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Correction of Iron Deficiency Anemia in Hiatal Hernias

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Abstract: ***The article describes the methods of treating iron deficiency anemia in hiatal hernias and the problems and innovations that have arisen as a result of observations in this process. The article also discusses cases of chronic posthemorrhagic iron deficiency anemia in a patient with a large hiatal hernia.***
Keywords: Anemia, iron deficiency, hiatal hernia, treating methods, hypochromic.

I. INTRODUCTION

Anemia is characterized by a decrease in the content of hemoglobin and/or red blood cells per unit volume of blood [1]. Iron deficiency anemia (IDA) is a hypochromic microcytic anemia that occurs as a result of a decrease in iron resources in the body (with chronic blood loss, insufficient iron intake, malabsorption) [2]. According to WHO, 700 million people suffer from IDA. In most cases, IDA develops gradually. Symptoms appear when hemoglobin decreases to less than 100 g/l. The main clinical symptoms are weakness, increased fatigue, headache, dizziness, tachycardia, decreased immunity, and taste perversion.

II. LITERATURE REVIEW AND METHODOLOGY

When examining a patient, attention is drawn to pallor of the skin, smoothness of the papillae of the tongue, angular stomatitis, fragility and hair loss, and brittle nails [1–3].

Diagnosis of IDA is based on the results of a general clinical blood test. According to WHO recommendations, the criterion for anemia is a decrease in hemoglobin concentration for women less than 120 g/l, for men - less than 130 g/l. Based on the severity, anemia is classified into mild (blood hemoglobin above 90 g/l), moderate (hemoglobin - 70–89 g/l) and severe (hemoglobin less than 70 g/l) [4]. IDA is common in many gastroenterological diseases. The main reasons for its development are bleeding from the gastrointestinal tract (GIT), impaired iron absorption, and insufficient dietary intake [2, 4]. The sources of blood loss are the following gastrointestinal diseases: malignant and benign tumors, erosive and ulcerative lesions, diverticula, vascular malformation, hiatal hernia. Chronic posthemorrhagic IDA develops as a result of prolonged occult (hidden) blood loss [1]. The main task of doctors is to find the cause of the development of IDA, which is sometimes difficult and requires a large number of studies. As an example, we want to demonstrate the following observation.

Patient G., 72 years old, was admitted to the TsNIIG with complaints of severe weakness and increased fatigue, which had been bothering him for the last 2–3 years. When examined in a general blood test before admission, a decrease in hemoglobin to 66 g/l was noted. It should be noted that the patient consumed foods containing iron in sufficient quantities.

Upon examination, attention was drawn to the pallor of the skin and mucous membranes. As part of the search for the source of bleeding and oncopathology, the following examination was carried out in the department: In the general blood test, a decrease in the level of hemoglobin was noted to 62 g/l, erythrocytes to 3.98 × 106/mm3 (4.3–5.7), hematocrit - up to 21.8 (35.0–50.0).

Iron - 1.2 (12.5–32.2 µmol), VHSS - 76.1 (2.8– 53.7 µmol/l), THC - 77.9 (44.8–71.6 µmol/l), transferrin - 454.8 (200–360 mg/dl), ferritin - 233.3–196.4 (20–300 µg/l). Tumor markers: CEA, CA 19-9, CA 242, alpha-fetoprotein - within reference values. Total PSA - 3.13 (0–4 ng/ml). Stool analysis: negative for occult blood.

Endoscopy revealed that the stomach up to the antrum is located above the diaphragm. The mucous membrane of the stomach is pale pink, there are single whitish retractions on the walls at the site of former erosions. The urease test is negative after 15 minutes. A biopsy was taken from the subbulb portion of the duodenum to exclude celiac disease. According to the morphological study, chronic mild inactive bulbitis and duodenitis were noted.

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Ultrasound of the abdominal organs revealed cysts in the left kidney. Colonoscopy revealed no pathology. When conducting an X-ray examination of the chest organs against the background of the heart shadow in the lower posterior mediastinum, a round soft tissue shadow with a diameter of 6–7 cm with a gas bubble is determined.

According to an X-ray examination of the esophagus, stomach, and small intestine, the distal part of the esophagus goes around the hernial protrusion, which includes most of the stomach, while the fornix of the stomach is located subdiaphragmatically, and the cardia, body of the stomach and antrum are located above the diaphragm in the form of a C-shaped "hook."

A CT scan of the abdominal cavity and chest revealed a hiatal hernia (HH).

According to ultrasound of the bladder, prostate gland, and thyroid gland, no pathology was detected. To exclude the source of blood loss in the small intestine, capsule endoscopy was performed, according to which there were no signs of ongoing or established bleeding.

The patient was prescribed iron supplements, which resulted in positive dynamics in the form of decreased weakness, increased exercise tolerance, and improved laboratory parameters (hemoglobin level increased to 82 g/l). Based on the results obtained, we can conclude that the patient has a hiatal hernia with prolapse of the stomach, chest cavity and the presence of erosions, accompanied by many years of occult bleeding. The patient was offered surgical treatment of the hiatal hernia, from which he abstained. HH is a common disease and occurs in 5% of the adult population, and in half of the patients it occurs without clinical manifestations and, therefore, is not diagnosed. Risk factors for the development of hiatal hernia are [5]:

- Weakness of the connective tissue structures that strengthen the esophagus in the opening of the diaphragm;
- Increased intra-abdominal pressure;
- Upward traction of the esophagus with dyskinesias of the digestive tract and diseases of the esophagus.

B.V. Petrovsky et al. (1965) proposed the following classification of hiatal hernia:

1) Sliding (axial)
a) Esophageal.
b) Cardiac.
c) Cardiofundal.

2) Paraesophageal
a) Fundal.
b) Antral.
c) Intestinal (small intestine and colon).
d) Combined gastrointestinal.
e) Omental.

3) Giant
a) Subtotal gastric.
b) Total gastric.

4) Short Esophagus 1st And 2nd Degree
a) Acquired short esophagus;
b) Congenital short esophagus.

The hiatal hernia may be asymptomatic, but may have quite pronounced clinical symptoms, especially when complications develop. The main symptoms of hiatal hernia are chest pain, heartburn, belching, and regurgitation [5]. The pain can be of different nature and intensity, localized behind the sternum and in the epigastric region, rarely in the right and left hypochondrium; worsens after eating and in a horizontal position. Sometimes the pain radiates to the shoulder blade, shoulder, back, simulating angina.

The appearance of pain in patients with hiatal hernia is associated with the peptic factor (irritation of the mucous membrane of the esophagus), muscular dyskinesia, and stretching of the walls of the esophagus during gastroesophageal reflux. With fixed hiatal hernias, the mechanical factor is important - compression of the neck of the hernial sac and the vagus nerves in the esophageal opening of the diaphragm.

Heartburn is the second most common symptom. Similar to pain, heartburn can be of varying intensity and appears after eating, when bending the body forward, in a horizontal position. Some patients suffer from heartburn mainly at night.

The leading factors in the occurrence of heartburn are cardia insufficiency, gastroesophageal reflux and the effect of gastric or duodenal contents on the mucous membrane of the esophagus. The pathogenesis of heartburn is based on the increased sensitivity of the inflamed mucous membrane of the esophagus to various irritants: gastric and duodenal contents, mechanical stretching of the esophagus.

Belching, like heartburn, is a common symptom of hiatal hernia and is caused by cardia insufficiency. Belching can be air or acidic contents and occurs 30 minutes after eating due to increased intragastric pressure, as well as increased gastric tone and pyloric spasm.

Another manifestation of cardia insufficiency is regurgitation, which can cause aspiration of regurgitated fluid. More rare symptoms of hiatal hernia are nausea, vomiting, and dysphagia. Complications of hiatal hernia include: esophagitis, peptic ulcer of the esophagus and stomach, acute and chronic bleeding, perforation of a hollow organ, intussusception of the esophagus into the hernial part of the stomach, strangulation of the hernia (in paraesophageal hernias). Peptic ulcers of the esophagus are characteristic of axial hernias. With peptic ulcers of the esophagus, a third of patients experience bleeding, often hidden. Ulcers are usually single, large in size, and heal slowly [6, 7]. Cases have been described where gastric perforation occurs with giant hiatal hernias, which can lead to death [7]. With the long-term existence of erosive-ulcerative esophagitis, a stricture of the esophagus develops, manifested by dysphagia of varying severity. Bleeding with hiatal hernia can occur hidden, but can also be accompanied by severe clinical symptoms: vomiting of scarlet blood, coffee grounds, melena. The relationship between hiatal hernia and anemia has been known for a long time. In 1967, based on observations in 450 patients, Colin et al suggested that the pressure difference between the abdominal cavity and the chest causes the sliding movement of the hernia during breathing and distress of the mucous membrane of the stomach and intestines, which leads to edema, petechiae and ulcers. Cameron explained the occurrence of erosions and ulcers due to friction of the folds of the stomach at the level of the opening of the diaphragm [6, 7].

The role of hydrochloric acid in the occurrence of peptic ulcers and gastric erosions has been proven. Bleeding often occurs from ulcers and erosions of the mucous membrane of the esophagus and stomach.

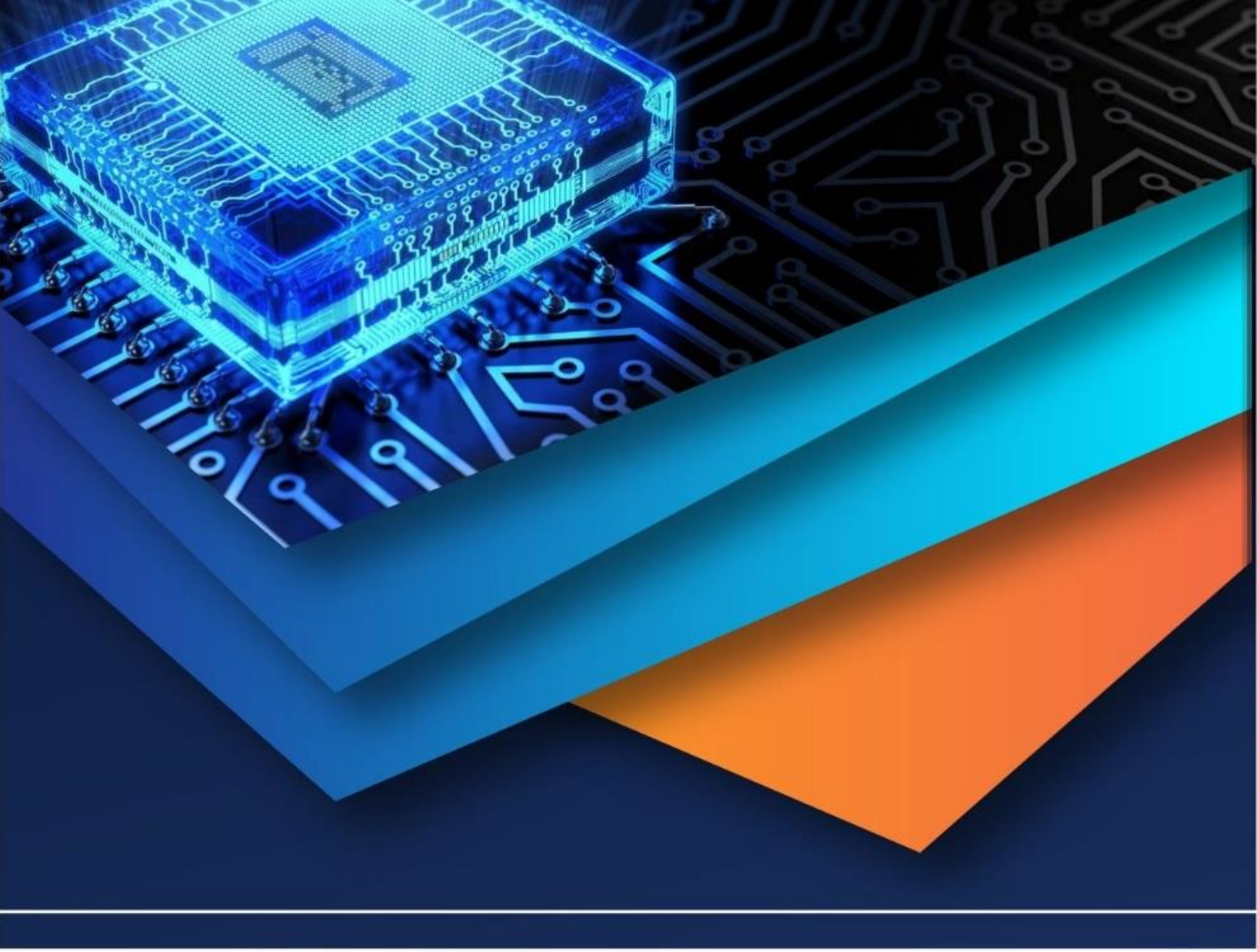
According to the literature, anemia develops as a result of partial infringement of the fundus and bleeding from varicose veins of the stomach. In most cases, the causes of anemia are constant occult bleeding associated with congestive blood circulation and the occurrence of venous thrombi in the short veins of the prolapsed cardiac part of the stomach [8]. Treatment of IDA with hiatal hernia consists of prescribing iron supplements together with antisecretory therapy. If conservative therapy is ineffective, as well as the development of complications, such as perforation of the esophagus, stomach, strangulated hernia, surgical treatment is performed [6].

III. CONCLUSION

When treating IDA, it is important to identify and eliminate its cause. Therapy with iron supplements alone in the presence of an underlying disease that led to IDA will not give good results. The clinical feature of our observation is the complete absence of any complaints about dynamic disorders when the only symptom of the hiatal hernia was anemia, which provoked increasing weakness and weight loss.

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