METHODOLOGICAL DEVELOPMENT OF THE LECTURE
educational qualifications "Master of Medicine", "Master of Pediatrics"
professional qualifications "Doctor", "Pediatrician"

<table>
<thead>
<tr>
<th>Academic subject</th>
<th>Radiology</th>
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<tbody>
<tr>
<td>Module</td>
<td>I</td>
</tr>
<tr>
<td>Year of study</td>
<td>III</td>
</tr>
<tr>
<td>Faculty</td>
<td>Medical N1, N2</td>
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</table>

Poltava
Number of training hours: 2

1. Scientific and methodological substantiation of the topic: Attention of the audience points out that the discovery of radioactivity gave a fundamentally new stage in the diagnosis of normal and pathological conditions of organs with the help of radioactive isotopes. A new stage in the treatment of both oncological and non-communicable diseases.

2. Educational aims of the lecture: to familiarize students with the diagnosis of normal condition and some diseases of the gastrointestinal tract. To do this, many radiological methods are used: X-ray, ultrasound, CT, MRI. But the cheapest and most reliable is X-ray. In this regard, students should be aware of the possibilities of various radiological methods for the study of the gastrointestinal tract and signs of its normal condition, as well as signs of some diseases of the gastrointestinal tract, obtained primarily through X-ray and X-ray. Knowledge of physical processes underlying the methods of radioisotope diagnostics extends the general educational level of the physician.

3. Goals of personality development of the future specialist: the lecture emphasizes that deeper and more fundamental knowledge on the issues can be acquired by the student only as a result of active independent work, which will supplement the information received at the lecture.

4. Competence and learning outcomes

<table>
<thead>
<tr>
<th>№</th>
<th>Competence</th>
<th>Knowledge</th>
<th>Ability</th>
<th>Communication</th>
<th>Autonomy and responsibility</th>
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<tr>
<td></td>
<td>Integral competence</td>
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<td></td>
<td>Ability to solve typical and complex specialized tasks and practical problems in the learning process, which involves conducting research and / or innovations and characterized by complexity and uncertainty of the conditions and requirements.</td>
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<td></td>
<td>General competencies</td>
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<tr>
<td>1</td>
<td>Ability to apply knowledge from &quot;Radiology&quot; in practical situations;</td>
<td>Must have specialized conceptual knowledge gained in the learning process.</td>
<td>Be able to solve difficult tasks and problems that arise in professional activities.</td>
<td>A clear and unequivocal report of their own findings, knowledge and explanations, which are substantiated by experts and non-specialists.</td>
<td>To be responsible for making decisions in difficult conditions.</td>
</tr>
<tr>
<td>2</td>
<td>Knowledge and understanding of the subject area of diagnostic radiology and radiological diagnostics.</td>
<td>Have a profound knowledge of the structure of professional activity.</td>
<td>Be able to carry out professional activities that require updating and integration of knowledge.</td>
<td>Ability to effectively form a communication strategy in professional activity.</td>
<td>Be responsible for professional development, ability to the next professional teaching with a high level autonomy</td>
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<tr>
<td>3</td>
<td>Ability to choose a communication strategy; ability to work in a team; interpersonal skills</td>
<td>Know tactics and communication strategies, laws and ways of communicative behavior</td>
<td>Be able to choose the ways and strategies for communication to provide effective teamwork</td>
<td>Use communication strategies and interpersonal skills</td>
<td>Be responsible for choice and tactics way of communication</td>
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<tr>
<td>4</td>
<td>Ability to communicate in both the mother tongue and the second language orally and in writing.</td>
<td>Have a thorough knowledge of the mother tongue and basic knowledge of a foreign language.</td>
<td>Be able to apply knowledge of the native language, both verbally and in writing, to be</td>
<td>Use professional language and business communication and prepare your documents for your native language. Use a foreign</td>
<td>Bear the responsible for free possession native language, for development professional knowledge.</td>
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<td>5</td>
<td>Skills in the use of information and communication technologies.</td>
<td>To have deep knowledge in the field of information and communication technologies used in professional activities.</td>
<td>Be able to use information and communication technologies in a professional industry that needs updating and integrating knowledge.</td>
<td>Use information and communication technologies in professional activities.</td>
<td>Be responsible for development professional knowledge and skills.</td>
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<td>6</td>
<td>Ability to abstract thinking, analysis and synthesis, the ability to learn and to be modernly trained.</td>
<td>Know methods of analysis, synthesis and further modern training.</td>
<td>Be able to analyze information, make informed decisions, be able to acquire modern knowledge.</td>
<td>Establish appropriate links to achieve goals.</td>
<td>Bear the responsible for timely acquiring modern knowledge.</td>
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<tr>
<td>7</td>
<td>Ability to assess and ensure the quality of work performed.</td>
<td>Know the methods of evaluating performance indicators.</td>
<td>Be able to provide high-quality performance of work.</td>
<td>Establish connections to ensure the quality of work.</td>
<td>Bear the responsible for quality execution works.</td>
</tr>
<tr>
<td>8</td>
<td>Determination and persistence on the tasks and duties taken.</td>
<td>Know the duties and ways of fulfilling the tasks.</td>
<td>Be able to define the purpose and the task of being persistent and conscientious in the performance of duties.</td>
<td>Establishing interpersonal relationships to effectively accomplish tasks and responsibilities.</td>
<td>To be responsible for high quality implementation set tasks.</td>
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### Special (professional, substantive) competencies

| 1 | To know the possibilities of different methods of radiation testing of various organs and systems, to be able to choose the optimum and to evaluate the beam semiotics to detect functional and morphological changes. | To have specialized knowledge about a person, his organs and systems, to know the basic methods of beam research and radiation anatomy of various organs and systems. | Be able to analyze the results of radiological studies and based on their assessment of the norm and pathology. | It is grounded to designate the method of beam research and to analyze the data obtained. | To be responsible for making decisions on the use of certain methods of radiation research and evaluation of their results. |

### Learning outcomes:
Assess information about a diagnosis in a health facility, its unit, using knowledge of the person, its organs and systems, based on the results of radiological studies.

Appoint an effective radiotherapy method, taking into account the results of radiation and laboratory studies.

### 5. Interdisciplinary integration.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Know</th>
<th>Be able to</th>
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<tbody>
<tr>
<td>Normal and topographic anatomy</td>
<td>Anatomy of organs and surrounding tissues, topography</td>
<td>To be guided in topographic anatomy to conduct an adequate...</td>
</tr>
<tr>
<td>Normal physiology</td>
<td>The nature of the physiological processes of the organism.</td>
<td>Distinguish the physiological processes from pathological.</td>
</tr>
<tr>
<td>Pathological physiology</td>
<td>The nature of pathological processes in the body.</td>
<td>Pathophysiological processes that occur as a result of radiological diagnosis.</td>
</tr>
<tr>
<td>Internal diseases</td>
<td>For statement of the final diagnosis and tactics of further diagnostics.</td>
<td>To orientate in the course and clinical manifestations of diseases.</td>
</tr>
<tr>
<td>Oncology</td>
<td>Features of the course of oncological diseases, verification of the diagnosis and treatment of cancer patients.</td>
<td>To be guided in the course and clinical manifestations of oncological disease.</td>
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<tr>
<td>Radiation Diagnostics</td>
<td>Ability to adequately navigate in X-rays, CT, MRI, ultrasound.</td>
<td>It is right to designate one or another radiological examination.</td>
</tr>
</tbody>
</table>

6. Plan and organizational structure of the lecture:

<table>
<thead>
<tr>
<th>№</th>
<th>The main stages of the lecture and its content</th>
<th>Type of lecture. Ways of activating students. Materials of methodical support</th>
<th>Distribution of time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Preparatory stage.</strong>&lt;br&gt; Determination of the relevance of the topic, the educational objectives of the lecture and motivation.</td>
<td>At the lecture it is emphasized that with the help of modern methods of radiation diagnosis it is possible in some cases to achieve a complete survey. The lecture emphasizes that knowledge of physical processes and technical knowledge that underlies the radiation diagnosis of diseases and tumors, extends the general educational level of the doctor. Knowledge of the possibilities of radiological diagnosis of malignant tumors increases the general educational level of the doctor.</td>
<td>6 min</td>
</tr>
<tr>
<td>2.</td>
<td><strong>The main stage.</strong>&lt;br&gt; 1. Methods and methods of beam pulmonary examination. 2. Indications and contraindications to radiation of the lungs in inflammatory diseases. 3. Radiation signs of acute bronchitis. 4. Radiation signs of chronic bronchitis. 5. Radiation signs of pneumonia. 6. Radiation signs of the abscess. 7. Radiation signs of pleurisy.</td>
<td>Thematic lecture</td>
<td>78 min</td>
</tr>
<tr>
<td>3.</td>
<td><strong>The final stage.</strong>&lt;br&gt; 1. General conclusions on the main questions, answers to the questions of students. The task for self-training.</td>
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<td>6 min</td>
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</table>
7. Contents of the lecture material:
For the diagnosis of diseases of the digestive tract, basic and additional methods are used. The main methods of investigation of GI are X-rays and X-rays.

They are preceded by a survey of the chest and abdominal cavity. A barium suspension of different consistency is used as a contrast agent. The standard barium slurry is a 50% aqueous suspension (100 g of barium sulfate powder and 100 ml of water), homogeneity and finely dispersion of which are ensured by thorough mixing with mechanical mixers or boiling.

The leading method of the study is X-rays, because it allows it to clearly see the picture of the gastrointestinal tract in conditions maximally close to the physiological, and judge not only its patency and features of X-ray anatomy, but also about the function of the organ. In many cases, the diagnosis can be established already on the basis of the results of the illumination. X-ray examination (with the aim of surveying and using sighting images) allows to fix and analyze in detail the changes discovered during transluency, to specify a number of details that are poorly defined or completely invisible during the illumination (small contours, surface structure of the pathology, small varicose veins of the esophagus, etc.). At a tight filling, the shadow of the barium is studied in the lumen of the esophagus on the following morphological indicators: position, size, shape, edges, structure, uniformity of white color. Functional parameters: the rate of passage of the esophagus contrast - evacuation, tone, peristalsis, changes in position and pressure in the chest cavity.

When relief filling are studied folds - dark stripes, between which in the furrows are the strips of sulfuric acid barium (white). Evaluate morphological parameters: position, thickness, edges, structure, as well as number, incontinence (including for the stomach) and fold structure. Functional parameters: elasticity of folds (should change shape), size and position of the esophagus during peristaltic wave.

Additional methods of research include a group of methods that make it possible to assess the mobility of the esophagus, its tone, the nature of peristaltic waves, as well as those that specify the localization, the prevalence of the pathological process. The first group includes X-ray photography, respiratory polygraph, the second one - tomography, pneumodiagnostic, parietology. In addition, computer tomography and magnetic resonance imaging are used. The main advantage of these new techniques is the possibility of using them to clarify the nature of the growth and prevalence of tumors of the esophagus and stomach on surrounding tissues, to determine the condition of the lymph nodes. To do this, a CT scan is given to the patient in a fist or swell with a probe. MRI yields to the spatial resolution of CT, just as only a thick wall is visualized.

In an ultrasound (intracavitary and endoscopic), unlike CT, the anatomical layers of the esophagus wall differ. Due to this ultrasound, all methods of visualization in the recognition of the depth of germination of the tumor and the spread of the tumor process on the surrounding structures prevails. More precisely, local and regional metastases are determined.

Roentgenatomy of the esophagus. The esophagus is located in the thoracic cavity, in the posterior mediastinum and begins at the level of the body VI of the cervical vertebra, and ends at the level of XI - XII thoracic vertebrae. In practical work, the esophagus is divided into three divisions: cervical, thoracic, abdominal. The abdominal department of the esophagus enters the stomach at an acute angle (GIS), the magnitude of which is unstable, but under normal conditions does not exceed 90 °. In order to accurately determine the localization of pathological changes in the esophagus, allocate several segments: 1) tracheal (distortial); 2) aortic; 3) interhirtobronchial; 4) bronchial; 5) subbronchial; 6) retrocardial; 7) superdiaphragmatic; 8) intradiaphragmatic; 9) subdiaphragmatic, or abdominal.

X-ray diagnostics of diseases of the esophagus
Disorders of the esophagus. By the time of childbirth, the esophagus has almost been formed. Completely the process of formation ends at 10-12 months of life. The most commonly encountered abnormalities of the esophagus include:
1. Complete aplasia of the esophagus.
2. Atresia of the esophagus.
3. Stentions at different levels.
5. Doubling.

D**iverticulations** of the esophagus are attributed to developmental abnormalities, but may also be acquired. This is a limited protrusion of the wall, which is detected when passing contrast media. By mechanism of origin distinguish pulse, traction and traction - pulse diverticulas. Pulse diverticulas, with the bottom, body, and neck, are more often localized on the back wall of the larynx in the place where it passes into the esophagus (Cenquer's). One of the reasons is the emergence of a pathological wave of reduction and relaxation of cryopharyngeal muscle. When X-ray examination is usually determined by sack-type protuberance with clear equal contours along the dorsal wall at the edges of the throat and esophagus. The shape and size of the diverticula depend on the position in which the study is conducted, the degree of filling it with contrasting substance, the presence of content in it, the study phase. Traction diverticules, sharp forms with wide entrance, without cervix are located on the anterior and anterior side wall of the esophagus. Tractional diverticulum, due to pressure in the passage of food, become traction - pulse. Often, diverticulas are the clinical symptoms of their complications: esophagitis, bleeding, perforation, malignancy (rarely). The most common complication is diverticulitis. Characteristic X-ray symptoms of diverticulitis are the horizontal fluid level in the diverticulum, a prolonged delay in it of contrasting substance (up to 24 hours), uneven contours, rigidity of the walls, deformation of folds.

**Neurofunctional disorders**

In the group of these diseases, the cardiopasm and cardiac achalasia are singled out. **Cardiospasm** is a disease in which a significant increase in the tone of smooth muscle of the lower esophageal sphincter (spasm) is recorded and the cardiac reflux disorder is swollen. **Cardiac achalasia** - a disease in which the tone of smooth muscle of the lower esophageal sphincter remains within the limits of the values recorded by healthy people, or there is no relaxation of cardia on the sway (achalasis - non-disclosure). The main radiological symptoms of cardiospasm and cardiac achalasia are obstruction in the area of the esophagus-gastric transition (funnel-like narrowing), the expansion of the above-described esophagus, and the detection of gastro-intestinal contents in the esophagus, which forms the horizontal level of the fluid. The contours of the esophagus, no peristalsis, there is no reaction to spasmyotics. With a cardiopulmonary spasm, after the introduction of atropine, the lumen of the esophagus is expanding, and with achalasia - there is no reaction to atropine. With longitudinal narrowing, the radiograph in the direct projection expands, deforms the shadow of the mediastinum due to the exit of the esophagus shadow into the contour. In the lateral projection there is a darkening of the posterior mediastinum. Symptoms are more pronounced in cardiac achalasia.

Depending on the severity of clinical and radiological symptoms, the following stages are distinguished:

I Art. - Spasm of the cardiac department, which occurs after the first ingestion of barium and lasts up to 2 -3 minutes. The mucous membrane, the elasticity of the walls and the lumen of the esophagus are normal. Sometimes spasm causes segmental esophageal contractions that disappear after the introduction of atropine.

II century - Sustained spasm of the cardiac department with a slight esophageal enlargement or persistent spasm of the type "sand times", the peristalsis is strengthened, resulting in a possible bariatric regurgitation. The sphincter is revealed only as a result of the increased hydrostatic pressure of the liquid in a sample with the intake of 200 - 300 ml of fluid, poppy.

III - IV centuries. - The cardiac department is spasmodically. Distal department of the esophagus is baggy-expanded, contains liquid, mucus. There are signs of esophagitis. As a result of periesophagitis there are diverticulum-like formations. Barium is delayed up to 6 hours.

**The hernia of the esophagus** can be both acquired and congenital.

Clinically radiologically distinguish:

1. Hernia of the esophagus of the 1st degree - the diaphragm is located abdominal section of the esophagus, the cardia is located in the diaphragmatic opening or slightly higher than it;
2. Hernia of the esophagus of the II degree - above the diaphragm is the abdominal part of the esophagus and cardia; in the diaphragmatic opening, the folds of the mucous membrane of the stomach are visible;
3. Hernia of the third degree - through the esophagus of the diaphragm, there is an abdominal part of the esophagus, cardia and part of the stomach.

**Burns of the esophagus.** Distinguish chemical, thermal and beam burns of the esophagus. Burns lead to the emergence of esophagitis, which is more often expressed in places of physiological narrowing of the esophagus. X-ray examination is advisable for all patients in the early stages, except for those who are in shock. After 8-12 days, inflammation decreases. Cerebral changes begin to develop after 2 weeks or more; the cicatricial process usually stabilizes after 6 months, and sometimes later.

**Benign tumors of the esophagus** are rare and represent less than 1% of all tumors of this organ. Developing from the mucous, submucosal and muscular layers (polyps, myomas, leukemias, cysts, neuromas, hemangiomas, lipomas, etc.). The most common symptom of benign tumors is the defect of filling the oval with an even and clear contour. Elasticity of the walls of the esophagus with benign tumors is preserved.

Early diagnosis of **malignant tumors** of the esophagus is difficult due to the long asymptomatic course. With pneumorphic filling - the presence of a shadow of a tumor, change in the elasticity of the wall (double, drawn contour, the presence of additional accumulation of barium in the form of stains, tapes). A group of non-permanent symptoms consists of narrowing of the esophagus lumen, suprastenotic enlargement, impurity contours, an additional shadow of the tumor against the back of the mediastinum, and others.

**X-ray anatomy of the stomach.** The most part of the stomach is located in the left half of the abdominal cavity under the diaphragm and more often has the shape of a hook, less often - a horn or a transition between the two. The type of stomach is variable, depends on the constitutional factors, the tone, and changes throughout life.

In the X-ray depicts departments:
- arches (located under the left dome of the diaphragm);
- cardiac department (part of the stomach around the cardiac opening);
- subcardial department;
- the body;
- sinus (a part of a small curvature lying on the border between its vertical and horizontal parts);
- the pylorus part (consists of the antral and pre-war department);

**Pylorus** is a narrow channel connecting the stomach to the duodenum. Sometimes, in the inspection of the X-ray in the stomach, a significant amount of air is found which is swallowed up when eating, talking and at the vertical position of the patient forms a stomach bubble, located in the upper part of the organ. At horizontally, the air shifts to the highest position

**There are acute and chronic gastritis.** The former has several forms depending on the cause that contributed to its occurrence (toxins that act on the mucous membrane during dysentery, diphtheria, typhoid and other infectious diseases, chemical substances - concentrated alkalis and acids, which are most often carelessly taken by humans, the action of the radial energy used in the treatment of various diseases).

**Chronic gastritis** - the most common stomach disease, may occur as a primary illness due to unwanted intake of food in the presence of other diseases of the digestive system.

The classification basis is based on clinical-radiological and morphological characteristics.

**Chronic common (universal) gastritis** is rare and characterized by pronounced morphological and functional features, hypersecretion, increased and unevenness of the peristalsis, and the presence of spastic areas, mainly in the original stomach. The radiological picture is characterized by an uneven expansion of the folds of the mucous membrane in all parts of the stomach, which sometimes combine, creating a formless area.
**Chronic antral gastritis** according to the clinical picture resembles a peptic ulcer; X-ray is characterized by hypersecretion, the presence of spasms and irregularly thickening of the folds of the antral department, changing their direction (shear and transverse), as well as twisting, coarse zazub-looting on a large curvature.

**Rigorous antral gastritis** is characterized by the spread of the inflammatory process to all layers of the stomach, which leads to muscular hypertrophy, excessive growth of connective tissue in the stroma of the mucous membrane. Radiologically, the output department is narrowed, the folds of the mucous membrane are thickened, but with a longitudinal direction.

**Stomach cancer** is one of the most common localizations of the disease, which is more common in men aged 40-60 years.

There are many pathoanatomical and clinical classifications. The basis for most of them is the classification of Borman (1926) and End (1928), in which researchers distinguish 4 forms of stomach cancer:

1. **Polypoid** - neoplasms of round form, on a broad basis, sharply separated from adjacent tissue.
2. **Chamomile (saucers)** - in the form of a saucer with tissue infiltration around 2 cm.
3. **Ulcerative-infiltrative**, which sprouts the entire wall of the stomach and characterized by breaking of the folds of the mucous membrane on the border with the cancerous tumor, the early appearance of ulcers, convergence of folds of the mucous membrane to them (this type of tumor is most common).
4. **Diffuse (skull)**, which, as a rule, is localized in the initial division, germinating and extending to the entire stomach and leading to narrowing of the lumen; the contours of the tumor are fuzzy.

1) In practice, most often isolated endophytic, exophytic and mixed forms of cancer.

**X-ray anatomy of the small intestine.** The length of the small intestine is on average 4-5 m, the diameter is 1.5-3 cm - the largest in the empty (3 cm) and the smallest - in the ileum (1.5-2 cm). The variability of the relief of the mucous membrane is a manifestation of its normal condition. The gut is filled in 30-40 minutes, the entire small bowel is filled in for 3-4 hours. The small intestine completely fades in 7-9 hours.

**X-ray anatomy of the large intestine.** The large intestine consists of a blind, oblique (consisting of ascending, transverse and descending), sigmoid and rectum and has a length of about 1.5 m, the width of the lumen decreasing in the distal direction, from 8 to 2 cm. The small intestine, from the lower wall of which leaves the appendix, is the initial part of the colon and ends blindly. At the level of the ileocecal valve (swelling valve), the ascending obstruction of the colon begins, which is directed to the right side of the abdominal cavity upward and to the dose. At the lower surface of the liver, the intestine creates a right bend of the rim and passes into the transverse colon. The latter is directed to the left and more often has a skewed upward direction. Near the lower pole of the spleen, it creates a left curve and passes into the lowered colon that extends along the left side of the abdominal cavity. At the level of the crust of the iliac bone, the intestine passes into the sigmoid, and its lower part at the level of SII-SIII - In the rectum with two bends - pelvic and perineum.

**X-ray examination of the large intestine.** Commonly accepted are two methods of contrast study of the colon - with the acceptance of a barium sulfate suspension orally and retrograde administration of the x-ray contrast agent (irigoscopy). X-ray examination can be started after filling it, that is, 3-4 hours after receiving the contrast agent, and then, within 18-24 hours, examine all sections of the colon.

Study of relief of the mucous membrane is an important stage of the study. The methodology is that after careful preparation (2-3 cleansing enema) with the help of Bobrov apparatus, the patient is injected 1-1.5 liters of heated barium sulfate, tannin, heated to 38-39 ° C. The examination while lying on the back and breathing deeply. In the course of the study, sighting and then observational images are performed, turning the patient in different positions for a better image of the extremities and angles created by the sections of the colon. The second stage of the study is performed after the emptying of the colon from contrasting mass.
Nonspecific ulcerative colitis - a common disease that affects young people and leads to severe complications, and therefore requires a profound study of it.

The clinical picture corresponds to two main forms - acute and chronic. Patients complain mostly about frequent emptying with blood and mucus admixture. X-ray symptoms are represented by many features, the main of which are: stained, convoluted, with the wrong direction of the fold; fuzzy contours of the intestine, in some areas, double; nasal mucus membrane; the alternation of healthy areas of relief with honey, creating a picture resembling a turtle shell; deformation of the colon in the form of a cord or a lead tube.

Benign tumors of the large intestine. More often than other tumors there are polyps, various in size and structure, which give severe complications, bleeding and malignancy.

With different localization, the most common is on the straight line and the colon. In some cases there is a total polyposis with involvement in the process of the entire digestive canal (stomach, small and large intestine). X-ray diagnosis of polyposis is determined by the localization, the prevalence of the process, the size of tumors. A single polyp is a defect of filling the correct form, with clear, even contours, relief of the mucous membrane around which the lumen of the gut is not altered, its mobility is preserved. With multiple polyps in the large intestine, the mucosal relief is poorly traced, the roentgenologic pattern resembles cells from many areas of illumination of the correct form and clear contours. The elasticity of the wall is disturbed, there is rigidity and stiffness of the contours. Rarely, there are other benign tumors (lipomas, myoma). Their diagnosis is difficult.

Colon cancer Early detection of this ailment is associated with a variety of difficulties due to the long slow asymptomatic course. The process is most often localized in the direct, sigmoid, blind, and ascending colon. Distinguish:
- exophytic form, which includes polypoid and saucer-like cancer;
- endophytic - ulcerative, ulcerative and diffuse-infiltrative cancer

8. Materials of activation of students during the lecture:

Question:
1. What is pneumoperitoneum?
2. List the X-rays that occur in ulcerative-infiltrative stomach cancer.
3. List the X-rays that occur with polynueropathic stomach cancer.
4. List the X-rays that occur in the diffuse cancer (skull) of the stomach.
5. List the X-rays that occur in cupola (saucers) gastric cancer.
6. List the X-rays that occur during chronic gastritis.
7. List the X-rays that occur during the meningitis.
8. List the X-rays that occur in stomach ulcer.
9. List the X-rays that occur during the complications of peptic ulcer.
10. List the X-rays that occur in the actinomycosis of the stomach.

Problematic situations:
1. Patient L., born in 1954, drank an unknown fluid. An ambulance is taken to a hospital where it is examined radiologically. Enlargement of the esophagus is narrowed due to swelling and spasm, in the lumen a significant amount of mucus. Layers of the mucous membrane are indistinct due to mucus. Peristalsis weakened. The elasticity of the walls is lowered. Pronounced regurgitation. During the esophagus there is a spasm. Your conclusion.
   Answer: Chemical burn of the esophagus.

2. A patient for a long time suffers from a stomach ulcer 12 bulbs. cholera During the last month, vomiting is worrying after eating. Revealed every three days. On radiographs in the stomach is determined a lot of barium. A day after the study, the amount of barium has not changed significantly. Your conclusion?
   Answer: stenosis of the original stomach

9. Materials for self-preparation of students to the lecture:
Tasks on the topic outlined in the lecture:
1. Why do I need to contrast with a gastrointestinal tract?
2. What are the main radiological esophagitis?
3. What are the radiological signs in the functional states of the esophagus?
4. Radiological signs in tumorous conditions of the gastrointestinal tract?
5. Radiological signs in tumors of the gastrointestinal tract?
6. Radiological signs of burns and foreign bodies of the esophagus?
7. What should be taken into account by the physician when referring to a patient with a suspicion of a gastrointestinal tract infection on an X-ray study?
8. List the X-rays that occur in chronic colitis;
9. List the X-rays that occur in the Crohn's disease;
10. List the X-ray signs that occur in the ulcer of the 12th-digestive tract.

**Question on the topic outlined in the lecture:**
1. Why do I need to contrast their gastrointestinal tract?
2. What are the main radiological signs of the esophagus and stomach in normal?
3. What are the main radiological signs of the small and large intestines in norm?
4. What are the radiological signs in the functional states of the esophagus?
5. How many physiological constipation of the esophagus and how are they called?
6. What are the radiological signs in the functional state of the intestine?

9. What should be considered by the doctor when referring a patient with a suspicion of an esophageal illness to an X-ray examination?

**10. Used literature and Internet resources**

**Basic:**
2. Рентгенодіагностика за ред. Мілька В.І.-“Нова книга “, 2005.-342с.
3. Мильно В. Й., Лазарь А.Ф., Н.И.Назимок. Медицинская радиология.-Киев,-"Вища школа".1980.-279 c.
5. Кравчук С.Ю.,Лазар А.П.Основи променевої діагностики.-Чернівці.-2006.-255с.

**Additional:**

**Information resources.**
1. https://radiographia.info/
6. https://www.sonosite.com