MINISTRY OF HEALTH OF UKRAINE

ODESA NATIONAL MEDICAL UNIVERSITY

Faculty *Medicine*
Department *of Surgery with Postgraduate Education*

APPROVED BY

Vice-Rector for Scientific and Pedagogical Work

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METHODOLOGICAL RECOMMENDATION FOR PRACTICAL CLASSES OF THE ACADEMIC DISCIPLINE

Faculty, course Medical 6th year

Academic discipline Surgery
(name of the discipline)

PRACTICAL CLASSES

Practical class № 12

Topic: "Bleeding from the digestive tract. Causes of occurrence, diagnosis and differential diagnosis, treatment tactics"

Approved:

At the meeting of the Department *of Surgery with Postgraduate Education* of Odesa National Medical University

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PRACTICAL CLASSES

Practical class № 12

Topic of the practical class: "Bleeding from the digestive tract. Causes of occurrence, diagnosis and differential diagnosis, treatment tactics". – 6 hours

1. Relevance of the topic.

Profuse bleeding into the lumen of the digestive tract is a very serious and often fatal complication of many diseases of the gastrointestinal tract.

There are more than 100 known causes of acute gastroduodenal bleeding. The most common cause is duodenal ulcer and gastric ulcer. The mortality rate for profuse ulcerative bleeding reaches 8%-15%. The mortality rate for bleeding from esophageal varices reaches 25%-40%. The number of patients with gastrointestinal bleeding is increasing, which is due to many factors, such as the use of certain medications (non-steroidal anti-inflammatory drugs) for treatment.

The large number of patients with profuse gastrointestinal bleeding, the complexity of diagnosis and treatment, and significant mortality make the problem of adequate treatment of patients in this category an urgent one.

2. Objectives:

2.1. Learning objectives:

A student of higher education must learn:

1. Identify anamnestic and clinical objective signs of diseases leading to the development of gastrointestinal bleeding. II level
2. Basic principles of diagnosis of the source of bleeding and differential diagnosis of ulcerative and non-ulcerative gastrointestinal bleeding II level
3. To prescribe an examination plan using laboratory, radiological, and endoscopic examination methods. III level
4. Provide emergency conservative care to patients with gastrointestinal bleeding (transfusion of blood and blood substitutes, infusion and hemostatic therapy). III level
5. Determine indications for surgical intervention and theoretically know the methodology of their implementation. II level

2.2. <u>Educational objectives:</u>

1. Formation of a professionally significant personality of the doctor.
2. To emphasize the importance of the national surgical school in the development of modern methods of treatment of bleeding into the lumen of the digestive tract.

3. Interdisciplinary integrations.

№	Disciplines	To know	To be able to
1	2	3	4
		I. Previous disciplines	
1.	Anatomy	Structure of the esophagus, stomach and 12 duodenum, small and large intestine.	To be able to differentiate various areas of the source of bleeding.
2.	Physiology and pathophysiology	Features of blood circulation and microcirculation in acute blood loss	Be able to interpret hemodynamic disorders in patients with bleeding into the lumen of the digestive tract.
3.	Biochemistry	Biochemistry of blood clotting and fibrinolysis.	Be able to interpret laboratory test data of the blood coagulation system.
4.	Pharmacology	Mechanism of action of drugs acting on the main disease and hemostatic drugs.	
		II. Intra-subject integration	
1.	Bleeding due to varicose veins of the esophagus.	Signs of liver cirrhosis, X-ray and endoscopic signs of esophageal varices	Interpret biochemical test data (liver samples), ultrasound and endoscopic examination data.
2.	Mallory-Weiss syndrome	Know the etiology of the syndrome, signs of endoscopic examination.	Purposefully collect anamnesis, be able to find signs of the syndrome during endoscopy.
3.	Gastric ulcer and duodenal ulcer complicated by bleeding.	Know the clinical picture, differential diagnosis of peptic ulcer complicated by bleeding.	Be able to examine a patient with peptic ulcer bleeding, be able to diagnose hemorrhagic shock, and perform a palpation of the rectum.
4.	Cancer of the stomach and intestines with decay and bleeding.	Know the peculiarities of the clinical picture and diagnosis in different tumor localization.	Be able to make a differential diagnosis, interpret X-ray and endoscopic examination data, and set indications for treatment.
5.	Hemorrhoids complicated by bleeding.	The differential diagnosis – the absence of bloody vomit, the color of the blood is red or pink.	Perform a palpation of the rectum, anoscopy.

4. Content of the class.

ACUTE BLEEDING IN THE LUMINUM OF THE DIGESTIVE CANAL

Acute gastrointestinal bleeding syndrome (AGIB) is defined as the leakage of blood into the lumen of the digestive tract. Bleeding can be acute, which occurs suddenly, and chronic, which begins unnoticed and often lasts for a long time. Acute bleeding into the lumen of the digestive tract is one of the most severe and complex emergency diseases of the abdominal cavity. In the structure of

acute surgical diseases of the abdominal cavity, AGIB ranks 4th after acute appendicitis, acute pancreatitis and acute cholecystitis. The incidence of AGIB in Ukraine is 4.55 (2.79-6.33) per 10,000.

DIAGNOSTICS AND DIFFERENTIAL DIAGNOSIS OF AGIB

The process of acute bleeding into the lumen of the digestive tract is divided into two periods: ***latent and obvious***.

THE HIDDEN PERIOD OF THE AGIB

The greatest difficulty is diagnosing bleeding in the initial, so-called latent period. It is during this period that the earliest signs appear, but they are not specific. They include

- weakness (observed in almost 100% of patients)
- skin pallor (in 70-90%),
- dizziness (in 60-80%),
- flickering of “goosebumps” before the eyes,
- tinnitus,
- hand tremors,
- cold sweat,
- palpitations,
- fainting (in 10-30%).

The above symptoms are a manifestation of hypovolemia and, as a result, brain hypoxia. The degree of their severity depends on the intensity of bleeding, the patient's initial condition, and the body's compensatory capabilities.

At the same time, all of the above symptoms or their combinations can be observed in different conditions:

1. ***Bleedings:***
   1.1. External bleeding (usually caused by trauma).
   1.2. Bleeding into the abdominal cavity (aborted tubal pregnancy, spontaneous splenic rupture). Trauma - rupture of a parenchymal organ, intestinal mesentery, etc.)
   1.3. Bleeding into the lumen of the digestive tract.
2. ***Myocardial infarction.***
3. ***Peritonitis.***
4. ***Acute pancreatitis (especially in the stage of enzymatic shock).***
5. ***Bleeding on the background of a perforated ulcer.***
6. ***Anemias of various genesis***
7. ***Mesenteric vascular thrombosis (acute intestinal vascular insufficiency).***
8. ***Oncopathology.***

An examination of the patient and a short survey allow the doctor to quickly suspect one or another pathology, and the use of auxiliary diagnostic methods - to determine it accurately.

A. Examination of the patient allows to determine whether there is ***external bleeding.***

B. Pain behind the sternum is a frequent symptom of ***myocardial infarction***.

The main diagnostic method is ECG.

C. Information about a recent ***abdominal injury*** should suggest the possibility of rupture of a parenchymal organ, rupture of the intestinal mesentery, etc., with

intra-abdominal bleeding. Ultrasound, as well as laparocentesis, including with the use of a "layering" catheter and laparoscopy (blood in the abdomen) allow to establish the correct diagnosis.

D. The occurrence of abdominal pain on the eve may be a manifestation of spontaneous ***rupture of the spleen, interrupted tubal pregnancy, acute vascular insufficiency of the intestines, peritonitis***. Diagnostic methods: ultrasound, laparocentesis, incl. with the use of a "layered" catheter, laparoscopy.

Abdominal pain can be accompanied by acute pancreatitis. Research on the activity of amylase/diastasis blood/urine, ultrasound and CT can confirm the diagnosis.

Abdominal pain can be observed with bleeding on the background of a perforated ulcer. To establish the diagnosis, the following are used: X-ray examination of the abdominal organs for free gas, pneumogastrography, fibrogastroduodenoscopy.

E. All the above symptoms and anamnestic data may not appear. In this case, the cause of weakness, pale skin, dizziness, etc. can be: acute bleeding in the lumen of the alimentary canal, oncopathology, anemia. The sequence of diagnostic measures is as follows: examination of the rectum with a finger (on a glove - feces of normal colors, ground or blood, etc.), examination of stomach contents using a probe (normal stomach contents, blood, "coffee grounds" type contents, etc..), fibrogastroduodenoscopy, fibrocolonoscopy, ultrasound, CT.

OBVIOUS PERIOD OF AGIB

During the **obvious period**, the leading clinical signs of the external manifestations of AGIB are ***bloody vomiting*** (hematemesis) ***and bloody stools***. Moreover, while bloody vomiting is observed in 60-70%, bloody stools are a more permanent sign of AGIB and are observed in almost all patients. The exception is, so to speak, lightning-fast forms of bleeding, when the patient dies before the appearance of chopped or bloody vomit.

Vomiting is more typical for the source of bleeding located in the esophagus, stomach, and less often in the initial duodenum. The nature of the vomit (red blood, dark cherry-coloured clots, or gastric contents of the colour of "coffee grounds") depends on the conversion of hemoglobin under the influence of hydrochloric acid into hydrochloric acid hematin. If the bleeding is moderate, i.e., the blood slowly enters the stomach or duodenum and moves freely further into the intestines, in this case there may be no vomiting at all - the main manifestation of AGIB will be melena.

Repeated bloody vomiting and subsequent melena are observed in case of massive bleeding. In case of excessive bleeding, blood promotes rapid opening of the gate, acceleration of intestinal peristalsis and vomiting in the form of "cherry jelly" or impurities of unchanged blood.

Differential diagnostic significance of external manifestations of AGIB

Feature	**Localization of bleeding source/intensity of bleeding**
Bloody vomit	Esophagus, stomach, initial duodenum

Vomiting of slightly changed blood	Intense bleeding (more often - chronic or acute stomach ulcers, stomach tumours, Mallory-Weiss syndrome)
Vomiting of "coffee grounds" type contents	Chronic duodenal ulcer, moderate gastric bleeding (more often - chronic ulcer)
Vomiting of dark blood and blood clots	Esophageal-cardiac phlebectasia on the background of portal hypertension
Melena (black, tarry feces)	Bleeding from the upper parts of the digestive tract (esophagus, stomach, initial duodenum). It indicates a prolonged stay of blood in the intestine.
Feces are dark cherry in colour	Profuse bleeding from the upper parts of the digestive tract. Bleeding from the right side of the colon.
Raspberry jelly type feces	Bleeding from the left half of the colon
Slightly changed blood in the stool	Bleeding from the rectum (intense)
Formed black feces	Exit of old blood

Vomiting repeated at short intervals indicates ongoing bleeding. Repeated vomiting of blood after a long period of time is a sign of renewed bleeding. Acute bleeding into the lumen of the digestive tract, the main symptom of which is only melena, has a more favourable prognosis than bleeding, which is manifested primarily by profuse repeated bloody vomiting.

The most dangerous is bleeding, which at first manifests itself as profuse vomiting of unchanged blood. The highest probability of an unfavourable prognosis occurs with simultaneous bloody vomiting and melena. If the first sign of bleeding is melena, we can assume a relatively moderate intensity of bleeding and such bleeding has a more favourable prognosis.

The frequency of vomiting also has a certain prognostic value. Patients often have a single bloody vomit. This usually indicates a moderate intensity of bleeding.

A much more alarming symptom is vomiting of almost unchanged blood. Moreover, the more often it occurs, the higher the likelihood of mortality.

AGIB should be differentiated from pulmonary hemorrhage, in which bloody vomit is foamy and accompanied by coughing. The lungs are often audible with different caliber moist rales.

Melena – excretion of altered blood with feces (tarry stools) is observed in duodenal bleeding and massive gastric bleeding with blood loss of 500 ml or more.

Feces of dark cherry colour is more typical for the source of bleeding located in the right half of the colon. In some cases, it can be observed in case of profuse bleeding from the upper parts of the digestive tract.

Raspberry jelly feces are mostly observed in bleeding from the left side of the colon.

Unchanged blood in the stool is characteristic of bleeding from the rectum, and often quite intense.

Formed feces of black colour indicate the release of old blood.

OBJECTIVE EXAMINATION OF THE PATIENT. During the

examination of the patient, the doctor should first of all assess the general condition of the patient.

In case of satisfactory condition of the patient or moderate severity, perform:

- objective examination of the patient (collection of complaints, medical and life history, objective examination) with a parallel study of blood and urine laboratory parameters (complete blood and urine count, urine amylase, etc.),

- ***Finger examination of the rectum*** and determination of the nature of its contents,
- ***aspiration of the stomach contents*** with a probe and gastric lavage.

The latter can significantly improve the accuracy and efficiency of the next stage of the examination - ***urgent FEGDS***.

If during the endoscopic examination it was possible to establish the source of bleeding, then endoscopic hemostasis (in case of ongoing bleeding) or endoscopic prevention of recurrence of bleeding (in case of stopped bleeding) is performed. Patients are hospitalized in the intensive care unit for complex infusion and drug therapy.

In those cases, when the source of bleeding cannot be established during an emergency endoscopic examination, patients are prepared and performed emergency FCS or irrigography in the ICU within 4-6 hours. If even these studies do not allow establishing the source and cause of bleeding, then FEGDS is performed again. If this did not give the necessary result, it can be assumed that the source of bleeding is most likely in the jejunum or ileum. In this case, it is advisable to perform a contrast study of the small intestine (enterography) or selective mesentericography.

Patients in serious or extremely serious condition are immediately hospitalized in the ICU, where intensive corrective treatment is started without delay. If the patient's condition has stabilized, the examination is carried out according to the above scheme.

If during the treatment there are signs of bleeding recurrence (lowering of blood pressure, blood counts, vomiting blood, etc.), the patient is indicated an emergency surgery to identify the source of bleeding and stop the bleeding.

The patient's behavior and objective examination data play an important role in the diagnosis and treatment, which are largely related to the amount of blood loss, the duration of bleeding, and whether the bleeding has stopped or not.

With ongoing bleeding, patients are usually restless, disturbed, and worried. They are somewhat frightened. They constantly change their position in bed, complain of thirst. Yawning and fainting are often observed, which indicates brain hypoxia. The limbs are cold to the touch, there is a pronounced cyanosis of the lips, acrocyanosis. Breathing is frequent, shallow. The pulse is weak, more than 120 beats per minute. In some cases, it is not detected at all in the peripheral arteries. Systolic pressure decreases to 90 mm and below. In this case, the diastolic pressure may be zero. With significant blood loss, the patient feels thirsty, notes dryness of the mucous membranes of the oral cavity.

When bleeding stops, patients are more likely to be calm. They are properly oriented in time and space. Adynamia is often noted. The psychological state may be somewhat depressed. The skin is pale but dry. The pulse rate rarely exceeds 100 beats per minute. It becomes satisfactory. Blood pressure quickly normalizes.

Examination of the patient reveals pallor of the skin and visible mucous membranes, and in case of severe blood loss - cyanosis of the mucous membranes

and nail plates.

In patients with prolonged and severe blood loss, the skin of the extremities acquires a nipple-like tint. Protein-free edema of the lower extremities may be observed, which is caused by an unfilled blood volume, as well as severe disorders of water, electrolyte and protein metabolism. When pressed with a finger, a slowly disappearing white spot appears on the skin of the limb (Burstein's sign).

The abdomen, as a rule, is not distended (in the absence of ascites), participates in the act of breathing, and is symmetrical. In patients with bleeding from varices of the gastroesophageal veins in the setting of portal hypertension syndrome, the abdomen is sometimes flattened, and there is a noticeable dilation of the saphenous veins of the anterior abdominal wall. The abdomen is soft on palpation in the vast majority of patients with bleeding into the lumen of the digestive tract. Only in gastroduodenal ulcers, and sometimes in gastric cancer, there may be slight tenderness and rather moderate tension of the abdominal wall muscles in the epigastric region.

If the source of bleeding is a malignant neoplasm, then in some patients, especially in the advanced stages of the disease, a tumour in the abdominal cavity can be palpated.

Increased intestinal noises, which are determined auscultatively, may indicate ongoing bleeding (Taylor's symptom), possibly due to the body's response to unchanged blood entering the intestines.

CLINICAL PICTURE AND DIAGNOSIS OF HEMORRHAGIC SHOCK

Hemorrhagic (hypovolemic) shock is an extremely threatening complication of AGIB and perhaps the most common cause of death. In this regard, from a practical point of view, it is important to know the symptoms of this most severe and dangerous condition. They are:

- pale, cyanotic, marble-looking, cold, moist skin;
- symptom of a pale spot on the nail bed;
- rapid breathing;
- central nervous system and kidney dysfunction (oligo- or anuria);
- weak pulse filling;
- decreased systolic blood pressure;
- decreased blood pressure amplitude, often arrhythmia, pronounced systolic murmur over the apex of the heart; short-term fainting.

Hypovolemic shock is based on a blood volume deficit that results in an acute hemodynamic disorder characterized by a critical disorder of tissue perfusion. This leads to hypoxia and metabolic disorders in organs and tissues, and can eventually lead to the development of an irreversible condition.

There are three stages of hemorrhagic shock:

1 **stage –** ***compensated reversible shock (low release syndrome);***

2 **stage –** ***decompensated reversible shock;***

3 **stage –** ***decompensated irreversible shock.***

However, not every patient goes through all three stages of development. Moreover, the speed of transition from compensation to decompensation and irreversibility is largely determined by the compensatory capabilities of the body, the initial state of the patient, the intensity of bleeding and the amount of blood loss. It is the complex of these factors that determines the severity of hemorrhagic shock.

Compensated reversible hemorrhagic shock is caused by such blood loss that is well compensated by the mechanisms of adaptation and self-regulation. The patient is conscious, calm, sometimes somewhat agitated. The skin and visible mucous membranes are pale, the extremities are cold. There is emptying of the saphenous veins on the upper extremities, which, losing volume, become threadlike. The pulse is frequent, weak.

Despite the decrease in cardiac output, blood pressure is mostly normal, but in some places, it may even be slightly elevated. This is because blood loss is followed by an excessive release of catecholamines and, as a result, a compensatory spasm of the peripheral vessels. Oliguria occurs. Moreover, the amount of urine can decrease by half or more (the norm is 60-70 ml/h). Central venous pressure decreases and sometimes becomes close to zero due to a decrease in venous return. The duration of low ejection syndrome varies. The compensated stage of hemorrhagic shock can last for a long time when the bleeding stops.

Decompensated reversible hemorrhagic shock is characterized by deeper circulatory disorders. Peripheral vasoconstriction and, as a result, high peripheral vascular resistance is no longer able to compensate for the low cardiac output, which leads to a decrease in systemic blood pressure. Therefore, along with the symptom's characteristic of the compensated stage of shock (pallor of the skin, tachycardia, oliguria), hypotension comes to the fore in the decompensation stage.

It is the development of arterial hypotension that indicates a disorder of compensatory centralization of blood circulation. One of the reasons for the decrease in blood pressure is a decrease in peripheral vascular resistance. Prolonged peripheral vasoconstriction can lead to hypoxia and tissue ischemia, resulting in the accumulation of a large number of vasodilators (histamine, serotonin, kinin activators, etc.) in the tissues and then in the blood, which have a vasodilating effect on the precapillary sphincters. This happens even when catecholamine production continues. The latter lose their vasoconstrictor effect if the content of vasodilators increases.

It should be noted that in the stage of decompensation, organ circulation disorders begin (in the liver, kidneys, intestines, and to a lesser extent in the brain and heart). Oliguria, which is a compensatory reaction of the body, in the second stage of shock, although manifested as a functional shift, is associated with a disorder of renal blood flow (functional prerenal oliguria). This stage is characterized by the most pronounced clinical signs of shock: pallor of the skin, cold extremities, acrocyanosis, increased tachycardia and dyspnea.

Blood pressure decreases significantly (90-80 mm and below). Heart sounds become deaf, which is due to both insufficient diastolic filling and deterioration of myocardial contractile function. Due to the extremely low venous return and emptying of the heart chambers, sometimes there may be a loss of individual pulse impulses in the peripheral arteries, as well as the disappearance of heart sounds during deep breathing.

If in the first stage, as a rule, compensated metabolic acidosis is observed, then in the decompensation stage as a result of deepening tissue hypoxia, it becomes quite vivid and already requires special correction. The increase in hypoxia and the deterioration of organ blood flow, especially in the brain, cause shortness of breath, which is aimed not so much at increasing blood oxygen saturation, but at

compensating for metabolic acidosis by activating the processes of removing carbon dioxide from the body. That is, an increase in respiratory alkalosis is the main way to compensate for metabolic acidosis. With further progression of shock, the development of shortness of breath has a more complex genesis and is associated with the emergence of respiratory distress syndrome in adults, or “shock lung” syndrome.

It should be noted that increased acrocyanosis against the background of general pallor of the skin, hypotension with oligo- or anuria are quite threatening symptoms that indicate a possible transition of the process into an irreversible stage of shock.

Decompensated irreversible hemorrhagic shock is a stage of even deeper blood circulation disorders in all organs and systems and qualitatively differs little from decompensated reversible shock. In case of irreversible shock, pathological processes are capable of disrupting the metabolism and all other functions of organs to such an extent that their elimination is often possible only theoretically. The development of irreversible changes is only a matter of time.

If circulatory decompensation lasts more than 12 hours, and despite intensive therapy, blood pressure remains low, there is no consciousness, oligo- or anuria is observed, the extremities are cold and cyanotic, acidosis deepens, the body temperature decreases, hypostatic skin changes appear, then the shock should be considered irreversible.

The intensity of bleeding, volume of blood loss, degree and duration of arterial hypostasis and shock, age, presence of concomitant pathology, volume, speed and quality, composition of infusion therapy have a significant impact on the prognosis of hemorrhagic shock.

Transportation of a patient who is in a state of shock to a medical institution must be carried out by a specialized “ambulance” vehicle with simultaneous anti-shock measures!

LIFE AND DISEASE HISTORY. Only 60-70% of patients with bleeding of ulcer etiology have an ulcer history. At the same time, such, at first glance, insignificant information as periodic pain in the epigastric area, connected in one way or another with eating, seasonality of appearance (in spring or autumn), night pain can suggest the ulcerative nature of the bleeding. Moreover, in some of the patients with peptic ulcer disease, before bleeding, the pain often increases, and with the onset of bleeding, it decreases or completely subsides (Bergman's symptom). Reduction or elimination of the peptic character is due to the fact that the blood neutralizes hydrochloric acid.

The recent onset of weakness, decreased appetite, weight loss, and constant abdominal pain may indicate **a tumour process**.

Data on alcohol abuse, previously transferred viral hepatitis, malaria, spilled peritonitis, acute pancreatitis, thrombophlebitis of the splenic vein can help suspect portal **hypertension syndrome**.

The appearance of slightly altered blood and pain at the end of intense vomiting of various origins (poisoning by poor-quality products, hypertensive crisis, taking excessive amounts of food or alcohol abuse, etc.) give reason to assume **Mallory-Weiss syndrome.**

The absence of these anamnestic data in an obese patient complaining of frequent chest pain makes us think about a **diaphragmatic hernia** as the cause of acute

bleeding into the lumen of the alimentary canal.

A stressful situation in the anamnesis, serious somatic diseases of the heart, lungs, liver, kidneys, etc. organs, especially in the stage of decompensation, as well as long-term use of drugs with an ulcerogenic effect (anticoagulants, corticosteroid hormones, nonsteroidal anti-inflammatory drugs, hypotensive drugs, etc.) will allow us to assume the occurrence of acute ulcers or **erosions of the mucous membrane.**

Bleeding is very rare with a simple Dielafois ulcer – a small round ulcer on the front or back wall of the stomach, located above a relatively large artery in the stomach wall. It is observed not so often - in 0.7-2.2% of patients, but it poses a great danger, since bleeding occurs, as a rule, from a large vessel that has undergone erosion, and at the same time, as a rule, it is massive and often recurrent.

In patients with **cirrhosis of the liver**, icterus of the sclera, pale-grey skin colour with a yellowish tinge, absence of abdominal hair (Kleckner's symptom), hyperemic tongue with smoothed papillae is quite often observed. It is often possible to detect vascular “stars” on the skin of the face and parts of the body, an enlarged liver and spleen, somewhat less often - ascites, dilatation of the subcutaneous veins of the abdominal wall.

Telangiectasias on the mucous membranes of the lips, tongue, and skin of the hands give reason to think about **Rendu-Osler disease**.

Any blood loss is characterized by a simultaneous decrease in platelet count. However, severe thrombocytopenia with a significant predominance of posthemorrhagic anemia, in combination with large subcutaneous hemorrhages, confirms the diagnosis of **autoimmune thrombocytopenia**.

People suffering from **hemophilia** are usually aware of their disease. Hemophilia can be suspected when stiff joints and their enlargement due to hemorrhages are detected. The final diagnosis is made on the basis of special laboratory tests of the blood coagulation system.

Increased bleeding, cramping abdominal pain in combination with bloody stools, and the appearance of a monomorphic papular hemorrhagic rash on symmetrical parts of the body, sometimes with urticular elements, are characteristic of **hemorrhagic vasculitis (Henoch-Schonlein Purpura).** The disease is most often associated with a previous infection, allergic conditions, and rheumatism.

LABORATORY DIAGNOSTICS

The study of the morphological composition of peripheral blood is sometimes useful in determining the causes of gastrointestinal bleeding. Acute bleeding of ulcerative etiology, despite anemia, is most often accompanied by moderate leukocytosis. It happens that the number of leukocytes is within the normal range. Moreover, the severity of leukocytosis is proportional to the degree of blood loss: the more severe the blood loss, the more leukocytes in the peripheral blood. In 1/3 of patients, a shift in the formula to the left is detected. At the same time, relative lymphocytopenia and monocytopenia are noted.

In case of severe bleeding, there is a decrease in the number of eosinophils, up to their complete disappearance. Leukopenia is more characteristic of bleeding in liver cirrhosis, gastric polyps, and erosive and ulcerative gastritis. A significant increase in the number of leukocytes in the setting of anemia in combination with other clinical findings suggests acute leukemia as a possible cause of acute bleeding.

It is well known that any bleeding is accompanied by a decrease in hemoglobin, hematocrit, and red blood cell count. The degree of their change is also proportional to the severity of blood loss. In case of massive, especially recurrent bleeding, young cells appear in the peripheral blood with the development of aniso- and poikilocytosis.

Mandatory laboratory methods for the examination of patients with bleeding into the lumen of the digestive tract include the following:

- blood test to determine platelet count, hematocrit and viscosity,
- urine analysis,
- examination of blood volume and its components,
- electrocardiogram,
- determination of central hemodynamic parameters,
- study of water-electrolyte and protein balance, acid-base state of blood,
- study of the hemocoagulation system and a number of other blood biochemical parameters (glucose, bilirubin, transaminases, amylase, urea, creatinine, etc.)

Basic principles of diagnosis and treatment of AGIB

In case of bleeding into the lumen of the digestive tract, the main tasks of the doctor are:

- timely diagnosis of the bleeding source,
- achievement of reliable local hemostasis,
- mandatory parallel correction of the consequences of blood loss,
- treatment of the underlying and concomitant diseases.

Moreover, the likelihood of a successful outcome increases significantly when all four tasks are successfully solved.

The sequence of actions of a doctor in case of acute bleeding into the lumen of the digestive tract should be as follows:

1. Establishment of the fact of AGIB is a survey, objective examination of the patient (including examination of the rectum with a finger).
2. Probing and gastric lavage - confirmation of the fact of AGIB, as well as preparation for emergency fibrogastroduodenoscopy.
3. Diagnosis of the source of bleeding - urgent endoscopic examination (fibrogastroduodenoscopy, fibrocolonoscopy), enterography, selective mesentericography.
4. Cessation of ongoing bleeding and prevention of its recurrence (endoscopic or X-ray endovascular).
5. Laboratory examination of the patient.
6. Determination of blood loss amount.
7. Infusion and drug corrective therapy.
8. Cleansing enemas to remove blood that has spilled into the intestines.
9. Endoscopic monitoring (the frequency of control and treatment endoscopic examinations depends on the degree of risk of bleeding recurrence).
10. Determination of the patient's treatment tactics based on the data of instrumental research methods, as well as the effectiveness of corrective therapy.

It should be noted that the first two stages are performed in the admission department, the third and fourth - in the endoscopy room (except for patients who have indications for enterography or selective mesentericography). The fifth to tenth

stages are performed in the intensive care unit. The exception is patients who need emergency surgery due to the ineffectiveness of endoscopic hemostasis methods. In these cases, laboratory examination and corrective therapy are performed on the operating table in parallel with the surgical operation.

The main reasons for the AGIB

Acute bleeding into the lumen of the digestive tract is a complication of various diseases. Currently, more than 180 diseases are known in which it can occur. Common to all of these diseases (primary or secondary) is damage (arosis) of the vessel and blood leakage into the lumen of a particular organ of the digestive tract: esophagus, stomach, duodenum, jejunum, ileum and colon.

It is necessary to define the concepts of the **cause of bleeding and the source of bleeding.** From a practical point of view, this is not always the same thing. ***The cause of bleeding*** is a disease (nosological form) that is complicated by bleeding. For example, gastric ulcer, liver cirrhosis, etc. In this case, there are independent nosological forms - gastric ulcer, liver cirrhosis.

The source of bleeding is defined as the area of damage to the mucous membrane of the digestive tract with arose vessel (artery or vein) and bleeding from it. For example, an ulcer of the antrum of the stomach in gastric ulcer is a source of bleeding, and gastric ulcer is the cause of bleeding. At the same time, liver cirrhosis is a cause of bleeding, and varicose veins of the esophagus or stomach or acute gastric ulcer are a source of bleeding.

The most common localization of the source of bleeding

No	Localization of the source of bleeding	**Frequency of occurrence (in %)**
1.	Esophagus	6
2.	Stomach	35
3.	Duodenum	46
4.	Jejunum and ileum	0,2-0,5
5.	Colon	1,5
6.	Rectum	9,5
7.	The cause of the bleeding is unclear	1,5-2

Thus, in some cases, the cause and source of bleeding coincide, i.e., are associated with the organs of the digestive tract (e.g., peptic ulcer disease, tumours of the digestive tract, etc.), in others, the cause of bleeding is associated with the organs of the digestive tract, while the source of bleeding is located in one or another of its sections (e.g., acute ulcers and erosions, portal hypertension syndrome, etc.).

The most common pathological conditions in which AGIB can be observed include:

- **gastric ulcer** and duodenal ulcer (including peptic ulcer of the anastomosis) is observed in about 60% of patients;
- **acute ulcers and erosion of the mucous membrane of the digestive tract** –

11%;

- **Mallory-Weiss syndrome** – 10%;
- **tumours of the digestive tract** – 9%;
- **portal hypertension syndrome** – 8%;

Rare causes of AGIB occur in about 1.5-3% of patients, and in 1.5-2% the cause of bleeding remains unclear.

The data presented in the table indicate that in most patients the source of bleeding is located in the **upper parts of the digestive tract - approximately 87%.** Much less often it is located in the colon **- in about 11% of patients,** and more often in the rectum. Very rarely, the source of bleeding can be localized in the jejunum **and ileum - in 0.2-0.5% of patients.**

AGIB classification

1. By etiologic features.

- Bleeding caused by diseases of the digestive system (peptic ulcer, tumours, nonspecific colitis, etc.)
- Bleeding not associated with organic pathology of the digestive tract (acute ulcers and erosions, blood diseases, portal hypertension syndrome, etc.)
- False bleeding (swallowed blood with bleeding gums or minor pulmonary bleeding).
- Bleeding of unknown etiology.

2.By localization of the source of bleeding: bleeding from the esophagus, stomach, duodenum, jejunum, colon and rectum**.**

3. By clinical course:

- latent bleeding;
- obvious bleeding (ongoing jet or diffuse bleeding, stopped bleeding).

4. By the severity of blood loss:

- mild bleeding (blood volume deficiency is 20% or less)
- moderate bleeding (blood volume deficiency is 21-40%)
- severe bleeding (blood volume deficiency is 41-60%)
- Extremely severe bleeding (blood volume deficiency is more than 60%).

5. By the degree of hemorrhagic shock:

- bleeding with compensated shock
- bleeding with decompensated reversible shock
- bleeding with decompensated irreversible shock.

Classification of the severity of gastrointestinal ulcer bleeding by the degree of blood loss

1 degree – bleeding with minor changes in hemodynamics (hemoglobin above 100 g/l, CVP 5-15 mm, blood volume deficiency up to 5%).

2 degree – severe bleeding. The general condition is of moderate severity, the pulse rate increases, blood pressure drops to 90 mm, hemoglobin 8 ml/l, CVP less than 5 mm, blood volume deficiency 15%.

3 degree – the general condition is severe, the pulse is frequent, filiform, blood pressure is reduced to 60 mm. Hg, hemoglobin 50 g/l, CVP - 0, blood volume deficiency 30%. Bleeding is accompanied by unconsciousness.

4 degree – profuse bleeding with prolonged loss of consciousness. The condition is

extremely serious, there is no pulse and blood pressure, the blood volume deficit is more than 30%.

Diagnosis of the source of bleeding.

Since in 95-97% of patients the source of bleeding is located in the esophagus, stomach, early duodenum and colon, **emergency endoscopic examination (FEGDS, FCS**) should be considered the main and leading method of diagnosing acute bleeding into the lumen of the digestive tract**.** This method allows not only to establish the cause and nature of the source of bleeding, its location and size, but also to assess the reliability of local hemostasis, as well as to take measures to stop ongoing bleeding and prevent its recurrence. The minimal time spent on its implementation, low trauma, and high accuracy (up to 95%) have made this method indispensable in the diagnosis of acute bleeding into the lumen of the digestive tract. It should be noted that the endoscopic characterization of the source of bleeding is the basis of modern treatment tactics for various causes of AGIB.

Contraindications to endoscopic examination are: shock of 2-3 degree or lack of consciousness, acute cerebrovascular accident, sharp deformation of the cervical spine.

FEGDS is performed under local anesthesia. In addition to irrigation of the oropharynx with local anesthetics, for the purpose of premedication in patients with labile psychiatry, it is indicated to administer 2 ml of 50% solution of Analgin in combination with 1 ml of 0.1% solution of Atropine, and in the intensive care unit 1 ml of 2% solution of Promedol or 2 ml of Seduxen.

Before FEGDS, the stomach is probed and washed with water at room temperature (3-4 liters), which allows to remove the spilled blood, clots, etc. and thereby increase the probability of diagnosing the source of bleeding. Insertion of the probe into the stomach and aspiration of the contents at certain intervals allows you to monitor the dynamics of bleeding.

Endoscopic signs of gastrointestinal bleeding

The nature of the bleeding	Patient groups	Endoscopic signs	Frequency of bleeding recurrence
active prolonged bleeding	Ia	Arterial bleeding with a pulsating stream. Diffuse bleeding from the bottom or edges of the ulcer defect.	More than 90%
	Ib		30-40%
Absence of prolonged bleeding, the threat of its occurrence	IIa	The presence of a visible vessel at the bottom of the ulcer.	50-60%
	IIb	The presence of a loose clot covering the ulcer defect.	30-40%
	IIc	The presence of red and black dots at the bottom of the ulcer.	5-10%
Absence of bleeding and low probability of its recurrence	III	The presence of an ulcerative defect without any signs of ulcerative bleeding	1-3%

To prepare the colon for emergency fibrocolonoscopy, if the bleeding has stopped, cleansing enemas, siphon enemas, or orthograde bowel lavage are used, and if the bleeding continues, these measures are recommended to be performed twice, with an interval of 15-20 minutes. Passive removal of intestinal contents does not lead to increased or renewed bleeding. Moreover, the introduction of cool water into the intestinal lumen most often contributes to a decrease in bleeding activity. The use of such a scheme of colon lavage allows the vast majority of patients with intestinal bleeding to ensure adequate preparation of the study and its quality in a short time (within 2-4 hours).

The greatest difficulties arise in determining the cause of bleeding from the small intestine. The use of **enterography** for this purpose rarely gives the desired result. In some cases, bleeding from this part of the intestine is assumed only after the pathology of the esophagus, stomach, duodenum and colon has been excluded. It should be noted, however, that diseases of the small intestine are rare, rarely manifested by massive bleeding and just as rarely require emergency surgical intervention.

Selective mesentericography is used to diagnose small intestinal bleeding. For this purpose, a Seldinger puncture of the left femoral artery is performed. Under radiological control, the catheter is passed retrogradely into the abdominal aorta and then into the superior mesenteric artery. Contrast agent is injected with an automatic syringe at a rate of 6-8 ml/sec, at the rate of 0.5-1 ml/kg of patient's body weight, and simultaneously high-speed serial photography is performed at intervals of 0.5 seconds (3 to 5 images). In the case of prolonged, rather intense bleeding, extravasal leakage of contrast medium can sometimes be detected. More often, it is possible to detect changes in the vascular bed characteristic of a particular disease. Selective mesentericography as a diagnostic method is effective only in case of ongoing bleeding with a rate of more than 0.5 ml/min. The complexity of the technique, the need for expensive equipment and insufficient information in stopping bleeding significantly limit the widespread clinical use of this diagnostic method.

Due to their high efficiency, which reaches 80%, **X-ray endovascular methods of bleeding control** have found their application especially in extremely severe patients. Hemostasis using these methods is achieved by selective embolization of the bleeding vessel itself or its location.

Treatment

The treatment of patients with bleeding into the lumen of the digestive tract is divided into conservative and surgical.

Conservative treatment includes:

- endoscopic hemostasis
- anticoagulant therapy
- correction of blood loss (infusion and drug therapy) In case of ongoing bleeding, endoscopic hemostasis is performed.

Treatment tactics in acute gastroduodenal ulcer bleeding.

1. In case of ongoing bleeding, endoscopic hemostasis is performed.

If endoscopic hemostasis is effective, the patient is hospitalized in the ICU, where complex corrective and antisecretory therapy is performed, with the obligatory

performance of control FGDS in 4-6 hours.

If endoscopic hemostasis is ineffective within 30 minutes, the patient undergoes **emergency surgery**, regardless of the degree of blood loss. Corrective infusion and drug therapy of shock and blood loss is performed directly on the operating table, including during surgery.

2. When the bleeding stops, endoscopic and medical prevention of bleeding recurrence is performed (antisecretory therapy, correction of blood loss and other homeostasis disorders, treatment of concomitant diseases, etc.); the patient is also hospitalized in the ICU.
3. In all patients who are admitted with already stopped bleeding, as well as in patients whose ongoing bleeding was stopped endoscopically, the risk of bleeding recurrence should be determined and scored.
4. The number and frequency of therapeutic and control endoscopies, as well as indications for **delayed surgical intervention**, are determined depending on the degree of risk of bleeding recurrence.
5. Factors of unreliable hemostasis. In 1974, J. A. H. Forrest first proposed the classification of endoscopic stigmata (signs) of acute bleeding into the lumen of the digestive tract:
   F – 1 (Forrest I) – ongoing bleeding:
   F IA – jet bleeding;
   F IB – diffuse bleeding;
   F-II – bleeding that has occurred (stopped);
   F IIA – thrombosed vessel (red, black, white);
   F IIB – fixed clot;
   F IIC – small thrombosed vessels (red, black spots);
   F-III – no signs of bleeding (the bottom of the mucosal defect is covered with fibrin).

In this case, the tactics of treatment of the patient largely depends on the endoscopic characteristics of the source of bleeding. Patients belonging to group F-I are indicated to use active methods of endoscopic hemostasis or perform emergency surgery. Group F-II indicates a certain risk of bleeding recurrence, i.e. unreliable hemostasis. Moreover, the highest probability of its occurrence is noted in F-IV and F-III. This category of patients is indicated for complex conservative treatment or delayed surgery. Bleeding recurrence is practically not observed in F-III. Therefore, these patients are indicated for anti-ulcer and symptomatic rehabilitation therapy.

Surgical intervention differs depending on the cause of bleeding. In the case of bleeding from esophageal varices, treatment along with drug therapy includes the introduction of a Blackmore probe. If there is no effect, surgical intervention is performed - stitching of bleeding veins or Taner's operation. In the case of bleeding from a gastric or duodenum ulcer, excision of the ulcer with stitching is performed. In some cases, organ-preserving operations are performed - various types of vagotomy with pyloroplasty, or in extreme cases - gastric resection.

In the case of bleeding from a small or large intestine ulcer, resection methods are used to remove the cause of the bleeding - a decaying tumour or intestinal ulcer.

5. Plan and organizational structure of the class.

№	The main stages of the class, their functions and content	Educational objectives in mastery levels	Means of training and control	Materials of methodological support	Time min
1	2	3	4	5	6
	Preparatory stage				
1.	**Class organization**				**5 min**
2.	**Setting learning goals and motivating the topic**				**10 min**
3.	**Control of the initial level of knowledge, skills, and abilities.**				
	1. Etiopathogenesis of bleeding into the lumen of the digestive tract.	II	II level methods		
	2. Anatomy and physiology of the esophagus, stomach, small and large intestine.	II	1. Individual oral interview. 2. Written theoretical survey	II level tasks Tables, slides.	
	3. Clinical picture of a patient with bleeding into the lumen of the digestive tract	II	3. Solving typical tasks.	Videos	
	4. Algorithm of patient examination	II			60
	5. Differential diagnosis of the cause of bleeding into the lumen of the digestive tract.	II		Equipment, X-rays, medical history	
	6. Interpretation of examination data - blood tests - general and coagulogram, endoscopic, X-ray	III	1. Solving atypical situational problems		
	7. Principles of conservative therapy of bleeding into the lumen of the digestive tract	III	2. Appointment of treatment for a patient		
	8. Surgical treatment of patients with bleeding into the lumen of the digestive tract.	II			
	Basic stage				
4.	**Formation of professional skills and abilities**				

	1. Master the methods of objective examination of patients with bleeding into the lumen of the digestive tract.	III	Method of forming practical training skills	Educational equipment - indicative maps	130 min
1	**2**	**3**	**4**	**5**	**6**
	2. Manage a patient with bleeding. 3.Take part in a fibrogastroscopic examination of a patient with bleeding 4. Conduct a finger examination of the rectum 5. Perform bandaging of the patient in the postoperative period	III III III III	A method of forming skills: a) Professional training in solving atypical problems b) solving laboratory and research problems	Atypical tasks in the form of: patient, medical history, test situation tasks, business games, dressing room	
	Final stage				
5.	**Control and correction of the level of professional skills**	III	Method of control: Individual control of practical skills	Equipment	60
6.	**Summarizing the results of the lesson**				3 min
7.	**Homework, educational literature on the topic**			Oriented map of independent work with literature	2 min

6. Materials for methodical support of the class

6.1. Control materials for the preparatory stage of the class

Questions

1. General classification of bleeding into the lumen of the digestive tract by etiology.
2. Classification by the degree of blood loss; classification by Forrest.
3. The main clinical signs of gastrointestinal bleeding.
4. Hemorrhagic shock.
5. Differential diagnosis of bleeding into the lumen of the digestive tract depending on the localization of the pathological process.
6. Methods of endoscopic examination methods (fibrogastroscopy, fibrocolonoscopy, rectoromanoscopy).
7. Surgeon's tactics and features of examination of the patient with low blood pressure.
8. Indications and methods of conservative treatment for bleeding into the lumen of the digestive tract, depending on the etiology.
9. Methods of endoscopic hemostasis.
10. Indications for surgical interventions
11. Methods of surgical interventions depending on the localization of the source.

Situational tasks

1. Patient S., 60 years old, was hospitalized in the surgical department with complaints of weakness, dizziness, discharge of red blood from the rectum. What could be the cause of the bleeding?
   Answer standard: Bleeding is caused by a pathological process in the lower intestine, most likely - hemorrhoids.
2. Patient N., 44 years old, complained of vomiting of the color of "coffee grounds", weakness, dizziness. In the past, she suffered from infectious hepatitis with cirrhosis of the liver. What is the most likely diagnosis?
   Answer standard: Portal hypertension syndrome, complicated by bleeding from varicose veins of the esophagus.
3. 3. Patient M., 30 years old, complained of vomiting blood, tarry stool. He fell ill after repeated vomiting caused by alcohol intoxication. During fibrogastroscopy, 2 longitudinal cracks were found in the area of the cardiac part of the esophagus. Your diagnosis?
   Answer standard: Mallory-Weiss syndrome.

4. What is Tanner's operation?

A. Suturing a bleeding stomach ulcer.
B. Gastric resection with anastomosis according to Hakker.
C. Ligation of the left gastric artery.
D. Colon resection with colostomy removal.
E. Complete transection of the esophagus with anastomosis between the esophagus and the stomach.

Answer standard: E.

5.A 75-year-old patient was brought to a surgical hospital in extremely serious condition with profuse bleeding from a duodenal ulcer. In the anamnesis - a severe form of diabetes mellitus, myocardial infarction 2 months before hospitalization. What will be your actions?

A. Treatment with hemostatic drugs.
B. Treatment with hemostatic drugs using H2 blockers.
C. Endoscopic hemostasis.
D. Gastric resection.
E. Laparotomy, gastroduodenostomy, suturing of a bleeding ulcer.

Answer standard: E.

6. What is the mechanism of Mallory-Weiss syndrome development?

A. Destructive effect of alcohol on the mucous membrane.
B. Ulceration due to taking anti-inflammatory nonsteroidal drugs.
C. Smoking.
D. Increased intragastric pressure due to vomiting.

Answer standard: D.

7. During the operation for profuse gastrointestinal bleeding, varicose veins of the esophagus and cardiac department of the stomach were found. What are the next actions of the surgeon?
   Answer standard: A Tanner operation should be performed.

8. In a 45-year-old patient with bleeding that does not stop during an X-ray examination, no pathology was found. What should be the actions of the surgeon?
   Answer standard: Immediate fibrogastroscopy is required. In the absence of signs of bleeding from the esophagus, stomach, and duodenum and clinical signs of continued bleeding, operative treatment is indicated. The nature of the operation depends on the operative finding.
9. In a 35-year-old patient with a 7-year history of ulcers, an ulcer of the duodenum filled with a loose clot was found during an endoscopic examination. What are the surgeon's actions?
   Answer standard: The patient is indicated for operative treatment, because the patient's hemostasis is unstable, and with a high probability, profuse bleeding can be expected to recur.

- **A 55-year-old patient complained of black, tarry stools (melena), weakness, dizziness, and nausea. What is the most likely diagnosis?**

A. Bleeding from the upper parts of the gastrointestinal tract.
B. Hemorrhoids.
C. Acute appendicitis.
D. Renal colic.
E. Ulcerative disease of the duodenum.

- **The patient, 60 years old, complains of vomiting with blood impurities (hematemesis), stomach pain and weakness. What is the most likely diagnosis?**

A. Gastric bleeding.
B. Gastritis.
C. Acute pancreatitis.
D. Gastric ulcer disease.
E. Hemorrhoids.

- **What is the main symptom of bleeding from the gastrointestinal tract?**

A. Melena (black, tarry stool).
B. Increase in temperature.
C. Nausea.
D. Pain in the right hypochondrium.
E. Light stool.

- **A 70-year-old patient complains of weakness, nausea and vomiting of "coffee grounds". What is this symptom?**

A. A sign of gastric bleeding.
B. A sign of duodenгь ulcer.
C. A sign of pancreatitis.
D. A sign of kidney failure.
E. A sign of hepatitis.

- **Which examination is the most informative for the diagnosis of bleeding from the gastrointestinal tract?**

A. Esophagogastroduodenoscopy (EGDS).
B. Ultrasound of the abdominal cavity.
C. Laparoscopy.
D. MRI.
E. ECG.

- **A 65-year-old patient was hospitalized with complaints of blood in the stool and weakness. What is the most likely cause of gastrointestinal bleeding?**

A. Stomach or duodenum ulcer.
B. Hemorrhoids.
C. Diverticulitis.
D. Acute pancreatitis.
E. Cirrhosis.

- **The patient complains of vomiting with blood impurities and black stool. During the examination, bleeding from a stomach ulcer was detected. What is the most optimal treatment?**

A. Endoscopic stopping of bleeding.
B. Prescribing antibiotics.
C. Prescription of anti-inflammatory medications.
D. Laparoscopy.
E. Chemotherapy.

- **The patient complains of dizziness, weakness and black stools. What is this symptom?**

A. Melena is a sign of bleeding from the gastrointestinal tract.
B. A sign of colitis.
C. A sign of appendicitis.
D. A sign of cholecystitis.
E. A sign of gastritis.

- **A 50-year-old female patient complains of blood in her stool and weakness. What treatment method is most effective for stopping bleeding from the gastrointestinal tract?**

A. Endoscopic treatment.
B. Surgical intervention.
C. Prescribing antibiotics.
D. Treatment of gastritis.
E. Laparotomy.

- **The patient complained of weakness, dizziness and vomiting with blood impurities. What symptom indicates gastric bleeding?**

A. Vomiting “coffee grounds”.
B. Constant pain in the stomach.
C. Temperature increase.
D. Diarrhea.
E. Tachycardia.

Materials for methodical support of self-training of higher education applicants.

№	Main tasks (to study)	Instructions (to name)
1.	Anatomical and physiological structure of the stomach, esophagus, small and large intestine	-Esophagus departments - stomach departments -intestinal departments
2.	Clinical signs of bleeding into the lumen of the alimentary canal	- clinical picture: a) bleeding from varicose veins of the esophagus; b) bleeding from the stomach and duodenum; c) bleeding into the lumen of the small and large intestine.

3.	Methods of examination of patients with bleeding into the lumen of the alimentary canal.	-Fibrogastroscopy; - fibrocolonoscopy; - rectoromanoscopy; - finger examination of the rectum; - laboratory research.
4.	Conservative therapy of bleeding in the lumen of the alimentary canal.	- Hemostatic therapy; - H2 blockers, proton pump blockers; - blood replacement therapy.
5.	Indications for surgical intervention	- bleeding that does not stop; - renewed bleeding after stopping; - profuse bleeding.
6.	Operative methods of treatment	- stitching the bleeding source; - vagotomy with pyloroplasty; - resection methods.

Literature:

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