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DISTINCTIVE FEATURES OF GASTRIC AND DUODENAL ULCER UNDER THE CONDITIONS OF THE EXTREME NORTH

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The clinical manifestations of ulcer associated with *Helicobacter pylori* were compared in patients of various ethnic groups of indigenous and non-indigenous origin living in the Extreme North. Out of 98 patients included in the study, the 1st group consisted of 51 indigenous people (80% of them were Yakuts), the 2nd group consisted of 47 non-indigenous (Caucasians).

The examined groups of patients were homogeneous by age, gender, and ethnicity. There were 27 indigenous men, 24 women, non-indigenous men 34, and 13 women. The age of the examined patients was from 18 to 68 years. When analyzing the clinical and endoscopic aspects of peptic ulcer disease in patients in the studied ethnic groups, a number of features was revealed.

The purpose of the research was a comprehensive study of the main clinical and endoscopic, morphological and functional features of erosive and ulcerative diseases of the stomach and duodenum in various ethnic groups living in the Extreme North.

Duodenal ulcer was detected more often in men of both ethnic groups than in women, $p < 0.05$, respectively. In the indigenous group, peptic ulcer disease was detected mainly in middle working age, more often with localization of ulcer in the stomach.

The results obtained suggest that in patients with a long ulcer history, the degree of HP contamination in the mucous membrane is reduced. In the indigenous group with rarely recurring and first detected ulcers, 66.7% of the patients were poorly contaminated, and in the non-indigenous group of patients with rarely recurring ulcers, 44.7% of the patients had a low degree of contamination.

Keywords: gastric and duodenal ulcer, pain syndrome, dyspeptic disorders, gastric mucosa, *Helicobacter pylori*.

Introduction. The relevance of the study is primarily due to the object of study, which is represented by frequently and long-term ill patients with acid-dependent diseases (gastroesophageal reflux disease, chronic gastritis, peptic ulcer disease).

Recently, numerous studies confirm the presence of a definite relationship between *Helicobacter pylori* (HP) and associated gastroduodenal diseases. Among adults suffering from chronic gastritis (CG), HP is detected in more than 80% of cases, gastric ulcer (GU) - in 70-85%, duodenal ulcer (DU) - in 90-95% [1,3,4].

Data from international epidemiological studies conducted about 20 years ago showed that the detection rate of *Helicobacter pylori* among patients with duodenal ulcer (DU) is 95%. Patients suffering from gastric ulcer are infected with HP in 60% of cases. Correspondingly, HP-negative DU is determined in 5%, and HP-negative GU in 40% of patients with peptic ulcer [2, 6].

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Research methods and material.

The clinical manifestations of ulcer associated with *Helicobacter pylori* were compared in patients of various ethnic groups of indigenous and non-indigenous origin living in the Extreme North. Out of 98 patients included in the study, the 1st group consisted of 51 indigenous people (80% of them were Yakuts), the 2nd group consisted of 47 non-indigenous (Caucasians).

The examined groups of patients were homogeneous by age, gender, and ethnicity. There were 27 indigenous men, 24 women, non-indigenous men 34, and 13 women. The age of the examined patients was from 18 to 68 years. Of these, men - 61 (62,2%), women - 37 (37,8%). Duodenal ulcer was detected more often in men of both ethnic groups than in women, $D < 0.05$, respectively. The age group from 21 years to 40 years is the most representative - 62 (63,3%)

patients. There were 7 elderly and senile patients (7,1%), and young patients under 20 years old - 29 (29,6%).

The complex of the initial examination included esophagogastroduodenoscopy (EGD). The study was combined with a targeted biopsy, during which at least 2 pieces were taken: from the antrum mucosa and from the corpus gastricum; in case of erosion and ulcers - at least 4 pieces were taken from the mucous membrane.

Histologically, the presence of *H. pylori* was determined using enzyme immunoassay diagnostic system "HelikoBest antibodies." To confirm the eradication of *H. pylori* in patients along with the histological method used rapid urease test kits URE-Hp-Test-Pliva-Lachema (Brno, Czech Republic).

In assessing the results of histological examination for *H. pylori* are three degrees of contamination of the mucous membrane of the stomach, according to the Sydney classification: low - to 20, the average - from 20 to 50, and high - more than 50 microbial cells in the visual field.

Results and discussion. When analyzing the clinical manifestations, the duration of the ulcer anamnesis of the groups of patients under consideration was also approximately the same and ranged from 1,5 to 27 years, an average of 5,9 years. By the duration of the anamnesis, patients were distinguished with a newly diagnosed ulcer, with disease duration of up to 5 or more than 5 years.

In the first group of the indigenous origin, out of the 51 patients there were

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8 (15,7%) patients ($P>0,05$) with newly diagnosed ulcer, 34 (66,7%) patients had a disease duration of less than 5 years ($P>0,001$), and 9 (17,6%) patients had ulcer for more than 5 years ($P>0,01$). 24 (47,1%) patients had a relapse once a year, 11 (21,6%) – 2 times a year and 6 (11,8%) – more than 2 times a year.

Out of 47 patients of the second group of non-indigenous origin the PUD was distributed as follows: with a newly diagnosed ulcer – 22 (46,8%); with a disease duration of less than 5 years – 14 (29,8%) and more than 5 years – 11 (23,4%) patients. 18 (38,3%) patients had a relapse once a year, 21 (44,7%) – 2 times a year and 8 (17%) – more than 2 times a year.

When analyzing the frequency of relapses and the duration of exacerbation of pyloric bulbar ulcers in accordance with the classification of the course of peptic ulcer [5] in group I, a mild course (relapses no more than once a year) was observed in 8 (15,7%) patients; moderate (relapses – 2 times a year) – in 32 (62,7%), severe (relapses more than 2 times a year) – in 11 (21,6%) patients. Out of 47 patients of the 2nd group, a mild course was detected in 7 (14,9%), moderate in 29 (61,7%) and severe in 11 (23,4%) patients ($P>0,05$).

The complications pattern analysis revealed that gastrointestinal hemorrhage is one of the frequent complications of peptic ulcer disease. This was observed in 9 (17,6%) patients in group I and in 7 (14,9%) patients in group II, and cases of relapsing hemorrhage were noted in 3 (5,9%) patients of the second group. Clinically, hemorrhage from an ulcer of the pyloric bulbar region manifested itself in 2 (2%) patients in the form of voluminous vomiting with dark blood admixtures, abrupt dizziness, sometimes short-term fainting, in 6 (6,1%) patients – the appearance of tarry stools in the setting of general weakness, dizziness, the appearance of pallor, ailment.

Clinically, stenosis in 2 (3,9%) patients of group I and in 1 (2,1%) patients of group II was manifested by vomiting, pain, weight loss and heaviness in the epigastric region after eating. Loss in body weight of up to 5 kg in all examined patients was noted in 12 (12,2%) cases, from 5 to 10 kg – 3 (3,1%), more than 10 kg – 2 (2%).

The main clinical manifestation of peptic ulcer in the patients of the described groups was pain with localization in the pyloroduodenal region, which was detected in 10 people (19,6%), of indigenous group, 28 (59,6%) of non-indigenous group and, respectively, with

localization in the epigastric region in 31 (60,8%) and 9 (19,1%) patients.

Along with pain syndrome in the indigenous group of patients, dyspeptic disorders were more pronounced as follows: nausea in 17 (33,3%) patients, vomiting in 10 (19,6%), heartburn in 18 (35,3%), sour belching, bitterness – in 15 (29,4%), belching with the smell of rotten eggs – in 5 (9,8%), a feeling of fullness and quick satiety after eating even a small amount of food – in 13 (25,5%), hypersalivation in 8 (15,7%) patients. Bowel disorders were observed in the form of constipation in 18 (35,3%) patients and in the form of diarrhea in 4 (7,8%) patients.

In the group of non-indigenous patients, heartburn was more often observed – in 18 (38,3%) patients, other dyspepsia symptoms occurred in few patients.

In the non-indigenous group, pain syndrome was more often detected – 80,4% with localization in the pyloroduodenal zone and in the epigastric region; 36,6% of dyspeptic disorders, heartburn was noted in 35,3%. Bowel disorders in both groups were more often manifested by constipation: in group I – 35,3% and in group II – 8,5%.

During endoscopic examination of the gastric mucosa, pathological changes were localized in the antrum and body of the stomach, while the cardiac section in all patients was intact. The non-indigenous group was dominated by hyperplastic changes in the gastric mucosa – 24,7%, erythematous-exudative changes in the stomach – 48,4% and in duodenum – 62,4%, erosions were also detected – 18,3%. In the first group of patients, ulcers in the stomach were found in 38,5%, in the antrum – 12,3%, and in the duodenal bulb – 49,2%. In the II group of patients, the localization of ulcers in the stomach was detected in 21,5%, in the antrum of the stomach – 14% and duodenal bulb – 64,5%.

Most often, ulcerative defects were localized in the lesser curvature of the prepiloric and pyloric segments of the stomach – 22 (43,1%) cases in group I, 16 (34%) cases in group II. Localization of the ulcer in the greater curvature of the pylorus, 6 (11,8%) cases in group I, 9 (19,1%) cases in group II, localization along the anterior and posterior walls of the first part of the duodenal bulb, respectively, were revealed in 11 (21,6%) patients of the group I, and in 14 (29,8%) patients of the group II. In 2 (3,9%) patients of group I and in 4 (8,5%) of group II, "kissing" ulcers of the anterior and posterior walls of the first part of

the duodenal bulb were diagnosed.

Taking into account the criteria for the endoscopic section of the Sydney classification, the following degrees of inflammation activity of the gastroduodenal zone were identified in the observed patients.

Grade 1 of inflammation activity was characterized by uneven swelling of the mucosa with patches of hyperemia in the form of spots ("spotted hyperemia") and the presence of mucus (not detected in our studies).

The second grade of activity is characterized by significant diffuse edema of the mucous membrane with severe hyperemia and areas of submucosal hemorrhages, friability, frequent bleeding upon contact; in some places, the mucous membrane is covered with white sticky mucus, this was observed in 22 (43,1%) patients with gastric ulcers, in 33 (70,2%) patients with duodenal ulcers, of which 10 and 12 patients of the group I and 15 and 18 – of the group II, respectively.

The third degree of inflammation activity, in which along with significantly pronounced hemorrhages on the surface of the mucous membrane, local and often multiple defects (erosions) were detected in 34 (34,7%) patients with gastric localization of ulcers and in 54 (55,1%) with duodenal ulcers.

When assessing the endoscopic characteristics of ulcerous defects and gastric and duodenal mucosa, it turned out that 30 (58,8%) patients in group I had a ulcerous defect diameter of 5 to 10 mm and grade 2 gastroduodenal inflammation. Ulcers larger than 10 mm and inflammation of the gastroduodenal zone of grade 3 were noted in 11 (21,6%) patients.

In the second group, the diameter of the ulcer defect from 5 to 10 mm and grade 2 inflammation of the gastroduodenal zone were noted in 35 (74,5%) patients; the diameter of ulcers of more than 10 mm and grade 3 inflammation – in 8 (17%) patients.

The sizes of ulcers ranged from 0.3 to 2.5 cm. Giant ulcers of the pyloric bulbar zone (more than 2 cm) were found in 3 (3,1%) patients.

Morphological evaluation of the mucous membrane of the antrum was performed in 21 patients. All patients had lymphoid infiltration of the mucous membrane and in 71,4% had neutrophilic type of infiltration. Foveolar hyperplasia was observed in 52,4% of patients, without significant differences. Thus, in an endoscopic examination of the gastroduodenal zone, the observed patients of the indigenous group were

more often diagnosed with chronic gastritis – 47 (92,1%), where the atrophic form - in 35,4% and erythematous-exudative changes in the stomach - in 24,6 % and in duodenum - 44,6%. There were no ethnic differences in the form and depth of the ulcer defect.

Of undoubted interest are the analysis results of the dependence of the frequency and degree of HP contamination in patients with peptic ulcer in various ethnic groups. A lower degree of HP contamination of the gastric mucosa was detected in 32 (62,7%) examined patients of the indigenous group, while moderate and high were found in 11 (21,6) and 8 (15,7%) patients, respectively. In the II group, the degree of contamination is slightly higher than in the group I: moderate occurred in 22 (46,8%) and high in 17 (36,2%) patients.

An analysis of the dependence of the HP detection frequency in mucous membranes on the duration of the ulcerative history, the pattern and severity of the gastric and duodenal ulcers revealed some particularities.

Thus, a low degree of contamination in young people with a history of the disease up to 1 year in group I observed in 12 (23,5%) patients, in group II - in 8 (17%); with a history of the disease from 1 to 3 years - in 13 (25,5%) and 11 (26,8%) patients; from 3 to 5 years - in 9 (17,6%) and 2 (4,2%) patients, respectively. A high degree of HP contamination is inherent in patients with ulcer history of up to 5 years and was observed in 34,2% of patients in group I, 45,6% of patients in group II.

Conclusion. When analyzing the clinical and endoscopic aspects of peptic ulcer disease in patients in the studied ethnic groups, a number of features was revealed. Duodenal ulcer was detected in both ethnic groups more often in men, than in women, $p < 0.05$, respectively. In the indigenous group, peptic ulcer disease was detected mainly in middle working age, more often with localization

of ulcers in the stomach. The history of the disease prevailed by the patients with a disease duration of less than 5 years (52.3%), relapse rate was observed once a year in 67.7%, the course of ulcer prevailed by the moderate course (60%), and in terms of complications, pyloric stenosis was more often detected (24.6%).

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The results obtained suggest that in patients with a long ulcer history, the HP contamination degree in the mucous membrane is reduced. In the indigenous group of patients with rarely recurring and first detected ulcers, 66.7% of patients were poorly contaminated, and in the non-indigenous group with rarely recurring ulcers 44.7% of patients had a low degree of contamination.

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