duodenal ulcers is presented in Table 2.

Table 2

Endoscopic indices in children with DU

№	Indicator	Main group n=12	Control group n=30
1	Erosive nature of gastroduodenitis	7 (58,3%)	2 (6,%7)
2	Frequency of detection of DGR (duodenogastric reflux)	5 (41,7%)	20(66,7%)
3	Multiple ulcers	4 (33,3%)	3 (10%)
4	Average size of ulcer defect	3,1±1,79 мм	1,8±1,14 мм

Helicobacter pylori infection was detected in 100% of patients in the primary group, while in the control group, the prevalence was 80%. Elevated IgG titers against H. pylori were significantly more common in patients with a complicated course of the disease (58.3% vs. 16.7%).

Treatment for H. pylori-positive patients included a 10-day eradication regimen, consisting of omeprazole (20–40 mg, twice daily), amoxicillin (50 mg/kg, twice daily), and clarithromycin (15 mg/kg, twice daily). Following this, patients received De-Nol for an additional three weeks. The effectiveness of therapy was assessed one month later using a Helicobacter breath test.

CONCLUSIONS

This study identified several key prognostic markers associated with duodenal ulcer complications in children, including male gender, older school age, hereditary predisposition, large ulcer defects, and multiple ulcer formations. Early diagnosis and proactive follow-up care can significantly reduce the risk of severe complications in this patient population.

List of references

[1] Busygina M.S., Vakhrushev Ya.M. The course of peptic ulcer disease with concomitant duodenostasis // Collection of abstracts of the 42nd Scientific Session of the Central Research Institute of Gastroenterology “Principles of Evidence-Based Medicine in Clinical Practice”. 2016. March 2-3. P.11-12.

[2] Vidmanova T.A., Zhukova E.A., Viskova I.N. Efficiency of anti-Helicobacter therapy for duodenal ulcer disease in children. // Medical almanac. 2011. - No. 6. - P.182-184.

[3] Komarchuk V.V. Evaluation of the acid-producing function of the stomach and diagnostics of

gastroesophageal reflux in complicated forms of peptic ulcer disease. // Zh. Kharkiv Surgical School. - 2012. - №3 (54). - P.50-52.

[4] Timerbulatov, M.V. Prediction of recurrence of acute bleeding from the upper gastrointestinal tract // Bulletin of Experimental and Clinical Surgery. - 2011. - V.4. – №2. – P.1-5.

[5] Shchegolev A.A., Al-Sabunchi O.A., Klochneva E.A. et al. Modern tactical approach in treatment of ulcerative gastroduodenal bleeding // J. Bulletin of RUDN, Medicine series. – 2010. -№ 4. -P.37-42.

[6] Ibatova Sh.M., Shamsieva Sh.N., Kholmurodova D.Kh. The main causes of the development of peptic ulcer of the stomach and duodenum. American Journal of Interdisciplinary Research and Development.Volume 36. January – 2025. P. 133-138.