Colon Surgical Diseases

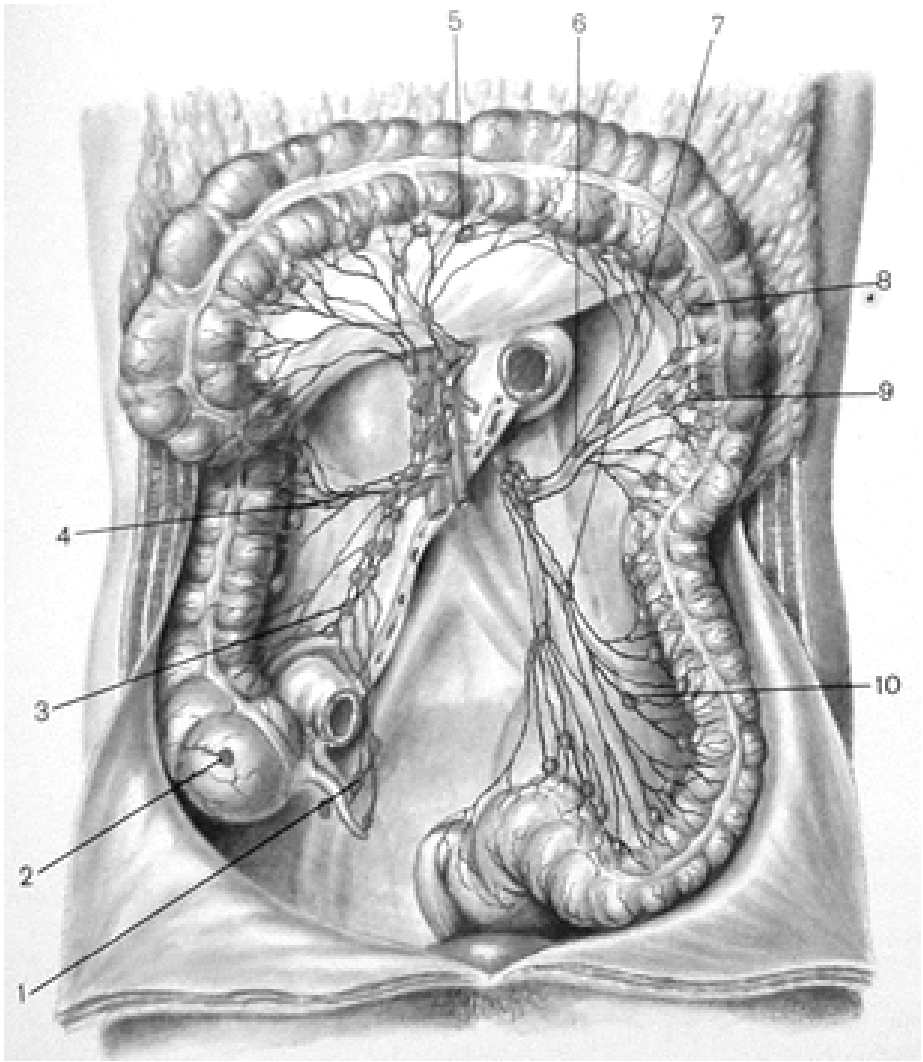
Department of Hospital Surgery, Urology

Orenburg State Medical University

Surgical inflammatory diseases of the colon

Ulcerative colitis

Crohn's disease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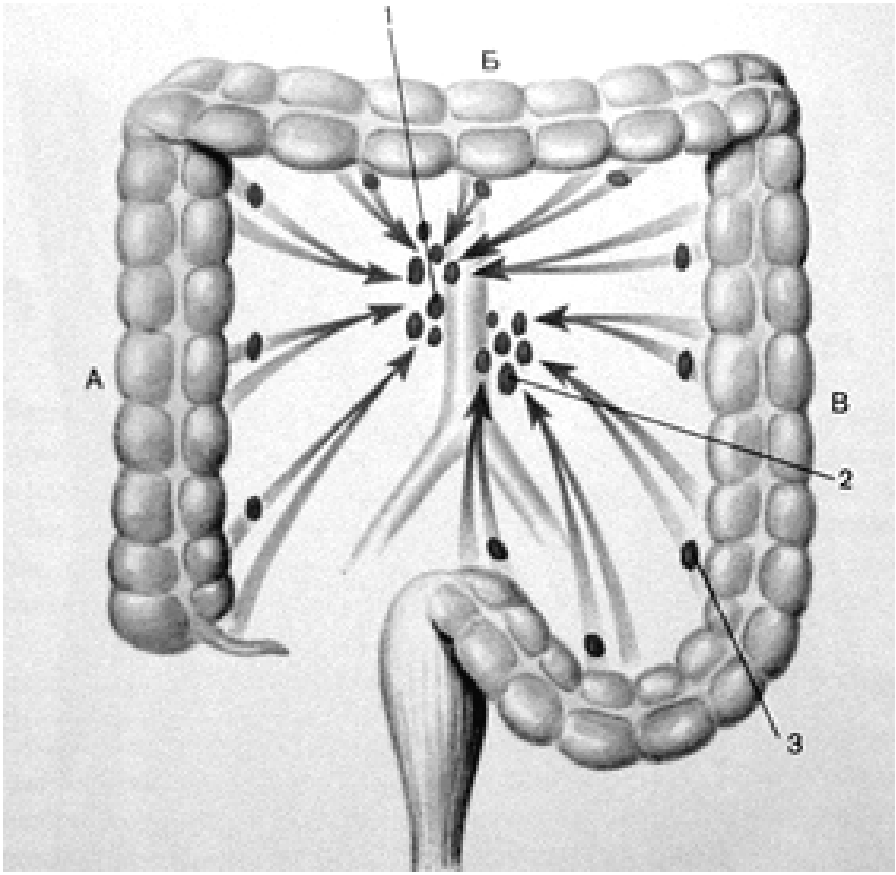
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Colon blood supply:

Right half:

--a.ileocolica

--a.colica dextra

--a.colica media

Left half:

--a.colica sinistra

--aa.sigmoidea

The outflow of venous blood through the system of the same arteries in the portal vein system.

Lymphatic drainage - through the lymphatic vessels and nodes lying along the arteries and veins.

Innervation - branches of the celiac, superior and inferior mesenteric plexuses.

The main functions of the large intestine.

Metabolic - participation in the synthesis of vitamins of groups B and K using microflora; regulation of water-salt metabolism;

Excretory - removal of insoluble components (calcium, heavy metals) through the wall.

The formation of intestinal microflora involved in the digestion of fiber and the formation of dietary fiber necessary for the regulation of colon activity, the formation of "intestinal" immunity.

Nonspecific ulcerative colitis (UC) is a chronic recurrent disease of the colon, characterized by severe diffuse ulcerative inflammatory lesion of its mucous membrane.

UC is a chronic immune-mediated inflammatory condition of the large intestine that is frequently associated with inflammation of the rectum but often extends proximally to involve additional areas of the colon

- only the colon is affected (with the exception of retrograde ileitis),
-necessarily — rectum,
- inflammation within the mucosa (except for fulminant colitis) — diffuse

Etiology

Genetic predisposition.

Long-term use of NSAIDs

Bacteria, viruses.

Immunological disorders and autosensitization. In the presence of a genetic predisposition of the organism, the effect of one or more “trigger” factors triggers a cascade of mechanisms directed against their own antigens; imbalance of the immune system of the gastrointestinal tract. Against this background, exposure to a variety of adverse factors leads to an excessive inflammatory response involving cytokines.

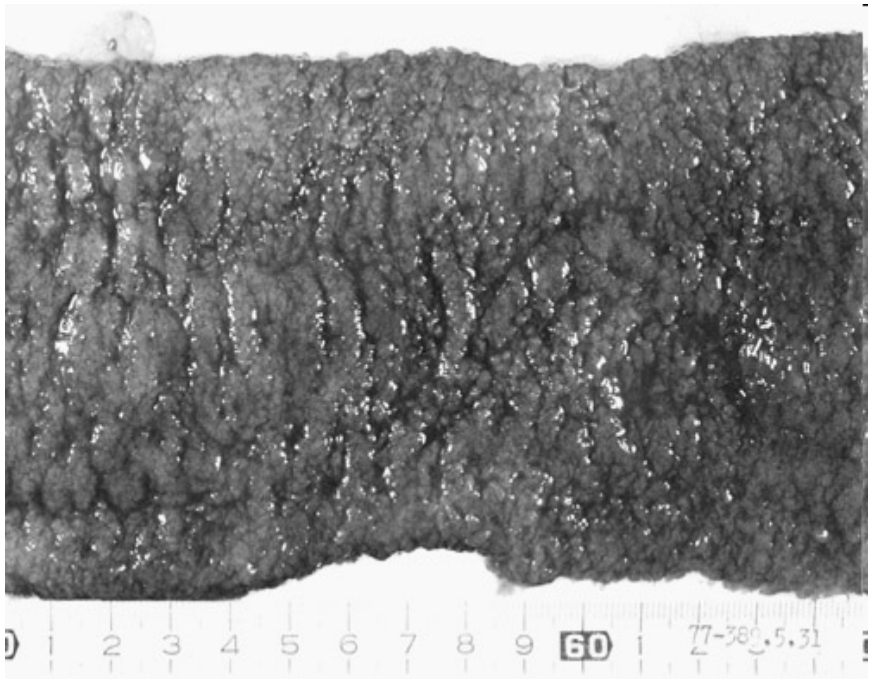
Protective factors: active smoking, appendectomy, oleic acid.

Pathogenesis
immunological disorders
intestinal dysbiosis
disorders of psychological status

Risk factors

	Crohn's disease	Ulcerative colitis
Smoring	Higher risk for smokers	Lower risk for smokers
Age	Usual onset between 15 and 30 years	Peak incidence between 15 and 25 years

Pathomorphology.
The lesion begins from the rectum, the mucous membrane and submucosa are involved.
Ulcers, erosions, pseudo-polyps
Granularity, plethora of the mucosa



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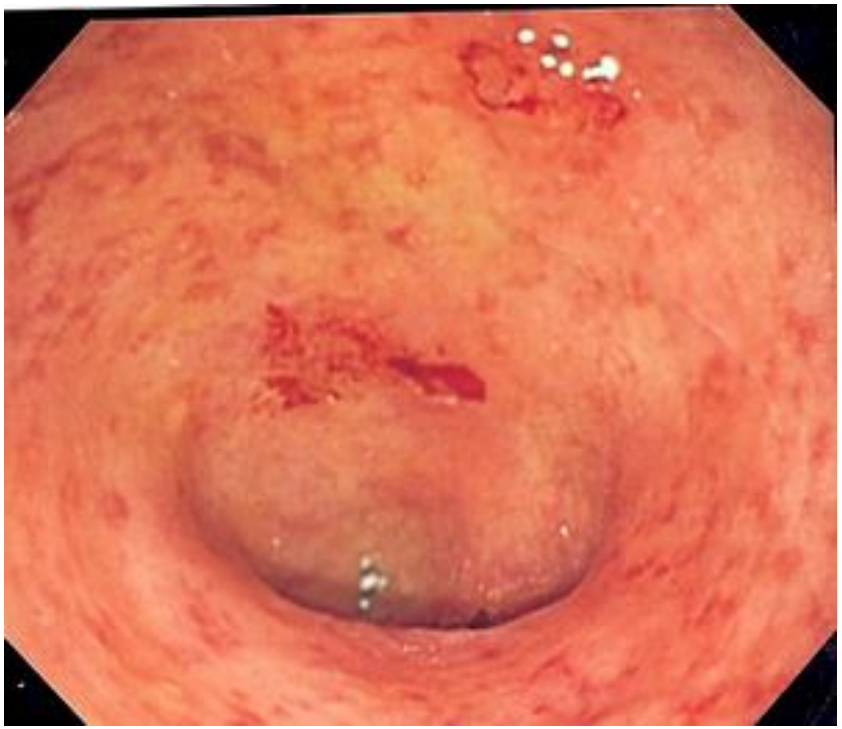


Exacerbation (relapse, attack) - the appearance of typical symptoms of the disease in patients in the stage of clinical remission, spontaneous or medically supported. Early relapse - less than three months after the achieved remission.

- Clinical remission - there is no blood in the stool, there is no false urge to defecate (tenesmus), the frequency of defecation is not more than 3 r / day.
- Endoscopic remission
- Histological remission

Montreal classification of UC by lesion length

Diagnosis	lesion length
Proctitis	Limited to the rectum
Left-sided colitis	Spreads to the left bend of the colon (including proctosigmoiditis)
Total colitis	Including subtotal colitis, as well as total UC with retrograde ileitis

UC

Acute course (less than 6 months from the onset of the disease):

- with a fulminant beginning;
- with a gradual debut.

2. Chronic continuous course (absence of more than 6-month periods of remission with adequate therapy).

3. Chronic recurring course (the presence of more than 6-month periods of remission):

- rarely recurring (1 time per year or less);
- often recurring (2 or more times a year).

ICD-10 Version:2019

K51 Ulcerative colitis
K51.0 Ulcerative (chronic) pancolitis
backwash ileitis
K51.2 Ulcerative (chronic) proctitis
K51.3 Ulcerative (chronic) rectosigmoiditis
K51.4 Inflammatory polyps
K51.5 Left sided colitis
left hemicolitis
K51.8 Other ulcerative colitis
K51.9 Ulcerative colitis, unspecified

Clinical manifestations

- **Rectal bleeding**
- **Stool disorders**
- **abdominal pain (more often in the left half)**
- **fever**
- **decreased appetite**
- **weight loss**
- **water-electrolyte disturbances of varying degrees.**

Initial symptoms of UC

Ardizzone S. Ulcerative colitis. Orphanet encyclopedia.

Diarrhea	96.4%
Blood in stool	89.3%
Pain	81;3%
Generally unwell	40.2%
Weight loss	38.4%
Arthralgia	27.7%
Fever	20.5%
Skin changes	20.5%
Loss of appetite	15.2%
Ophtalmopathies	7.1%
Nausea	6.3%
Vomiting	4.5%
Abscesses	3.6%
Fistulae	3.6%
Lymphe node swelli	1.8%

Severity classification (Russian)

Light form	semi-liquid stools <5 times a day, a slight admixture of blood and mucus in the stool, lack of fever, tachycardia, anemia,
Moderate	diarrhea 5-8 times a day admixture of blood and mucus in the stool, mild fever, tachycardia, anemia
severe form	severe diarrhea (> 8 times a day); a significant admixture of blood, mucus and pus in the feces; fever over 38,0°C, tachycardia, anemia (hemoglobin <90 g/l), general condition severe or very severe, exudative enteropathy syndrome with the development of hypoproteinemia and edema

Proposed American College of Gastroenterology Ulcerative Colitis Activity Index

	Remission	Mild	Moderate-severe	Fulminant
Stools (no./d)	Formed stools	<4	>6	>10
Blood in stools	None	Intermittent	Frequent	Continuous
Urgency	None	Mild, occasional	Often	Continuous
Hemoglobin	Normal	Normal	<75% of normal	Transfusion required
ESR	<30	<30	>30	>30
CRP (mg/L)	Normal	Elevated	Elevated	Elevated
FC (μg/g)	<150–200	>150–200	>150–200	>150–200
Endoscopy (Mayo subscore)	0–1	1	2–3	3
UCEIS	0–1	2–4	5–8	7–8

[a]Modified from reference 44.
The above factors are general guides for disease activity. With the exception of remission, a patient does not need to have all the factors to be considered in a specific category.
CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; FC, fecal calprotectin; UCEIS, Ulcerative Colitis Endoscopic Index of Severity.

Extraintestinal manifestations of ulcerative colitis

- arthritis (7-14% of cases), spondylitis,
- iritis, conjunctivitis and blepharitis,
- stomatitis
- cholangitis, cirrhosis and cholelithiasis,
- gangrenous pyoderma, erythema nodosum, polyarteritis nodosa,
- thrombophlebitis and thromboembolism,
- nephrolithiasis.

Frequency of extraintestinal manifestations of the course of UC

Ardizzone S. Ulcerative colitis. Orphanet encyclopedia

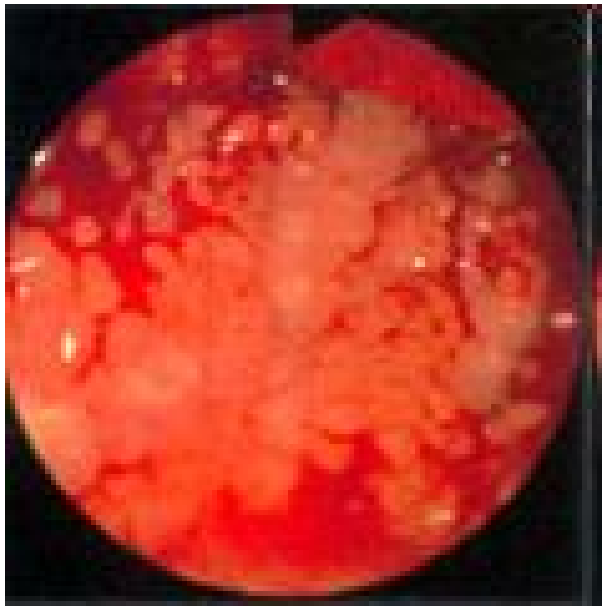
Patients with ulcerative colitis can occasionally have aphthous ulcers involving the tongue, lips, palate and pharynx

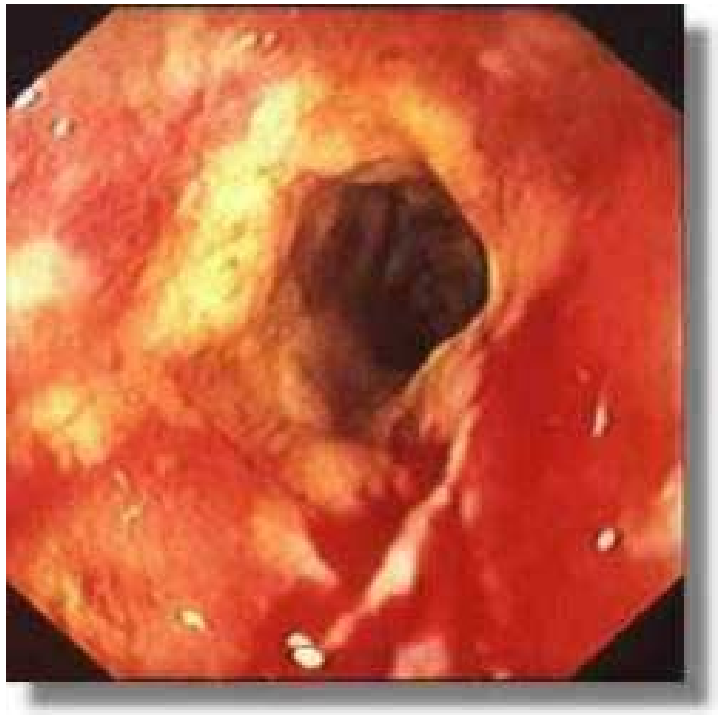
All	64-66%
Skin	**15.9%**
Erythema nodosum	8.0%
Pyoderma gangrenosum	7.1%
Aphtae	6.2%
Eyes	9.7%
Conjunctivitis	5.3%
Iritis	4.4%
Uveitis	0.9%
Joints	**39%**
Arthralgia	**38.4%**
Arthritis	**11.3%**
Ankylosing spondylitis	0.8%
Liver/pancreas	**16.8%**
Fatty liver	**10.6%**
Hepatitis	1.8%
Pericholangitis primary	3.5%
Sclerosing cholangitis	2.7%
Pancreatitis	

digital examination of the rectum (perianal abscess, rectal fistula, anal fissure, sphincter spasm, tuberosity and thickening of the mucosa, the wall rigidity, the presence of blood, mucus and pus).

Diagnostics

- **Rectoscopy**
- **Colonoscopy**
- **Ultrasound, CT**





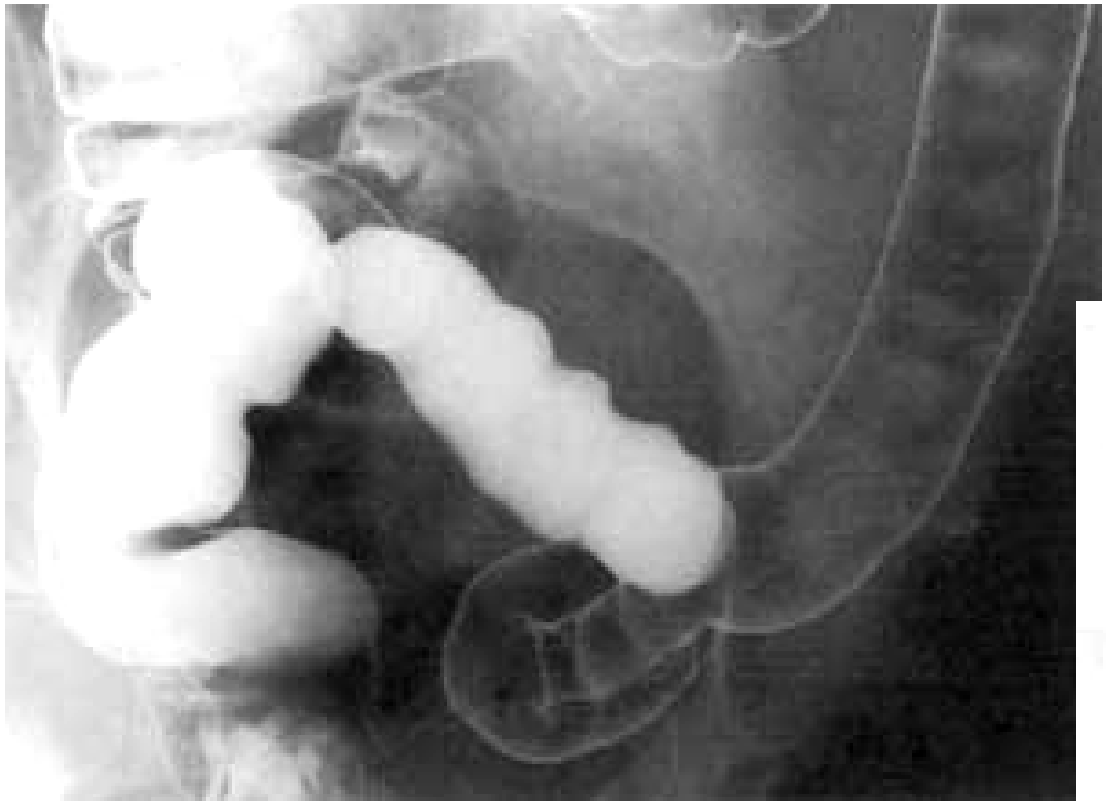
varying degrees of anemia and leukocytosis, hypo- and dysproteinemia, IgG

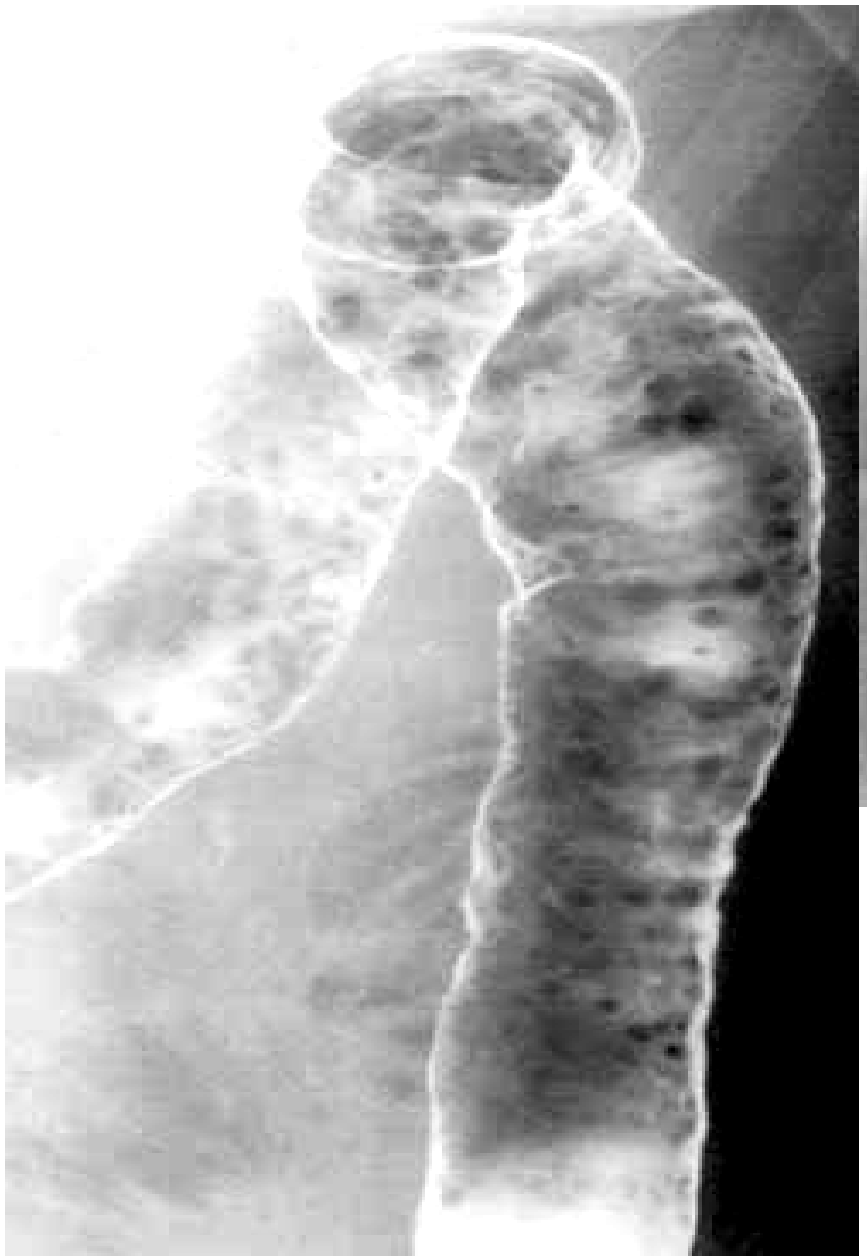
Microbiological examination:

- Swabs and stool cultures to exclude colitis, viral, chlamydial infection, pathogenic flora and parasitic lesions.
- Changes in obligate microflora.
- growth of pathogenic staphylococci, protea.

Pathomorphological examination:

- **Mucosal ulcers.**
- **Excessive regeneration of the glandular epithelium with the formation of pseudo-polyps.**
- **The presence of “crypt abscesses” is characteristic.**





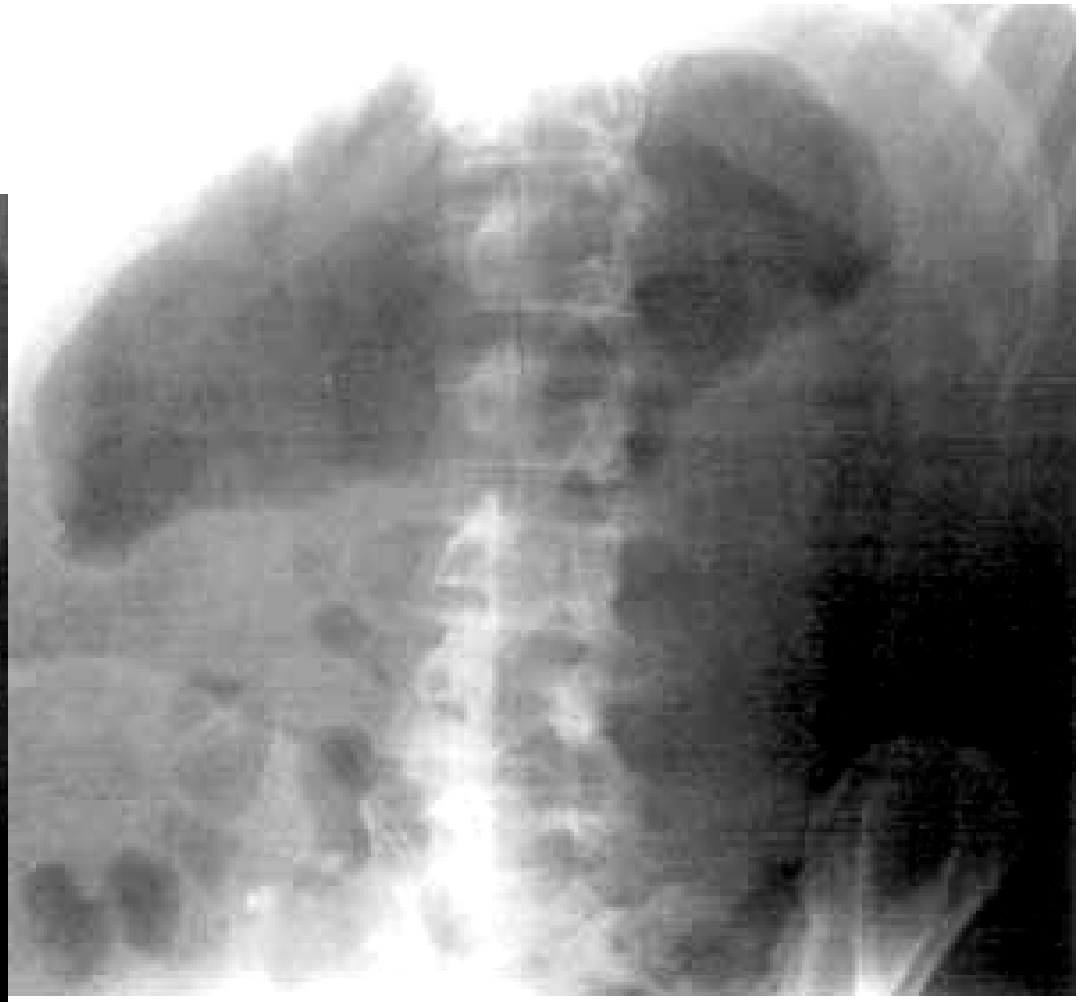
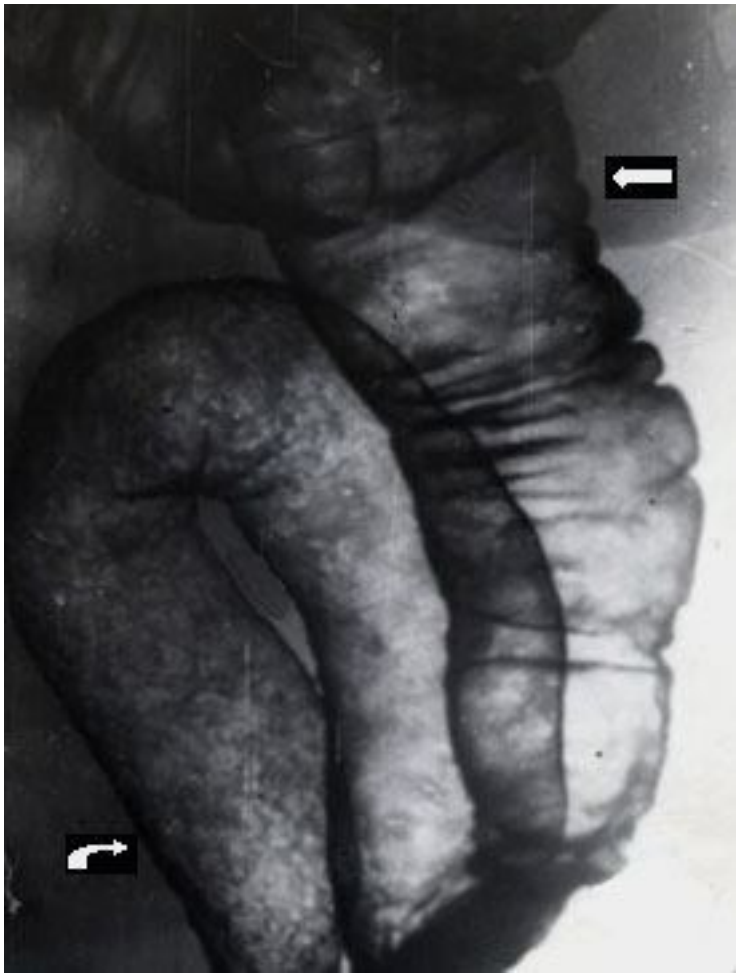
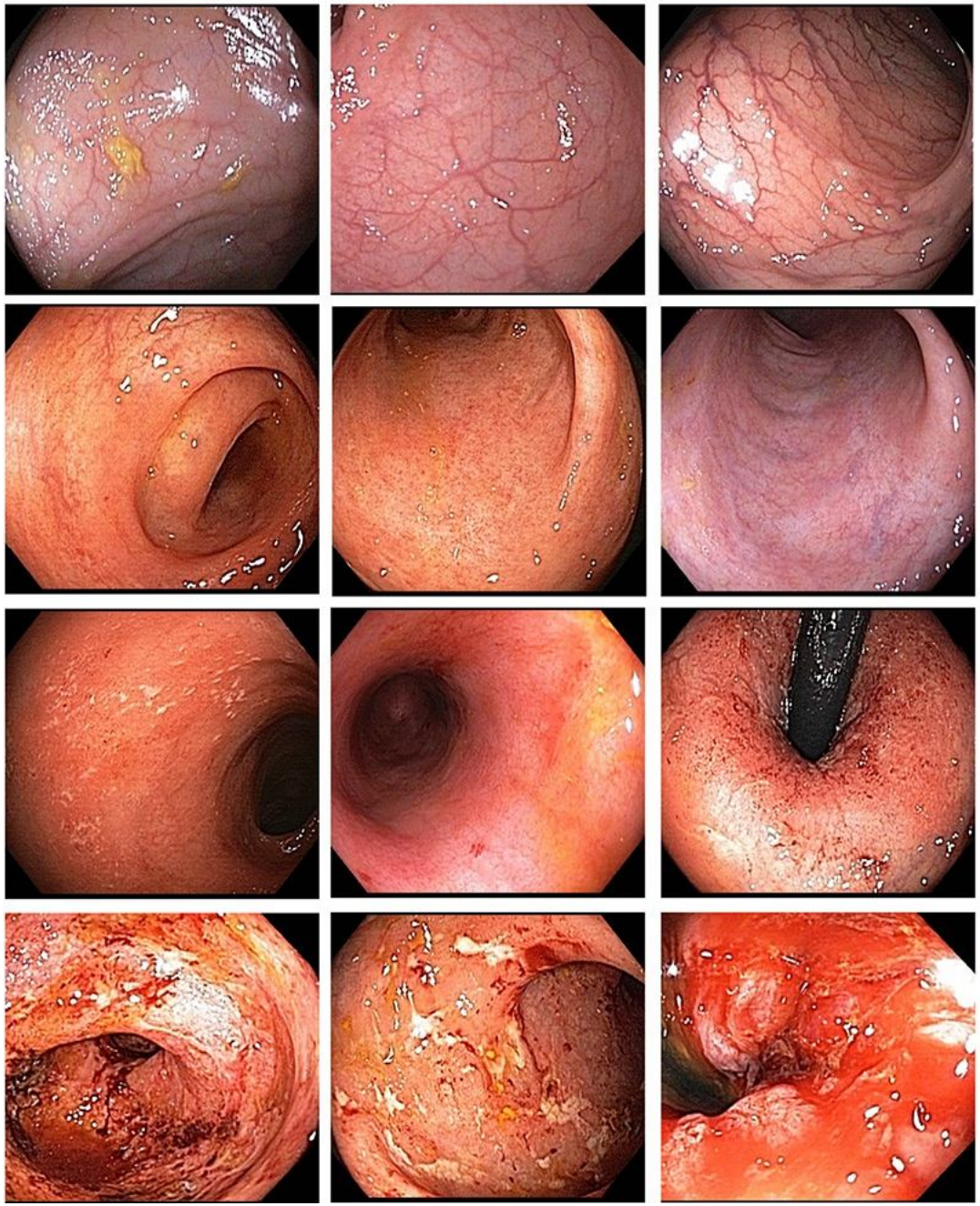


Fig. 1. The defeat of the entire sigmoid colon (curly arrow): the intestine is somewhat enlarged, its walls are rigid, there is no gaustration, the pneumorelief has a uniformly grainy appearance characteristic of ulcerative colitis. The ascending colon is intact (straight arrow). Fig. 2. The same patient. The defeat of the rectum and distal sigmoid colon with shortening, straightening of the contours, a characteristic "granular" pneumorelief.



Endoscopic Assessment of Disease Activity



UCEIS Score	Mayo Score	Endoscopic Features
0	0	Normal
1-3	1	Erythema, decreased vascular pattern, mild friability
4-6	2	Marked erythema, absent vascular pattern, friability, erosions
7-8	3	Spontaneous bleeding, ulceration

The severity of the attack by the criteria UC Truelove-Witts

Index	light	middle	severe
Frequency of defecation with blood	<4	≥4	≥6
Pulse Temperature Hemoglobin ESR	norm	≤90 уд./мин ≤37,5 °C ≥105 г/л ≤30 мм/ч	>90 уд./мин или >37,5 °C или <105 г/л или >30 мм/ч
Mucosal contact vulnerability	no	present	present

local colon complications

- Toxic megacolon develops in 3-5% of cases. The transverse colon expands to 6 cm in diameter. This complication, which is accompanied by severe depletion of the body, is often fatal.
- Perforation of the colon occurs in approximately 3-5% of cases and often leads to death (72-100%).
- Profuse intestinal bleeding. (1-6% of cases)
- Acute toxic dilatation of the colon. (1-2% of cases)
- Colon cancer

Common systemic complications

1) Skin manifestations (erythema nodosum, gangrenous pyoderma, vegetative purulent stomatitis, vesiculopustular exanthema, cutaneous vasculitis, etc.)
2) Joint diseases (arthritis, sacroileitis, ankylosing spondylitis)
3) Inflammatory eye diseases (scleritis and episiscleritis, iridocyclitis, fundus changes)
4) Diseases of the liver and biliary tract (primary sclerosing cholangitis, fatty liver infiltration, chronic active hepatitis, cholangiocellular carcinoma, etc.)
5) Vasculitis
6) Hemostasis disorders and thromboembolic complications
7) Blood diseases
8) Amyloidosis
9) Disorders of bone metabolism (osteoporosis)
10) Occurring a second time with prolonged disorders in the colon - anemia, electrolyte disorder.

Differential diagnosis of UC

- Crohn's disease,
- ischemic colitis
- polyposis
- diverticulosis,
- colon cancer
- hemorrhoids,
- dysentery
- amoebiasis
- balantidiasis,
- actinomycosis,
- tuberculosis colitis
- malaria colitis
- lymphogranulomatosis,
- pseudomembranous colitis (antibiotic-associated diarrhea).

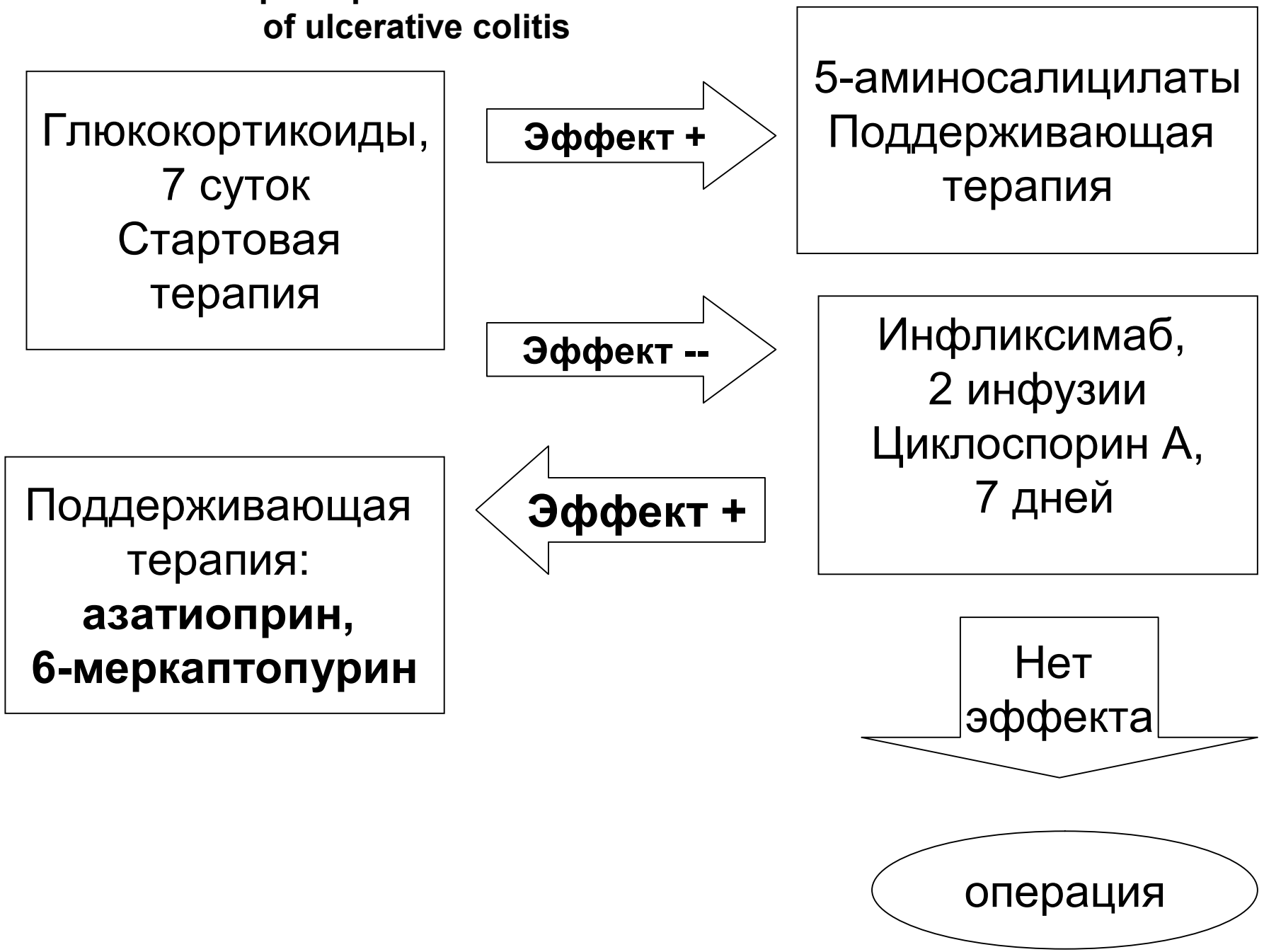
Treatment of UC

Diet

- mechanically gentle, with a high content of easily digestible proteins.
- Fractional diet.
- Avoid hot and cold food.
- fruits and vegetables are not recommended.
- In severe forms, additional parenteral nutrition.

Traditional principles for the treatment of ulcerative colitis

Modern principles for the treatment of ulcerative colitis



Treatment of UC

- **5-aminosalicylic acid preparations**
- **Glucocorticosteroid**
- **Cytostatics**
- **Inhibitors of pro-inflammatory interleukins**
- **Antibiotics**
- **Antidiarrheal therapy**
- **Antihypertensive drugs, diuretics, calcium preparations, antacids.**
- **Glycemia correction**
- **Thrombosis prophylaxis**
- **Infusion therapy - correction of protein-electrolyte disturbances, detoxification (hypokalemia and hypomagnesemia increase the risk of toxic dilatation of the colon).**
- **In severe anemia - blood transfusion.**
- **Immunomodulators - the effect is not proven.**
- **Vitamins of group B, C, A, D, K - conflicting data on effectiveness**

Treatment of UC

If there is a fever or suspected intestinal infection, antibiotics are prescribed:

- the first line - metronidazole 1.5 g / day + fluoroquinolones (ciprofloxacin, ofloxacin) intravenously 10-14 days;
- second line - cephalosporins iv in 7-10 days.

Continuation of hormone therapy for more than 7 days in the absence of effect is impractical.

Treatment of UC

Hormonal resistance:

- severe attack - maintaining the activity of the disease, despite the intravenous administration of 2 mg / kg per day of prednisone (7 days);
- moderate attack - maintaining the activity of the disease with oral administration of 1 mg / kg per day of prednisolone (4 weeks).

Hormonal addiction:

- An increase in disease activity with a decrease in dose below 10-15 mg / kg of prednisone per day for 3 months from the start of treatment;
- The occurrence of a relapse of the disease within 3 months after the end of taking prednisone.

Glucocorticoids cannot be used as maintenance therapy.

Treatment of UC

In the absence of the effect of glucocorticosteroids after 7 days, **second-line therapy**:

- biological therapy infliximab 5 mg / kg

or

- cyclosporin A 2-4 mg / kg / day with monitoring of indicators of renal function and determination of the concentration of the drug in the blood.

Maintenance therapy: azathioprine, 6-mercaptopurine.

Treatment of UC

If there is no response to a second infliximab infusion or 7-day cyclosporin A therapy, surgical treatment options should be considered.

Surgical treatment, indications

- massive bleeding
- bowel perforation,
- toxic dilatation
- colon cancer
- lack of positive results of conservative therapy (hormonal resistance; ineffectiveness of biological therapy) or the inability to continue it (hormonal dependence)

Types of Surgery

1. palliative surgery

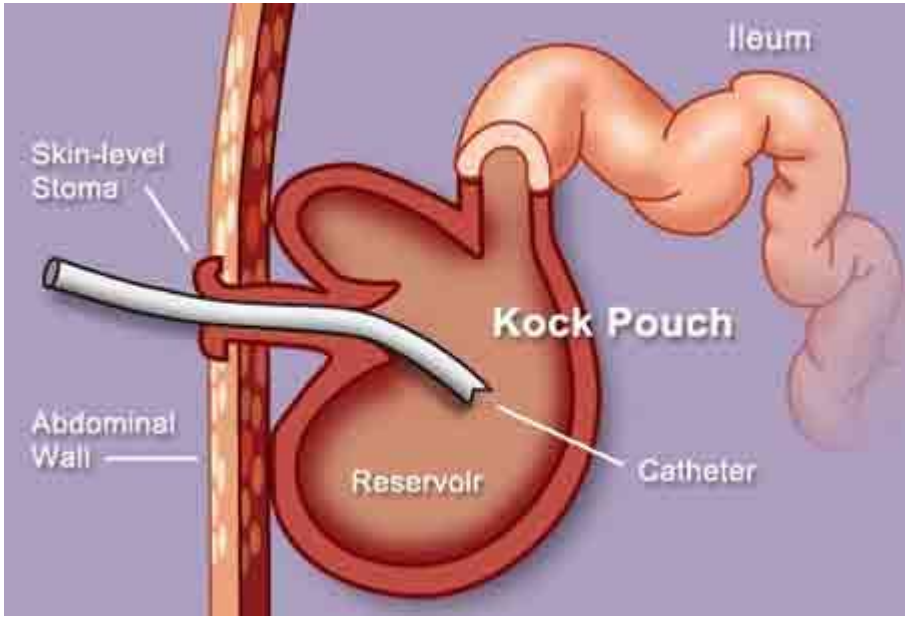
ileostomy (colostomy with UC is practically not used.)

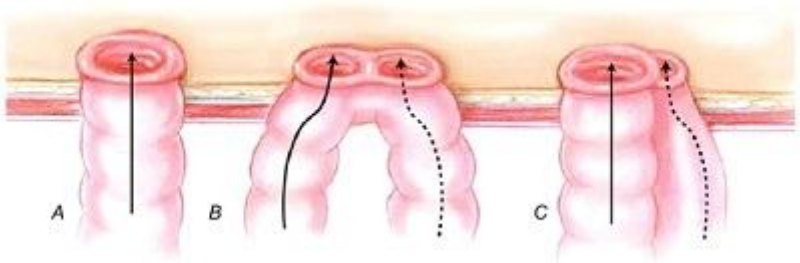
2. radical surgery

subtotal colon resection with the application of an ileo- and sigmoid, colproctectomy with Brooke ileostomy or Kock retention ileostomy

3. reconstructive surgery

creating a pelvic intestinal reservoir with ileoanal anastomosis. Several types of pelvic reservoirs such as “J”, “S” and “W” are used.


Ileum
Skin-level
Stoma
Kock Pouch
Abdominal
Wall
Reservoir
Catheter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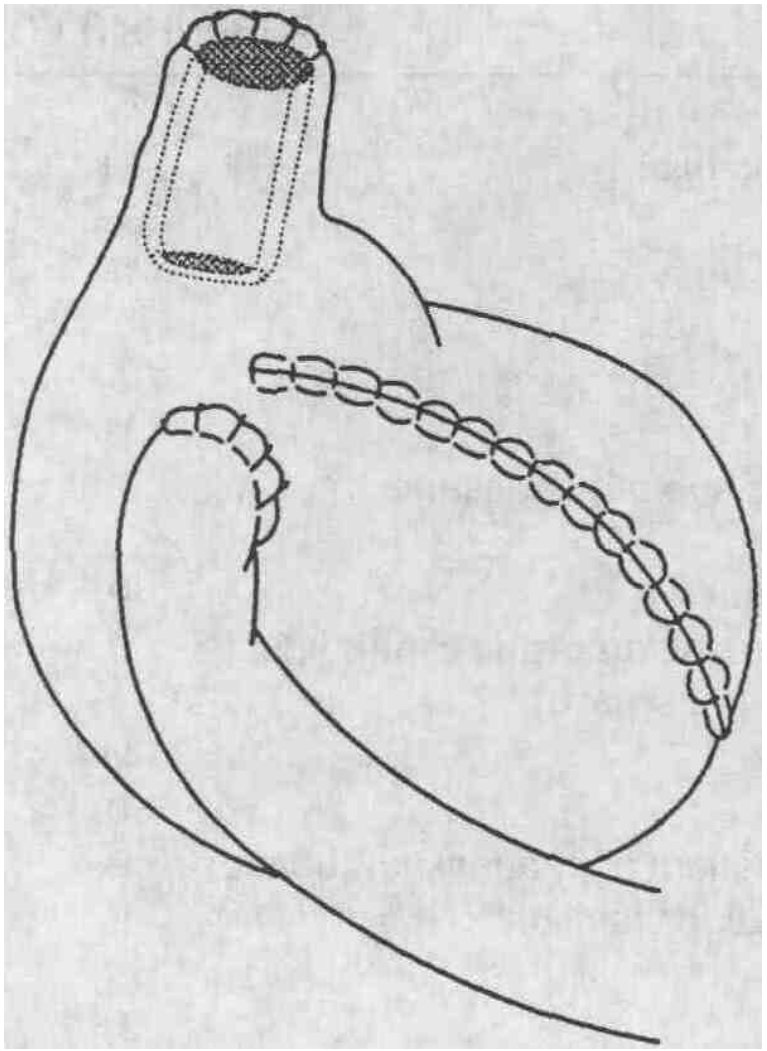

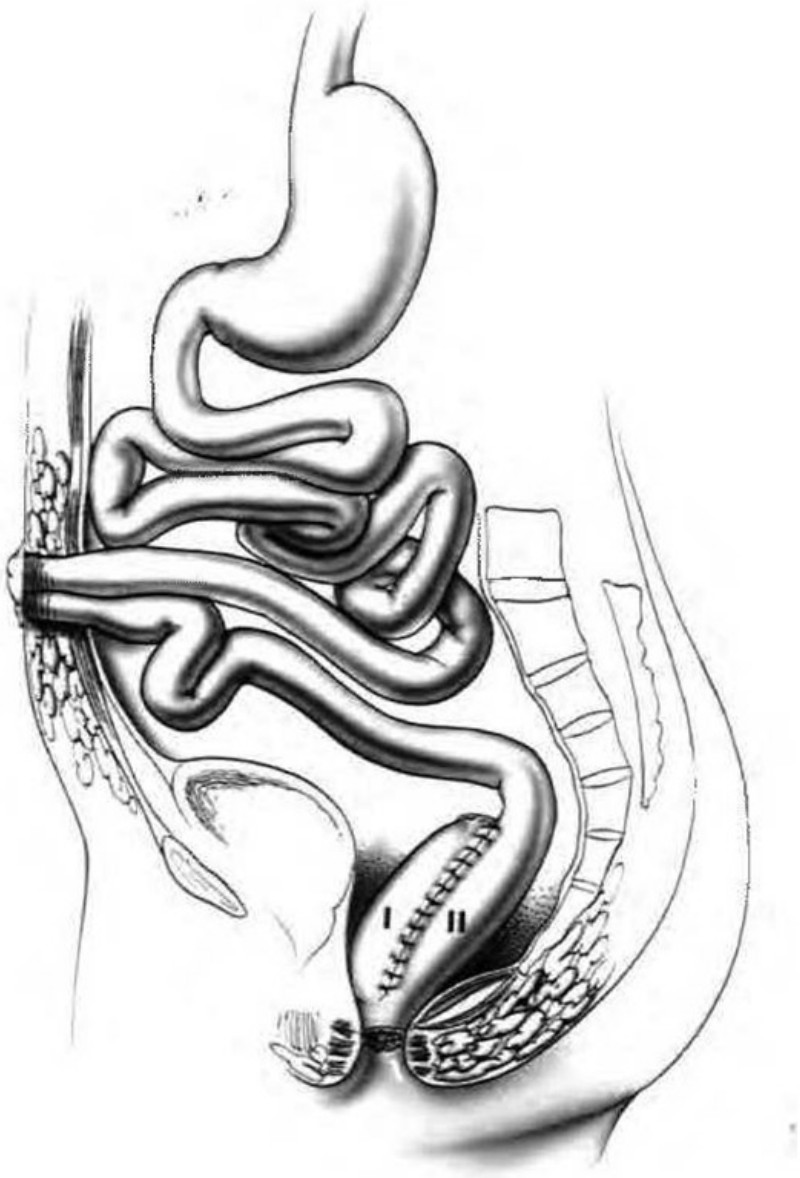
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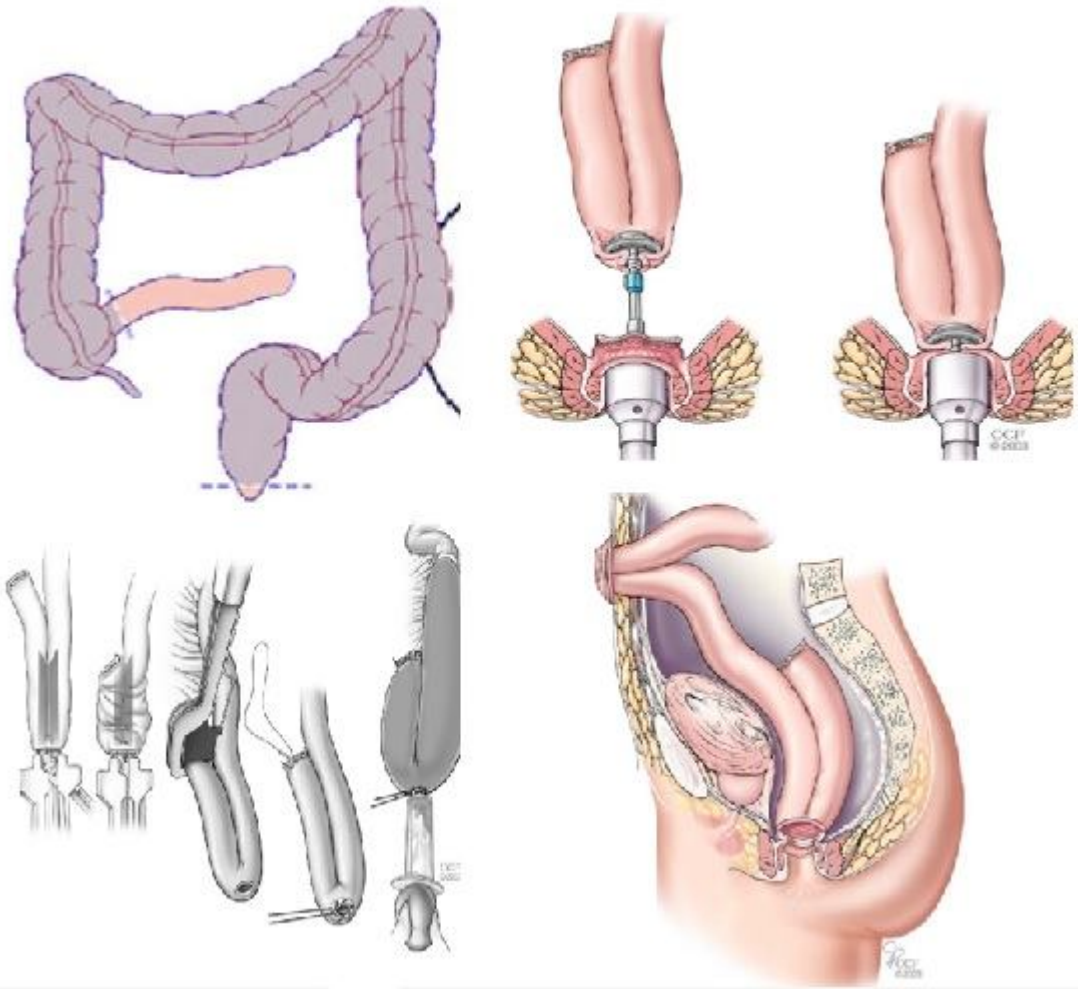

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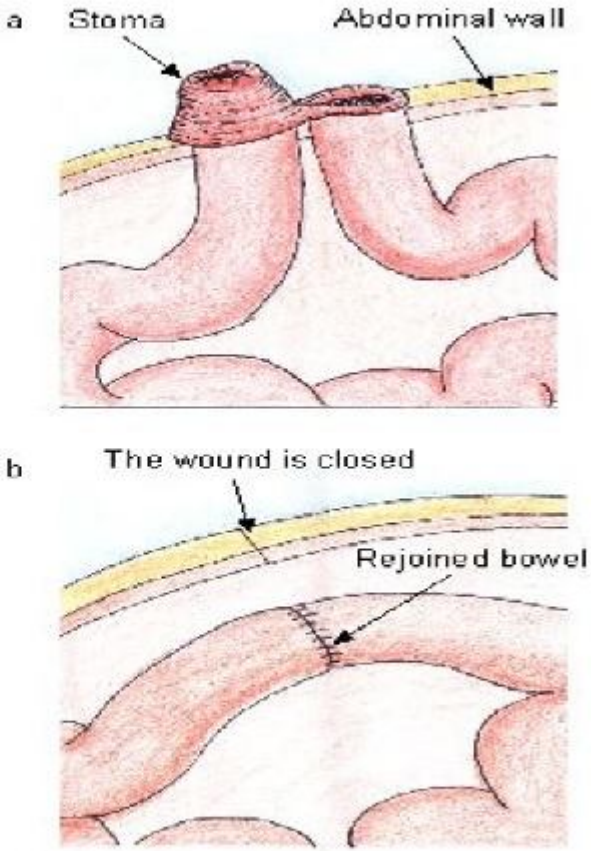


Figure 1

a A loop ileostomy

b Closure of a loop ileostomy

Forecast

- about 25% of patients have ulcerative proctitis lesions
- 15% of patients have a clinic of right-sided or total colitis.
- With a disease duration of more than 10 years, more than 30% of patients have a clinic of total colitis.
- In 25% of patients it is not possible to achieve a stable remission, severe complications develop and they need surgical treatment 5-10 years after the onset of the disease.
- About 5% of patients die within 1 year of illness.

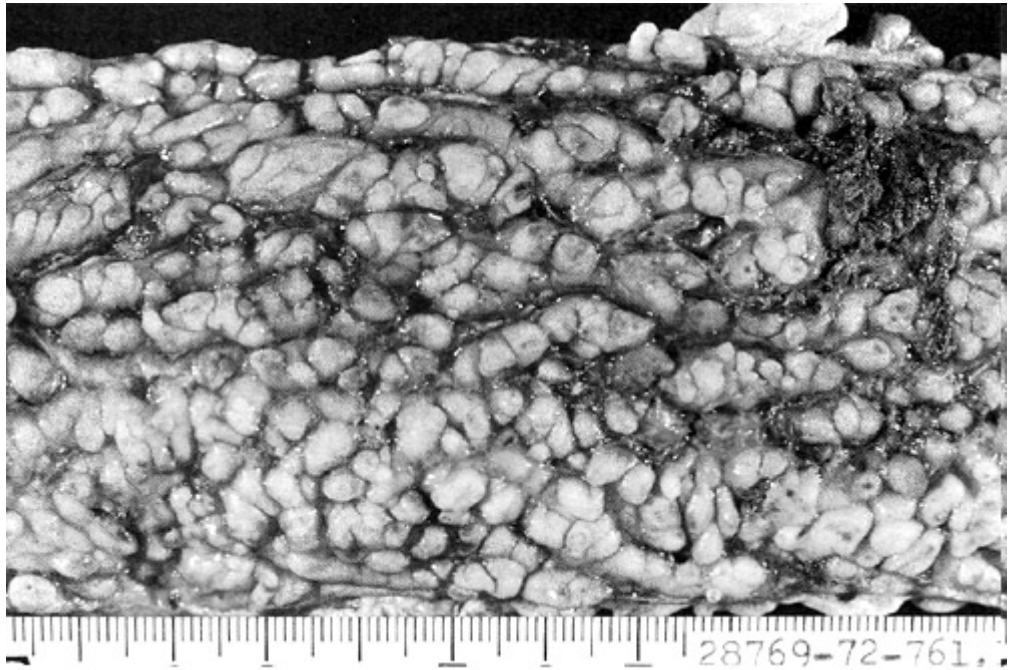
Crohn's disease

chronic immunodependent inflammatory disease of the gastrointestinal tract, characterized by transmural, segmental, granulomatous inflammation with the development of local and systemic complications

Etiology.

- Genetic factors
- An increased frequency of the CARD15 gene mutation (NOD2 gene) was revealed.
- Immunological factors
- Infectious factors (dysbiotic)

- Inflammation begins in the submucosal layer
- The ulcers are deep, like cracks.
- Infiltration of the wall narrows the intestinal lumen
- "Cobblestone pavement"
- Multi-segmented defeat, “kangaroo jumping”
- Lymphoid hyperplasia (sarcoid granulomas)
- External and internal fistulas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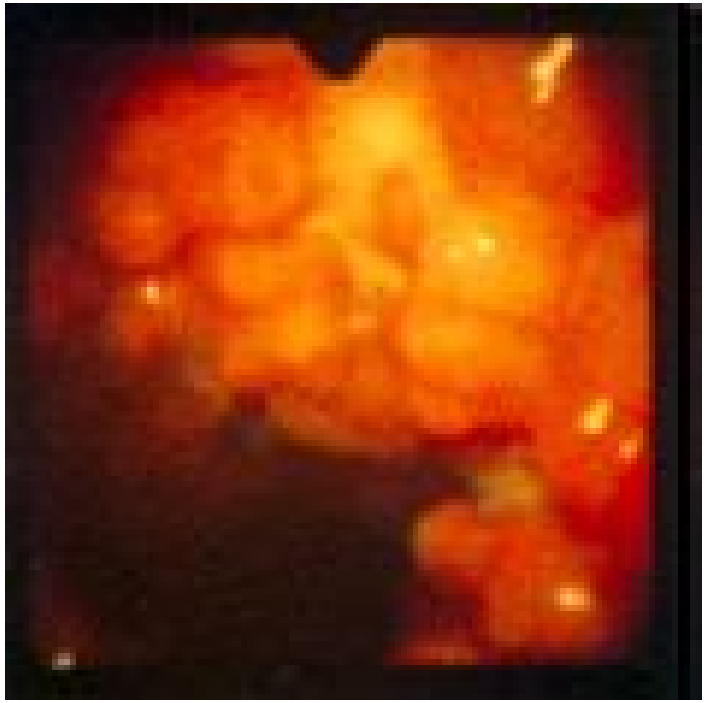
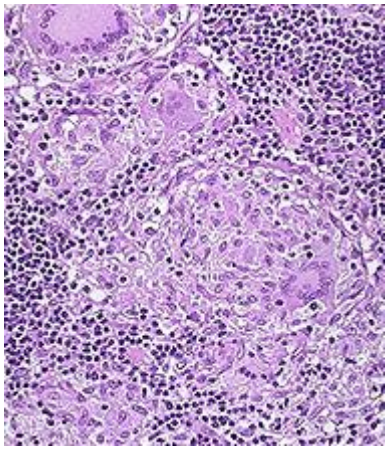




Stage of the disease (Kron):

- ACUTE resembles acute appendicitis
- ULCER Enteritis (enterocolitis) spastic pain, bloody stool, fever
- SCLEROSING - phenomena of partial or complete intestinal obstruction
- INFILTRATIVE-FISTULOUS formation of infiltrates in the abdominal cavity and fistula.

ICD-10 Version:2019

Crohn disease [regional enteritis] ***Incl.:*** granulomatous enteritis
Excl.: ulcerative colitis (K51.-)
K50.0Crohn disease of small intestine
Crohn disease [regional enteritis] of:
duodenum
ileum
jejunum
Ileitis: regional, terminal
Excl.: with Crohn disease of large intestine (K50.8)
K50.1Crohn disease of large intestine
Colitis: granulomatous, regional
Crohn disease [regional enteritis] of: colon, large bowel, rectum
Excl.: with Crohn disease of small intestine (K50.8)
K50.8Other Crohn disease Crohn disease of both small and large intestine
K50.9Crohn disease, unspecified Regional enteritis NOS

Montreal classification CD

1. Age at time of diagnosis:
A1 - 16 years or less; A2 - 17–40 years old; A3 - over 40 years.
2. Localization of the process:
L1 - terminal ileum;
L2 - colon (colitis); L3 - ileocolitis;
L4 - upper sections of the gastrointestinal tract (GIT);
L1 + L4 - terminal ileitis + upper gastrointestinal tract;
L2 + L4 - colitis + upper gastrointestinal tract;
L3 + L4 - ileocolitis + upper gastrointestinal tract.
3. The nature of the flow:
B1 - non-structuring, penetrating;
B2 - stricturizing;
B3 - penetrating;
B1p - non-structural, penetrating + perianal lesions;
B2p - stricturing + perianal lesions;
B3p - penetrating + perianal lesions.

Exacerbation (relapse, attack) - the appearance of typical symptoms of the disease in patients in the stage of clinical remission, spontaneous or medically supported.

- Clinical remission - no symptoms of CD. Index of activity of CD <150.
- Endoscopic remission
- Histological remission

According to the prevalence of the lesion, there are:

Localized BC:

- A lesion with a length of less than 30 cm. It is usually used to describe an isolated lesion of the ileocecal zone (<30 cm of the ileum + right colon);
- Perhaps an isolated lesion of a small area of the colon;

Common BC:

- A lesion of more than 100 cm in length (the sum of all affected areas).

By the nature of the flow, they are distinguished

- Acute course (less than 6 months from the onset of the disease);

- With a fulminant onset;

- With a gradual start.

- Chronic continuous course (absence of more than 6-month periods of remission with adequate therapy);

- Chronic relapsing course (the presence of more than 6-month periods of remission):

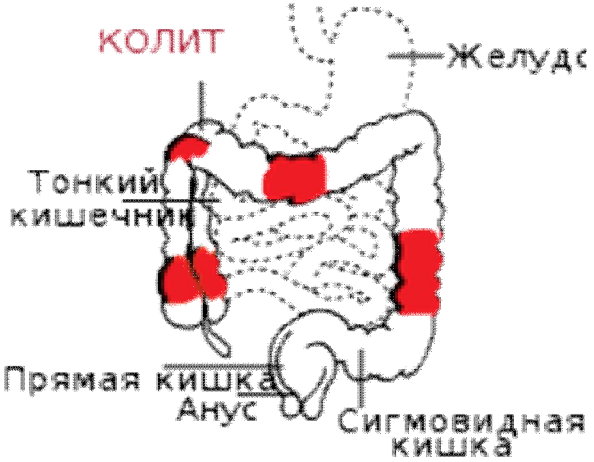
- Rarely recurring (1 time per year or less);

- Often relapsing (2 or more times a year).

Cosnes J, Cattan S, Blain A, Beaugerie L, Carbonnel F, Parc R,et al. Long-term evolution of disease behavior of Crohn's disease. Inflamm Bowel Dis 2002;8:244–50


Желудок
Поперечно-ободочная кишка
Тонкий кишечник
ИЛЕИТ
Прямая кишка
Анус
Сигмовидная кишка


ИЛЕОКОЛИТ
Желудок
Тонкий кишечник
Прямая кишка
Анус
Сигмовидная кишка


КОЛИТ
Желудок
Тонкий кишечник
Прямая кишка
Анус
Сигмовидная кишка

Crohn's disease:

1. **Non-structuring, non-penetrating type.**
2. **The stricture type.**
3. **Penetrating type.**

Perianal lesions (fistulas; anal fissures, perianal abscesses) can complement any of these phenotypic variants.

Hormonal resistance:

In the case of a severe attack - maintaining the activity of the disease, despite the iv administration of GCS at a dose of 2 mg / kg / day, for more than 7 days;

In the case of moderate exacerbation - maintaining the activity of the disease with the oral administration of prednisolone 0.75 mg / kg / day for 4 weeks.

Hormonal addiction:

An increase in the activity of the disease with a decrease in dose below 10-15 mg of prednisone per day for 3 months from the start of treatment; or

The occurrence of a relapse of the disease within 3 months after the end of treatment with corticosteroids.

Clinical manifestations of CD

- colicky abdominal pain
- rumbling, bloating
- diarrhea (with and without blood)
- during auscultation at the height of increased peristalsis of the swollen intestinal loop, rumbling is heard, after which the swelling decreases and often there is loose stool (Koenig symptom).
- palpable abdominal tumor conglomerate
- partial or complete intestinal obstruction syndrome
- enteric insufficiency syndrome
- fistulas
- cicatricial stenosis of the stomach or duodenum

Frequency of complaints / symptoms in%

Abdominal pain 87%

Diarrhea 66%

Weight loss 55%

Loss of appetite (anorexia) 37%

Temperature rise 36%

Vomiting 35%

Fatigue 32%

Nausea 30%

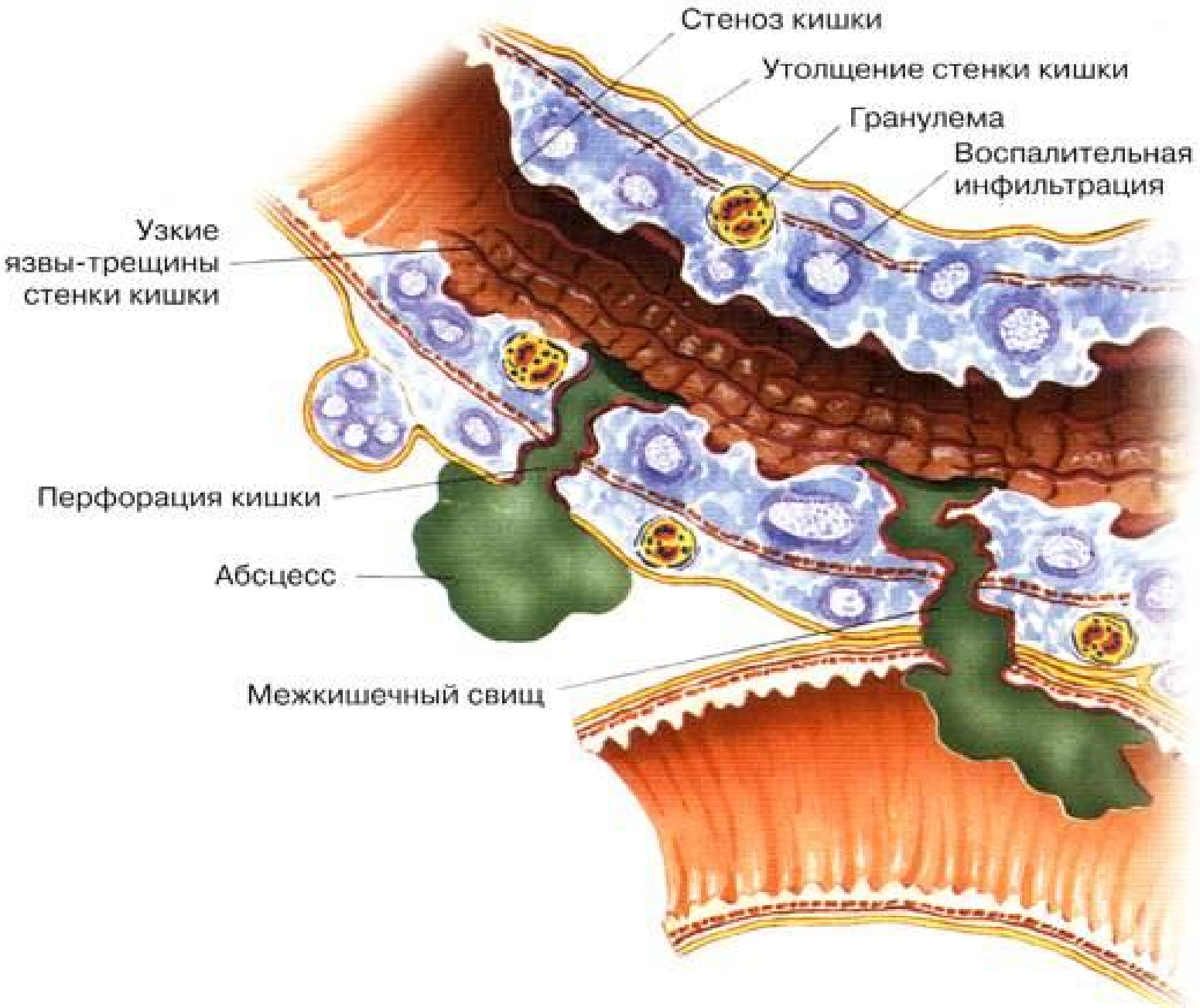
Acute abdomen 25%

Fistula 15%

Extraintestinal manifestations of Crohn's disease

- 1) erythema nodosum, gangrenous pyoderma, lesions of the oral cavity and facial skin, vegetative purulent stomatitis, psoriasis, skin vasculitis, etc.
- 2) arthritis, sacroileitis, ankylosing spondylitis
- 3) scleritis and episcleritis, iridocyclitis, fundus changes
- 4) primary sclerosing cholangitis, chronic active hepatitis, liver granulomas and granulomatous hepatitis, etc.
- 5) Vasculitis
- 6) Hemostasis disorders and thromboembolic complications
- 7) Blood diseases
- 8) Amyloidosis
- 9) Disorders of bone metabolism (osteoporosis)
- 10) anemia
- 11) Pathology of the kidneys (secondary obstruction, etc.)

Б. Схема кишечных осложнений БК.



Diagnostic methods for CD

- anemia, leukocytosis, accelerated ESR.
- steatorrhea, amylorrhea, creatorrhea,
- mucus, white blood cells and red blood cells in the feces.
- Calprotectin level in feces

X-ray examination

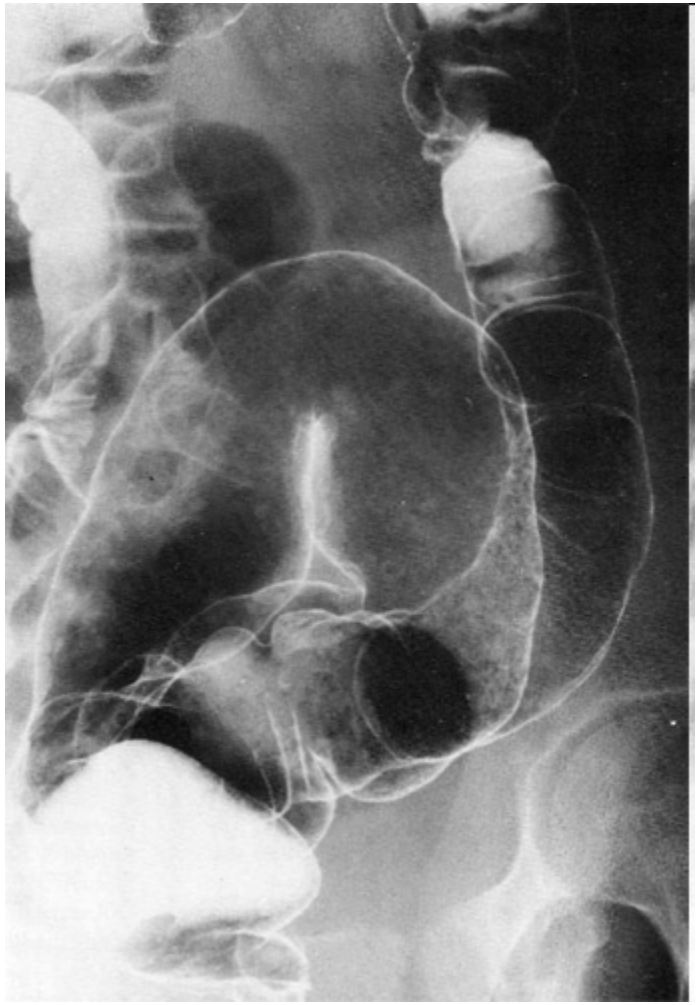
- segmentality of the lesion
- contours are uneven, longitudinal ulcers, thickening of the relief, "cobblestone pavement".
- segmental narrowing ("cord symptom").

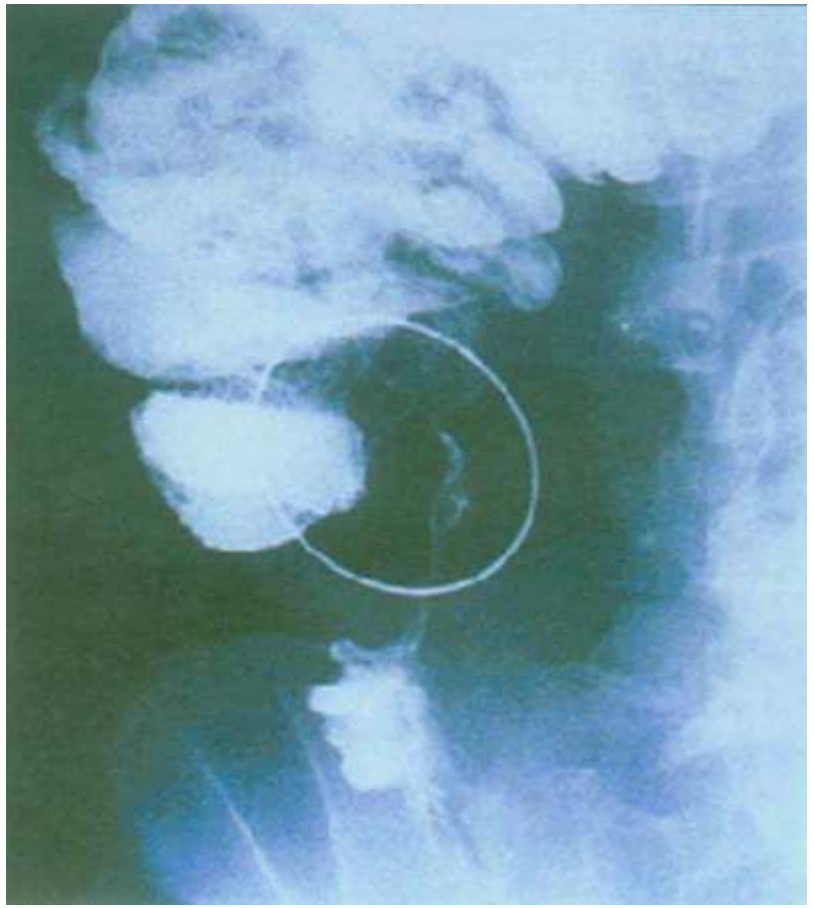
Enteroscopy

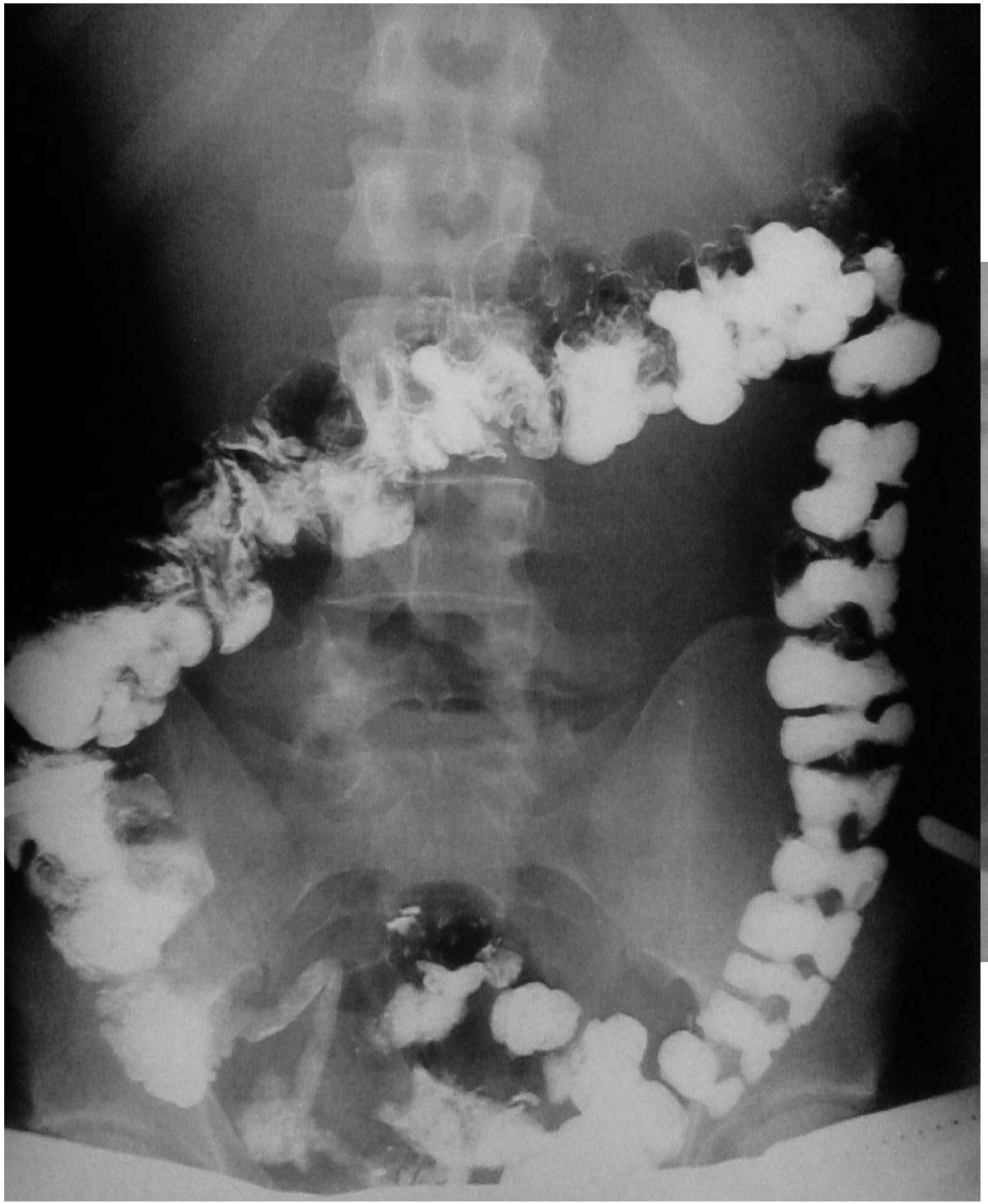
Colonoscopy

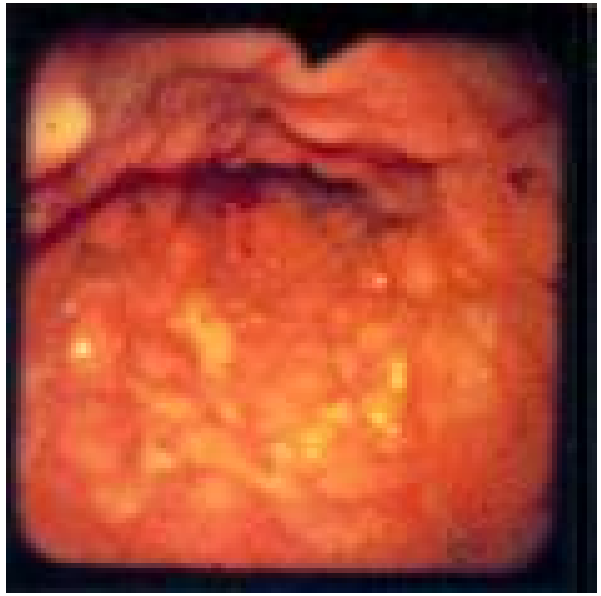
Rectoscopy

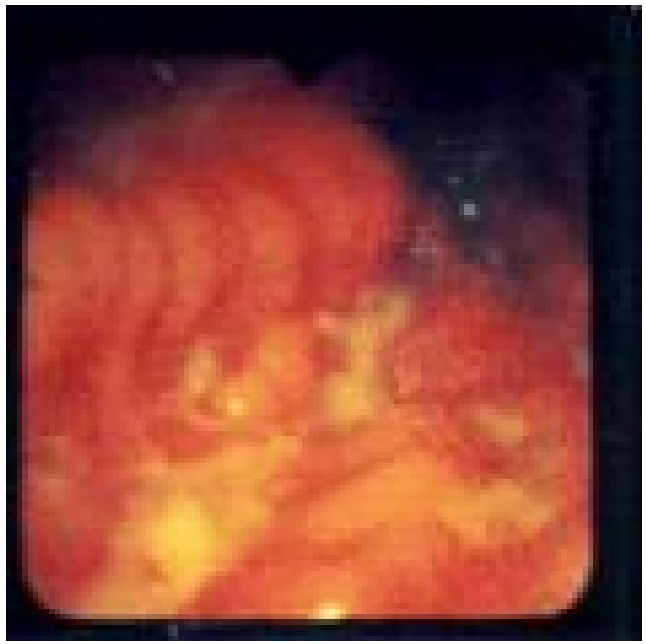
- dull mucosa, erosion, surrounded by whitish granulations (aphtha type).
- The mucous membrane is unevenly thickened, deep longitudinal ulcers-cracks, the intestinal lumen is narrowed.
- It is possible to identify the formed fistulas.











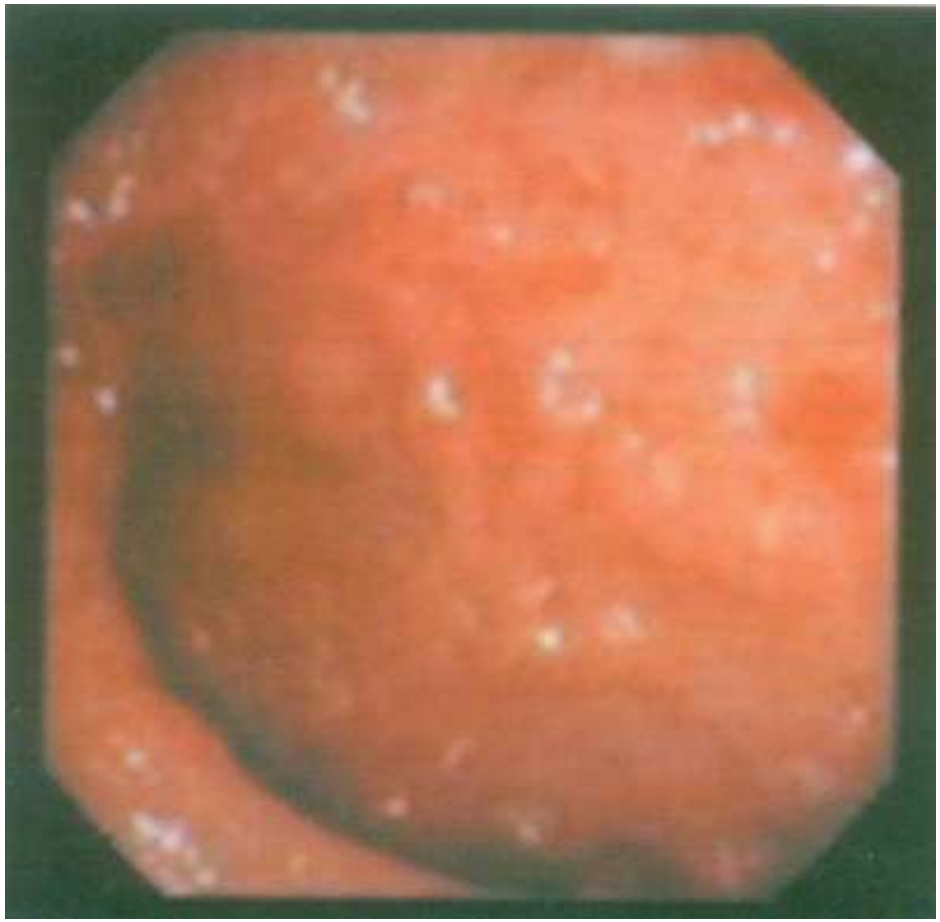
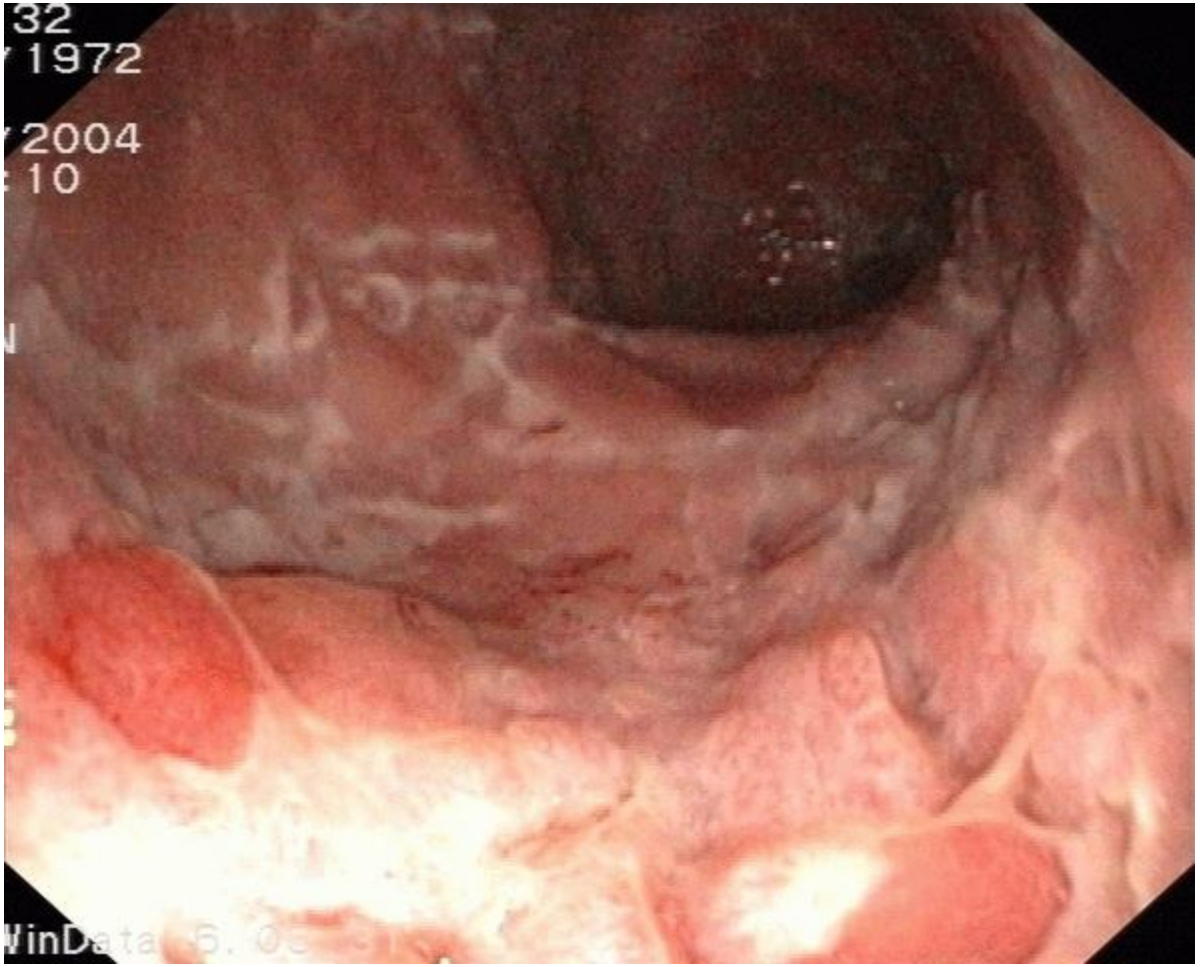


Рис. 1. Илеоскопия. Болезнь Крона тонкой кишки. Афты.

Рис. 2. Илеоскопия. Болезнь Крона. Илеоскопическая картина при БК. Выраженный отек и воспалительные инфильтраты, располагающиеся в подслизистом слое подвздошной кишки, создающие рельеф "булыжной мостовой".

Терминальный илеит при болезни Крона



Criteria for a reliable diagnosis of CD by Lennard-Jones

1. Damage from the oral cavity to the anal canal: chronic granulomatous lesion of the mucous membrane of the lips or cheeks, pyloroduodenal lesion
2. Intermittent nature of the lesion
3. Transmural nature of the lesion: ulcers, fissures, abscesses, fistulas
4. Fibrosis: strictures
5. Lymphoid tissue (histology): aphthous ulcers or transmural lymphoid accumulations
6. Mucin (histology): normal mucin content in the area of active inflammation of the colon mucosa
7. **Granulomas - the main criterion**

A reliable diagnosis of CD is established in the presence of at least 3 relative criteria (from 1 to 6), and if a granuloma is detected, one more relative criterion (from 1 to 6).

Crohn's Disease Activity Index (Best index)

Clinical or laboratory variable	Weighting factor
Number of liquid or soft stools each day for seven days	x 2
Abdominal pain (graded from 0-3 on severity) each day for seven days	x 5
General well being, subjectively assessed from 0 (well) to 4 (terrible) each day for seven days	x 7
Presence of complications*	x 20
Taking Lomotil or opiates for diarrhea	x 30
Presence of an abdominal mass (0 as none, 2 as questionable, 5 as definite)	x 10
Hematocrit of <0.47 in men and <0.42 in women	x 6
Percentage deviation from standard weight	x 1

*One point each is added for each set of complications:
•the presence of joint pains (arthralgia) or frank arthritis
•inflammation of the iris or uveitis
•presence of erythema nodosum, pyoderma gangrenosum, or aphthous ulcers
•anal fissures, fistulae or abscesses
•other fistulae
•fever during the previous week.

Remission of Crohn's disease is defined as CDAI below 150. Severe disease was defined as a value of greater than 450.[Most major research studies on medications in Crohn's disease define response as a fall of the CDAI of greater than 70 points.

Crohn's disease. Treatment

- Diet: elimination of fiber and allergens
- Probe nutrition has a positive effect due to a decrease in antigenic load, improved repair, and changes in the immune response and bacterial intestinal population.
- Polymer or Monomeric Nutrient Mixtures
- Oral intake of natural foods with the exception of water is completely ruled out.
- When maintaining remission, enteral nutrition is carried out at night 5 days a week or in the intermittent mode - during the day for 1 month out of 4.
- The patient is taught self-administration and retrieval of the probe.

Crohn's disease. Treatment

Medications for inducing remission:

- glucocorticosteroids (GCS) [systemic (prednisone and methylprednisolone) and topical (budesonide)],
- biological products: infliximab, adalimumab and tertolizumab pegol,
- as well as 5-aminosalicylic acid (5-ASA) and antibiotics:

1 line - metronidazole 1.5 g / day + iv fluoroquinolones 10-14 days;

2 line - cephalosporins iv 7-10 days

Crohn's disease. Treatment

Medications for maintaining remission (anti-relapse drugs):

- 5-aminosalicylic acid and its derivatives,
- immunosuppressants [azathioprine (AZA), 6-mercaptopurine (6-MP) and methotrexate]

- Additional drugs for the prevention of complications of the disease and the undesirable effects of drugs (omeprazole, calcium, iron, etc.).
- **Corticosteroids cannot be used as maintenance therapy**

Indications for surgery

- There is no effect of conservative therapy in severe cases and frequent relapses.
- Delayed physical development
- Persistent strictures
- Cancer
- Fistulas

Very rarely (almost never):

- Acute Toxic Dilation
- Profuse bleeding
- Perforation, peritonitis, abscesses

Types of Surgery

1. palliative surgery (disabling)
- ileostomy, colostomy
- opening and drainage of perianal abscesses

2. radical operations
- Segmental or subtotal colon resection
- Colectomy, colproctectomy, stricture resection

3. Reconstructive surgery (liquidation of the stoma, etc.)

50% of patients after surgery for 5 years are operated repeatedly.

- Intestinal bleeding is detected with a loss of more than 100 ml of blood / day according to objective laboratory methods (scintigraphy, determination of hemoglobin in feces by the hemoglobin cyanide method) or with a fecal volume with a visually determined blood impurity of more than 800 ml / day
- resection of the affected area of the intestine (with or without anastomosis) with mandatory intraoperative enteroscopy or colonoscopy.

- Perforation of the small intestine into the free abdominal cavity is very rare, occurs either distal or proximal to the stricture. When threatening symptoms are detected (peritoneal symptoms, free gas in the abdominal cavity according to the survey X-ray), emergency surgical intervention is indicated, which in such a situation may be limited to resection of the affected section with the formation of an anastomosis or stoma. In case of emergency surgery, the formation of a primary anastomosis without patronage using a double-barreled ileostomy should be avoided.
- Colon perforation in CD is extremely rare. The operation of choice is subtotal resection of the colon with the formation of an ileostomy.

Toxic dilatation of the colon is a rare complication of CD and is a non-obstructive expansion of the colon to 6.0 cm or more with symptoms of intoxication. Risk factors for toxic dilatation include hypokalemia, hypomagnesemia, colon preparation for colonoscopy using osmotic laxatives, and antidiarrheal drugs. The development of toxic dilatation is evidenced by a sudden reduction in the frequency of stool against the background of existing diarrhea, bloating, as well as a sudden decrease or disappearance of pain and an increase in symptoms of intoxication (an increase in tachycardia, a decrease in blood pressure). The operation of choice is subtotal resection of the colon with a single-barrel ileostomy.

Национальный медико-хирургический
центр им. Н.И. Пирогова
Клиника гематологии и клеточной
терапии им. А.А. Максимова

- The combination of a genetic predisposition and exposure to external factors leads to pathological activation of type I T-helpers.
- Inflammation, ulceration of the intestinal mucosa, the development of bleeding.
- Mesenchymal stem cells.
- MSCs migrate to the focus of inflammation and suppress the activity of cells of the immune system, stopping the pathological inflammatory reaction.
- From the mesenchymal stem cells, elements of the intestinal wall tissue can be formed - smooth muscle cells, connective tissue, blood capillaries.

Colon Surgical Diseases

Diverticulosis

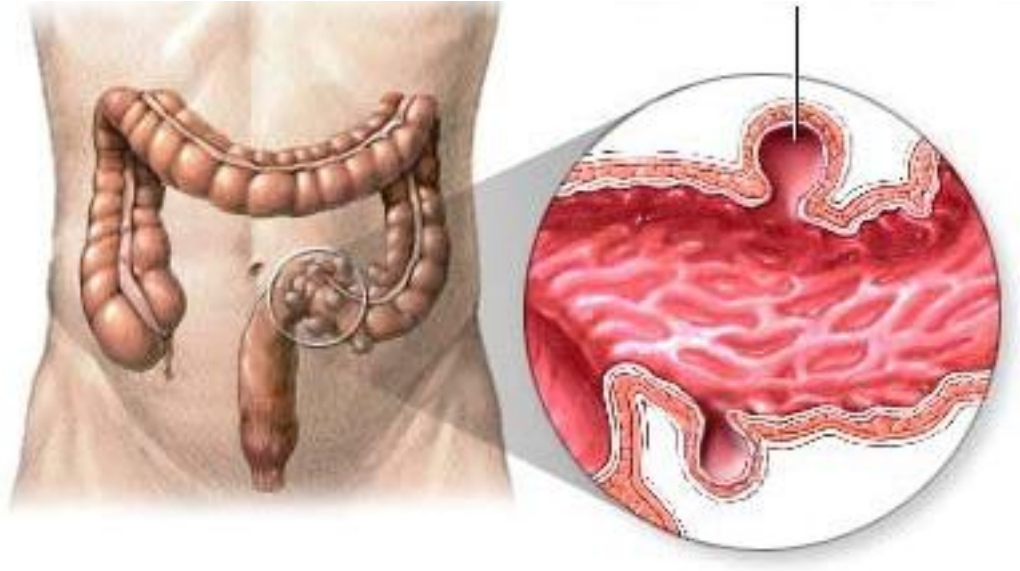
Polyps and polyposis

Cancer

Diverticulum Detection Rate

- up to 40 years old - in less than 5% of the population,
- 40-50 years old - 5-10%,
- 50-60 years old - 14%,
- older than 60 years - 30%,
- over 80 years old - 60-65%.

A diverticulum is a hernia-like protrusion of the wall of a hollow organ.



- true (all layers of a hollow organ)
- false (there is no muscle and submucosal layer).

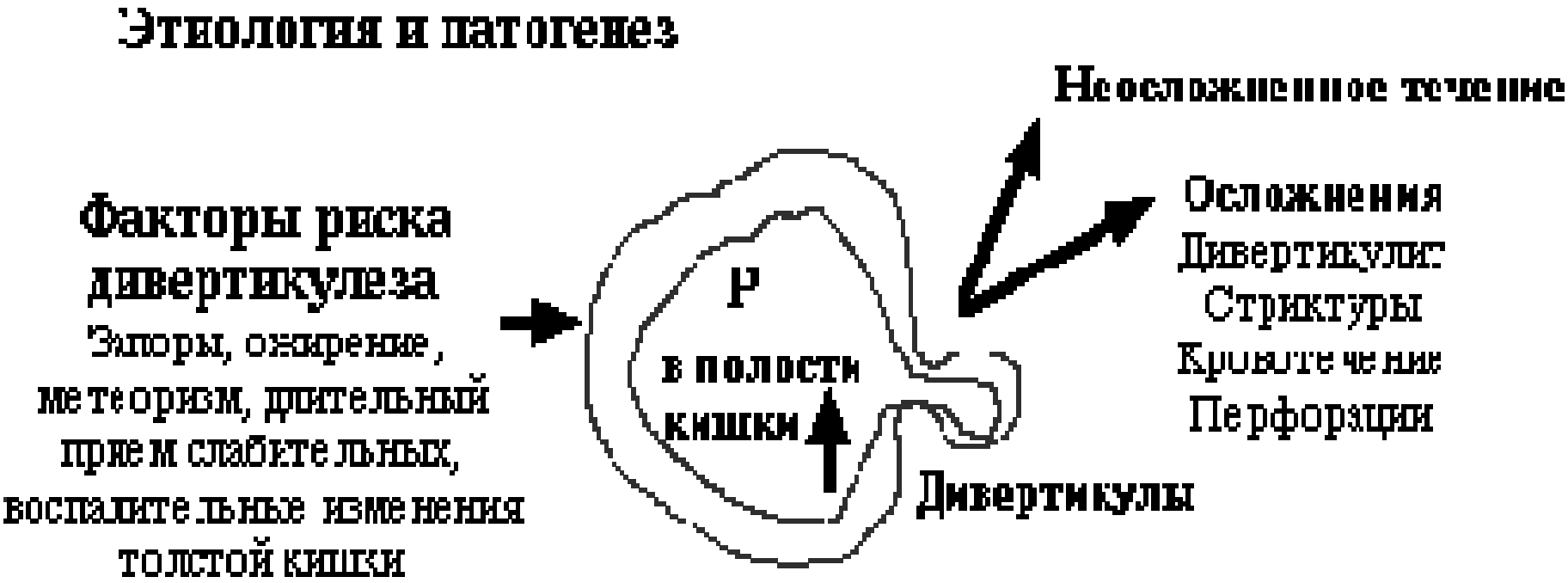
True diverticula are mostly innate

false - acquired.

According to morphofunctional features:

- pulsion diverticula (intraluminal pressure on the wall of a hollow organ)
- traction diverticuli (as a result of fixation of an organ and deformation of its wall)

ДИВЕРТИКУЛЕЗ ТОЛСТОЙ КИШКИ



The most common theory of the occurrence of diverticular disease is mechanical or pulsion, a significant role belongs to the weakness of the intestinal wall

anatomical features promoting diverticulum development

- the outer muscle layer of the colon - three bands (tenia), which weakens the intestine before internal and external influences;
- the nature of vascular architectonics - the presence of arteries and veins of perforators of the muscle layer, as a result of which there are places of least resistance in the wall of the intestine;
- the presence of haustra, in which increased intestinal pressure can be generated.

- Diverticulosis is the presence of multiple hollow organ diverticulums.
- Colonic diverticulosis is a condition in which there is at least one diverticulum in the colon.
- With diverticulosis of the colon, diverticuli are acquired by origin, false in structure, and pulsion in morphofunctional features.

There are two types of diverticulosis

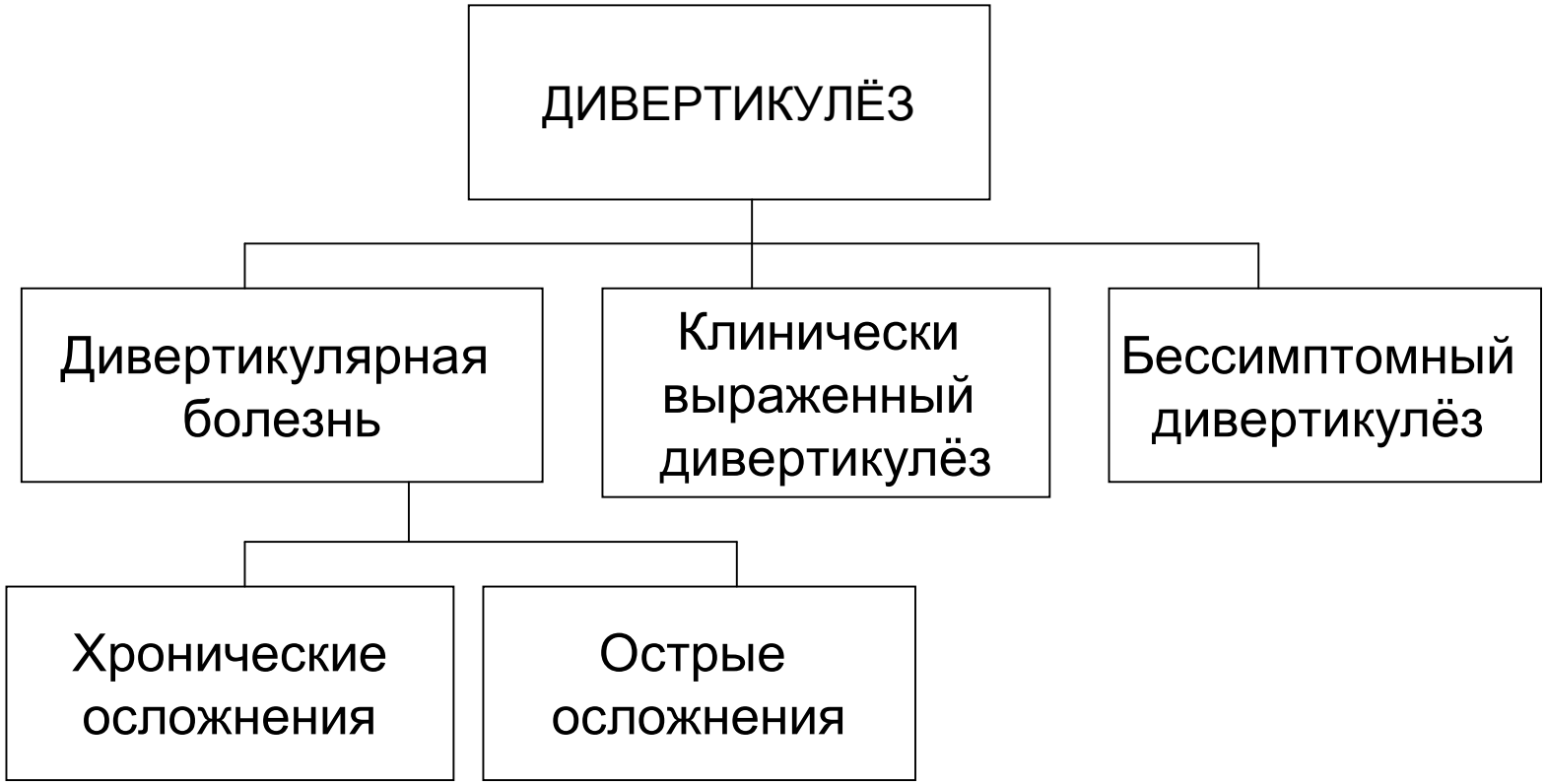
"West"

- The left parts of the colon are affected.
- In 95% of the diverticula are located in the sigmoid and descending colon.
- The largest number of diverticula is in the sigmoid colon.
- USA, Canada, Europe, Russia, Australia.

"Oriental"

- Diverticula are localized in the cecum and ascending colon.
- The prevalence is tens and hundreds of times lower than its “western” version.
- More frequent and serious complications.
- Far East and Southeast Asia

Diverticular disease is a disease whose clinical, morphological and functional manifestations are determined by pathological changes in at least one of the diverticula



Definition	CLASSIFICATION SIGNS
A. Colonic diverticulosis	1. the presence of diverticulums; 2. the absence of any symptoms, the cause of which may be diverticula.
B. Clinically expressed diverticulosis	1. the presence of diverticulums; 2. the presence of clinical symptoms, the origin of which may be associated with the presence of diverticula in the intestine; 3. the absence of signs of an inflammatory process or bleeding, the source of which is one of the diverticula.
C. Diverticular disease	1. the presence of diverticulums; 2. the presence of an inflammatory process or bleeding, the source of which is one or more diverticula of the colon.

ICD-10 Version:2019

- **K57.2Diverticular disease of large intestine with perforation and abscess**
  - Diverticular disease of colon with peritonitis
- ***Excl.:*** diverticular disease of both small and large intestine with perforation and abscess (K57.4)
- **K57.3Diverticular disease of large intestine without perforation or abscess**
  - Diverticular disease of colon NOS
- ***Excl.:*** diverticular disease of both small and large intestine without perforation or abscess (K57.5)
- **K57.4Diverticular disease of both small and large intestine with perforation and abscess**
  - Diverticular disease of both small and large intestine with peritonitis
- **K57.5Diverticular disease of both small and large intestine without perforation or abscess**
  - Diverticular disease of both small and large intestine NOS
- **K57.8Diverticular disease of intestine, part unspecified, with perforation and abscess**
  - Diverticular disease of intestine NOS with peritonitis
- **K57.9Diverticular disease of intestine, part unspecified, without perforation or abscess**
  - Diverticular disease of intestine NOS

To determine the prevalence of the inflammatory process in acute complications, the Hinchey E.J. classification (1978) is widely used.

I stage

Pericolic abscess or infiltrate

II stage

Pelvic, intraperitoneal, or retroperitoneal abscess

III stage

Generalized purulent peritonitis

IV stage

Generalized fecal peritonitis

The classification Hansen O., Stock W. (1999) is common in Germany and central Europe.

Stage 0. Diverticulosis

Stage 1. Acute uncomplicated diverticulitis

Stage 2. Acute complicated diverticulitis

a. Peridiverticulitis / Phlegmonous Diverticulitis
b. Diverticular abscess (covered perforation of the diverticulum)
c. Free diverticulum perforation

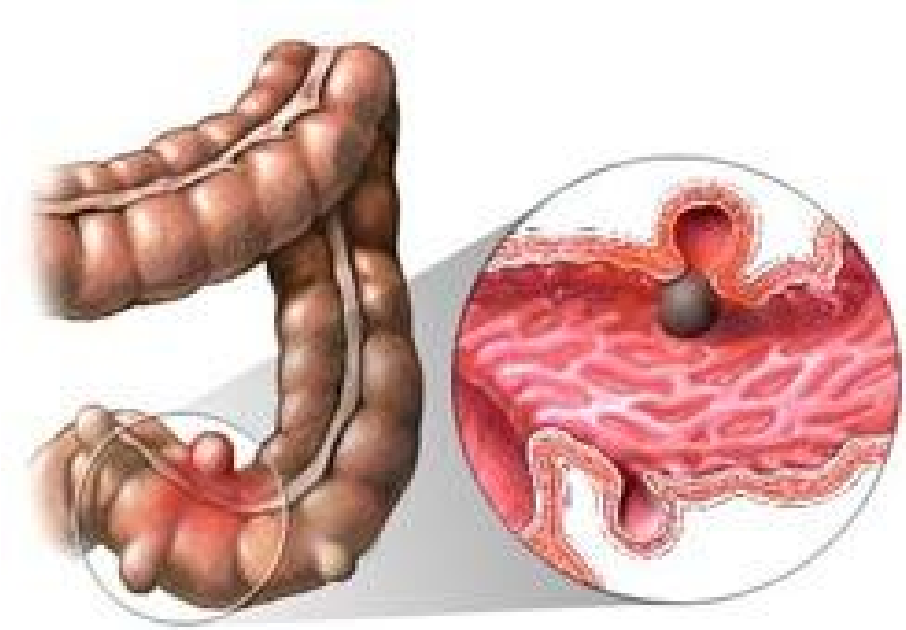
Stage 3. Chronic diverticulitis.

Classification of diverticular disease GNTSK (Russia)

ACUTE COMPLICATIONS	CHRONIC COMPLICATIONS
I. Acute diverticulitis.	I. Chronic diverticulitis. - recurrent course - continuous flow - latent current
II. Acute paraintestinal infiltrate (Pericolitic phlegmon)	II. Stenosis
III. Perforated diverticulitis. a. Abscess. b. Purulent peritonitis. c. Fecal peritonitis.	III. Chronic paraintestinal infiltrate - recurrent course - continuous flow
IV. Colonic bleeding.	IV. Fistulas of the colon a. Internal a and b. external
	V. Recurrent colon bleeding

Clinic of uncomplicated diverticulosis

- abdominal pain (usually on the left),
- stool disorders, most often constipation or unstable stool (change of constipation and diarrhea),
- pain caused by eating (gastrocolic reflex)
- signs of intestinal dyspepsia (rumbling, bloating).



Diverticulitis

Causes:

- diverticulum evacuation disorders
- intestinal dysbiosis

phases of remission and exacerbation, sometimes in the form of pain abdominal crises.

CLINIC OF DIVERTICULITIS

- **fever,**
- **increased abdominal pain**
- **leukocytosis**
- **diarrhea,**
- **the appearance in the stool of mucus and blood,**
- **persistent flatulence,**
- **pain on palpation of the abdomen in the projection of inflamed diverticulums,**
- **sometimes signs of peritoneal damage.**

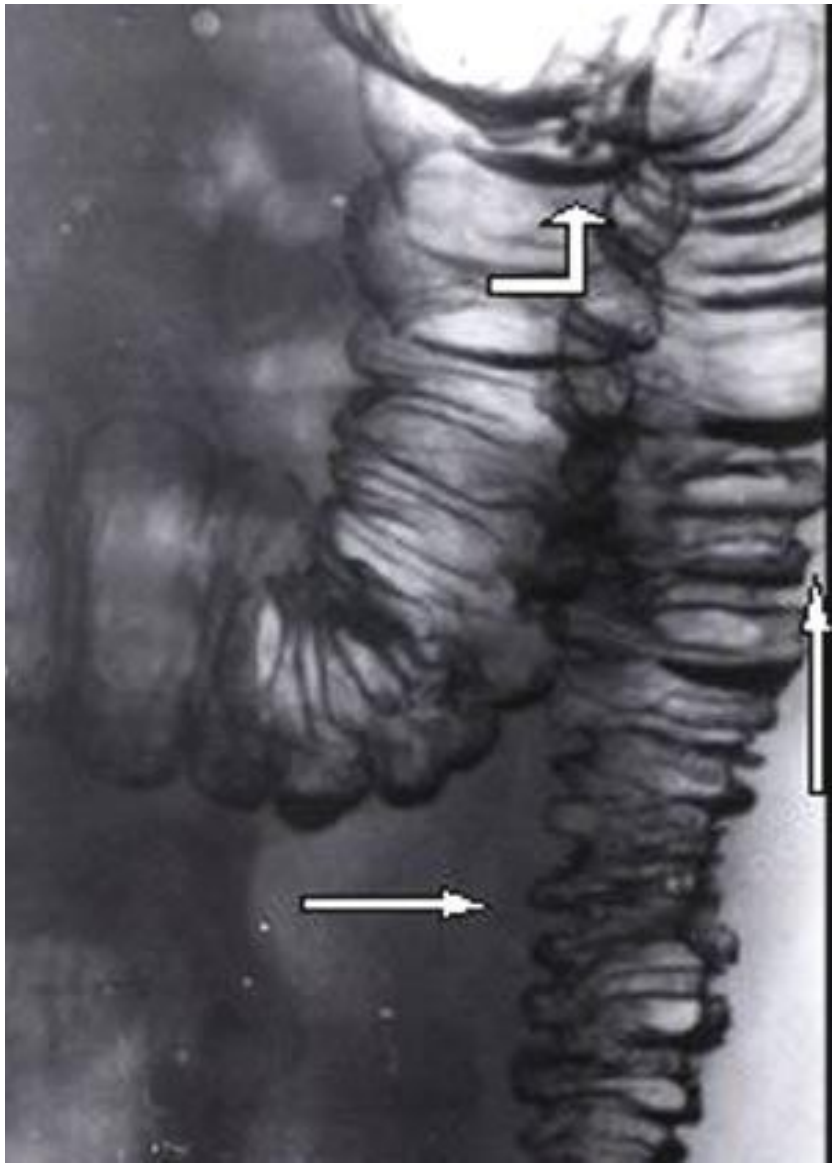
Diagnostics

- "inflammatory" hemogram changes - leukocytosis, accelerated ESR.
- Coprologic changes are nonspecific

Irrigoscopy

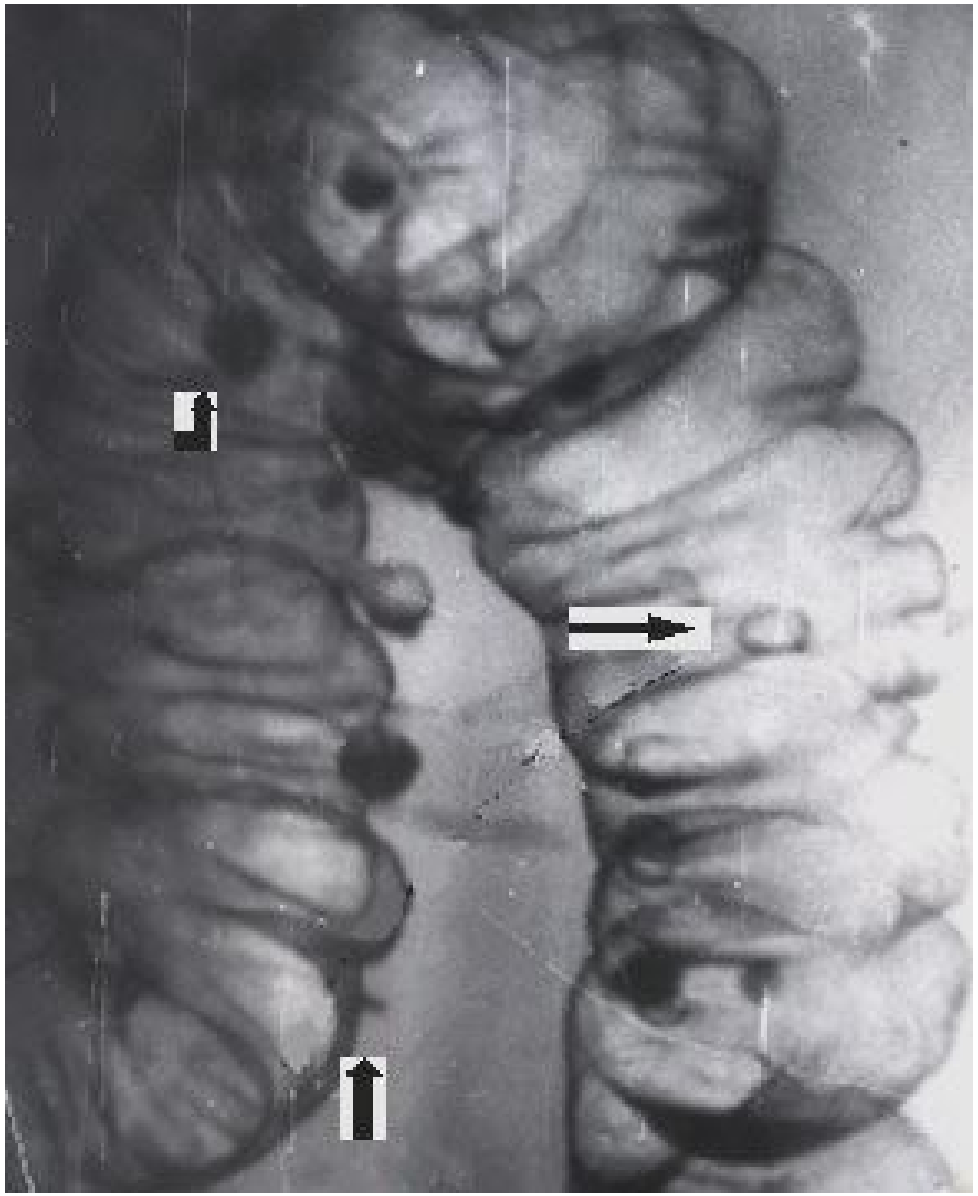
- Diverticulums are detected in the form of protrusions of the intestinal wall of a rounded shape with a more or less pronounced neck, which are clearly visible along the outer or inner contour of the intestine, they are especially clearly visible with double contrasting. In patients with uncomplicated diverticulosis, diverticula are well emptied.
- Delayed contrast is a sign of diverticulitis.

Преддивертикулярная стадия дивертикулярной болезни - спастический синдром. Поперечная исчерченность на пневморельефе в сочетании с о спикулообразными выпячиваниями по контурам сигмовидной кишки- рентгенологический симптом «частокола».



Сочетание преддивертикулярной стадии в нисходящей кишке (горизонтальная стрелка), **стадии интрамуральных дивертикулов** (вертикальная стрелка) и **полных дивертикулов** (фигурная стрелка).

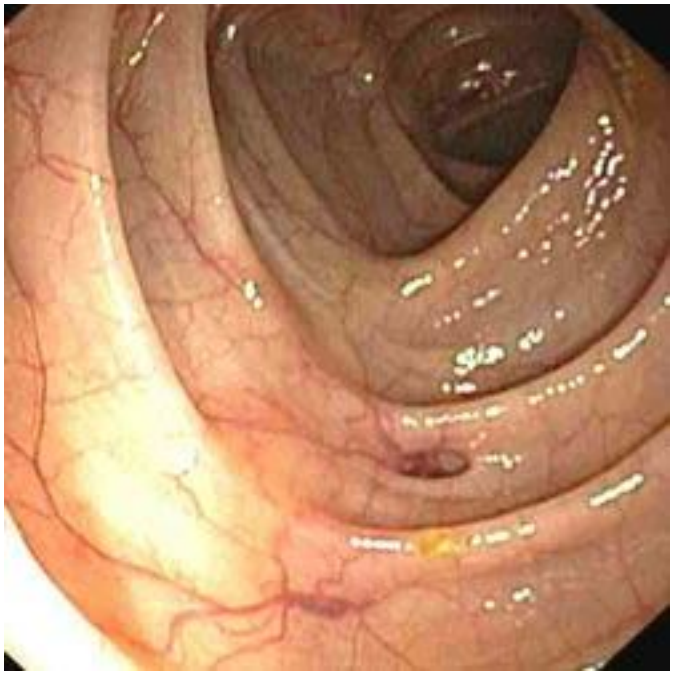
Стадия полных дивертикулов. Множественные дивертикулы нисходящей кишки.

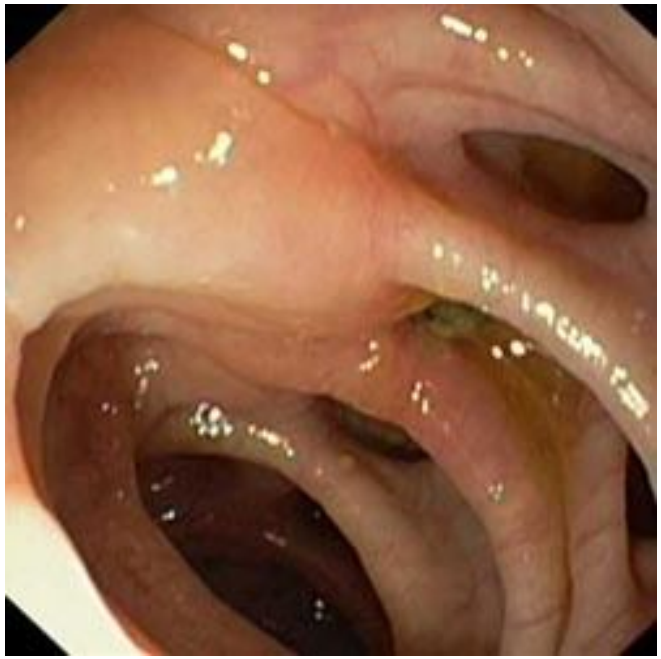


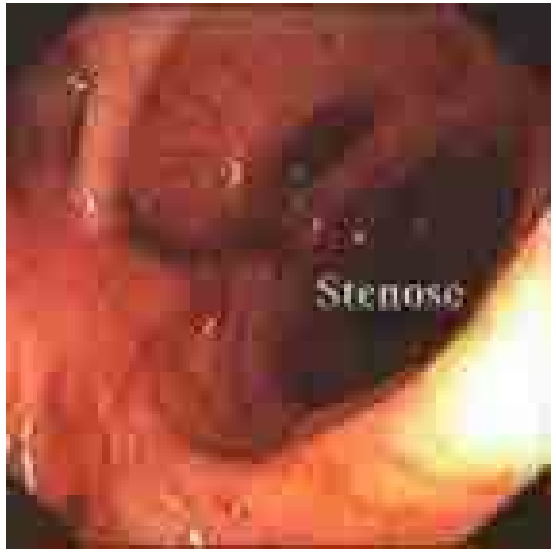
Сочетание интрамурального (вертикальная стрелка) и полных дивертикулов в виде кольцевидной тени (горизонтальная стрелки) и дополнительной тени (фигурная стрелка).

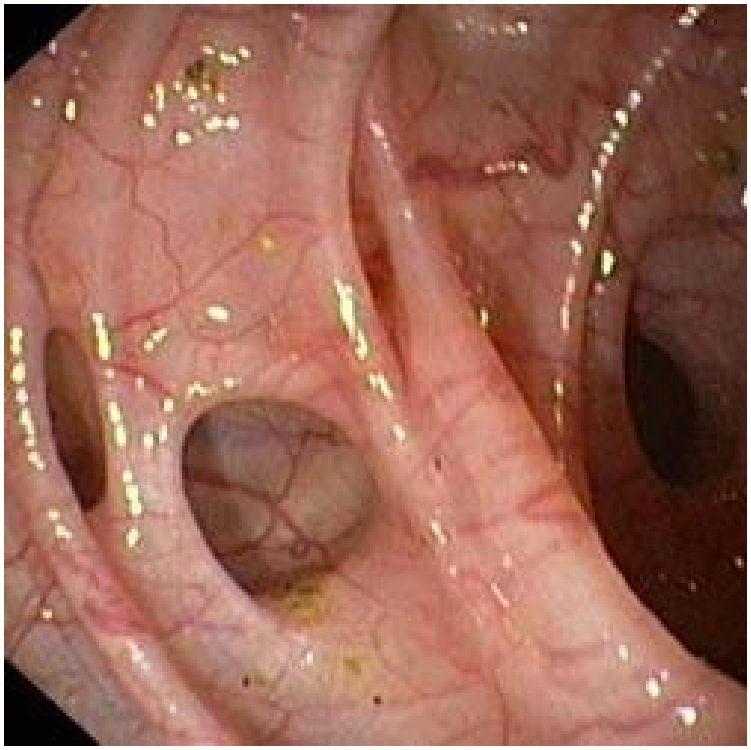
Colonoscopy

- Typically, diverticula are not visible, their mouths are round or oval in shape with unchanged mucosa around.
- Signs of diverticulitis: the mouth of the diverticulum is deformed, the mucous membrane around them is swollen, hyperemic.
- Colonoscopy for bleeding allows you to set its level.

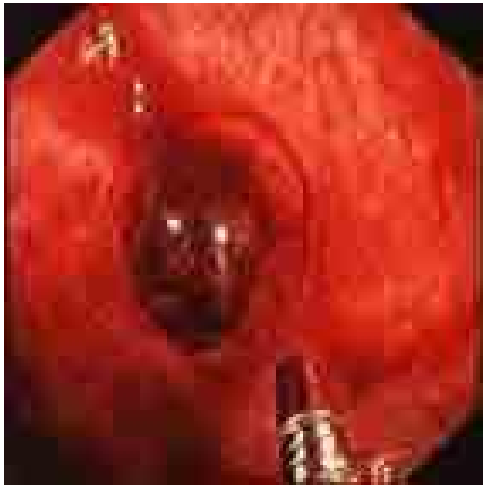





Stenose




Кровоточащая
дивертикула



Conservative treatment of diverticular disease.

asymptomatic diverticulosis of the colon

- fiber-rich diet
- bran, ballast substances
- Mucofalk and Forlax.

diverticulosis with severe clinical manifestations

- fiber-rich diet
- ballast substances;
- vitamins;
- drugs that normalize bowel function;
- antispasmodics, or calcium channel blockers (Decitel);
- with inflammatory phenomena - 5 ASA, optimally - “Salofalk”. Severe symptoms of diverticulitis require the appointment of antibiotics;
- antidiarrheal agents;
- enzymatic preparations;
- probiotics.

Surgery.
indications for surgical treatment:

Emergency:

- perforation of the diverticul
- intestinal obstruction;
- profuse bleeding.

Urgent:

- the formation of chronic infiltrate, simulating a malignant tumor;
- internal and external fistulas;
- Clinically expressed diverticular disease that is not amenable to complex conservative treatment.

Types of Surgery

- Intestinal resection with primary anastomosis
- Intestinal resection with primary anastomosis and proximal colostomy
- Operation Hartmann, Mikulich
- Imposing an unloading transversostomy
- Removing the site of perforation of the diverticulum on the anterior abdominal wall in the form of a 2-barrel stoma
- Various types of colon resections: from sigmoid colon resection to left-sided hemicolectomy.
- Sutured perforated diverticula can not!

POLYPES AND POLYPOSIS OF COLON

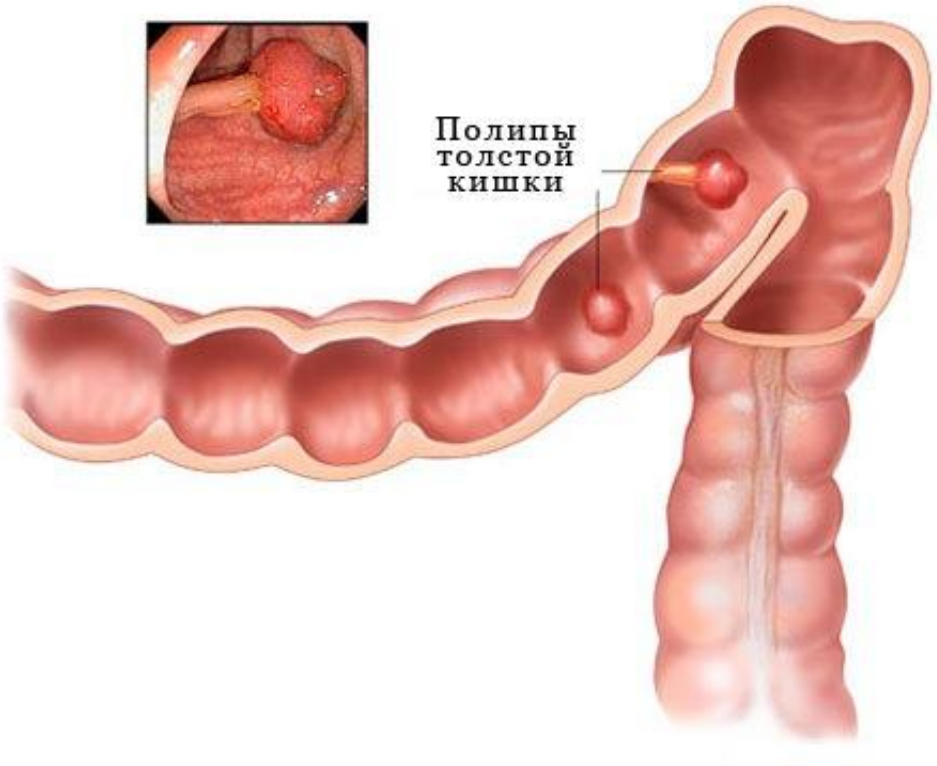
POLIP - a tumor on a peduncula or a wide base, issuing from the wall of a hollow organ into its lumen.

Localization frequency:

1. stomach
2. rectum and sigmoid colon

ETIOLOGY

- Inflammatory theory
- Embryonic theory



Polyp classification

- Inflammatory (false)
- Hyperplastic
- Gamartomnye (including youth)
- Adenomatous

i. Tubular
ii. Villous
iii. Tubular-villous

According to the histological structure:

- **hyperplastic (2%);**
- **glandular (51.6%);**
- **glandular-villous (21.5%);**
- **villous (14.7%).**

According to the multiplicity factor, epithelial tumors are divided into:

1. single;

2. multiple:

- group;

- scattered.

3. diffuse (family) polyposis.

ICD-10 Version:2019

D12Benign neoplasm of colon, rectum, anus and anal canal

D12.0Caecum

Ileocaecal valve

D12.1Appendix

D12.2Ascending colon

D12.3Transverse colon

Hepatic flexure

Splenic flexure

D12.4Descending colon

D12.5Sigmoid colon

D12.6Colon, unspecified

Adenomatosis of colon

Large intestine NOS

Polyposis (hereditary) of colon

D12.7Rectosigmoid junction

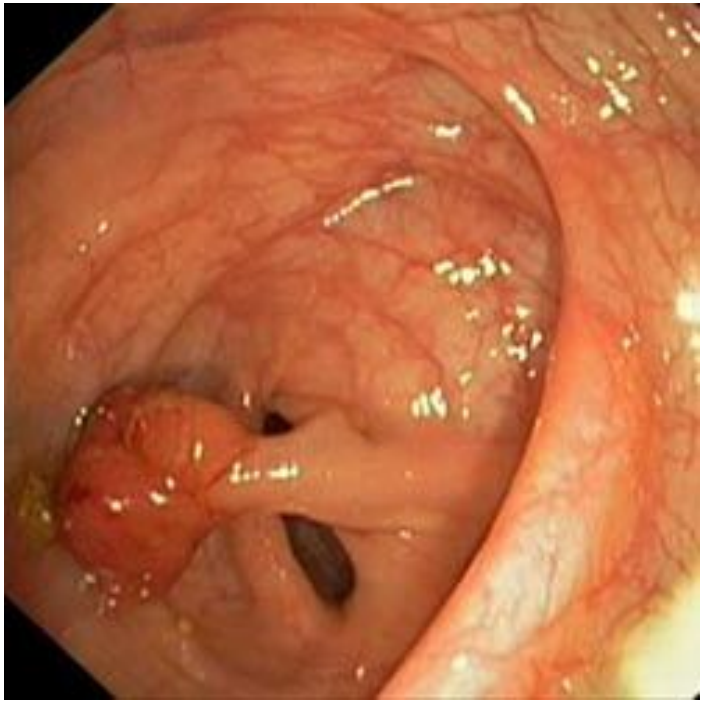
D12.8Rectum

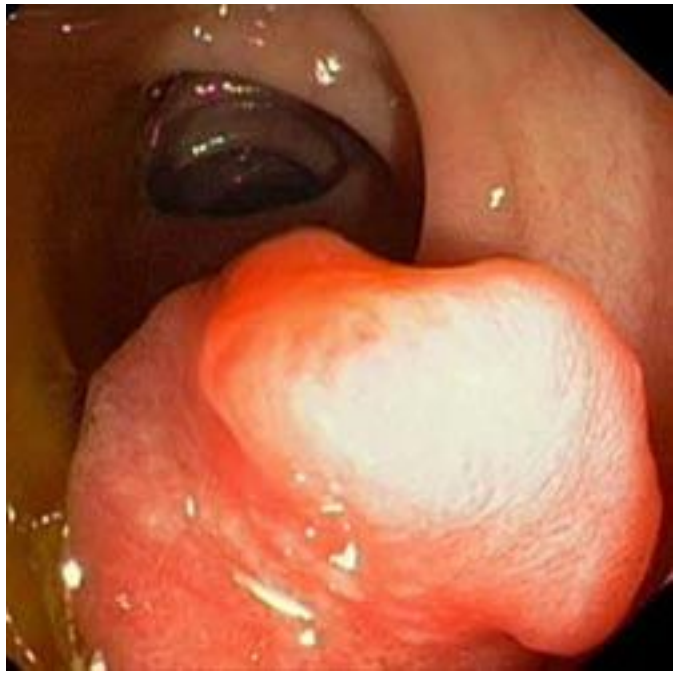
D12.9Anus and anal canal

Clinical manifestations

- Pain, possibly cramping
- Rectal bleeding
- Imitation of symptoms of incomplete intestinal obstruction

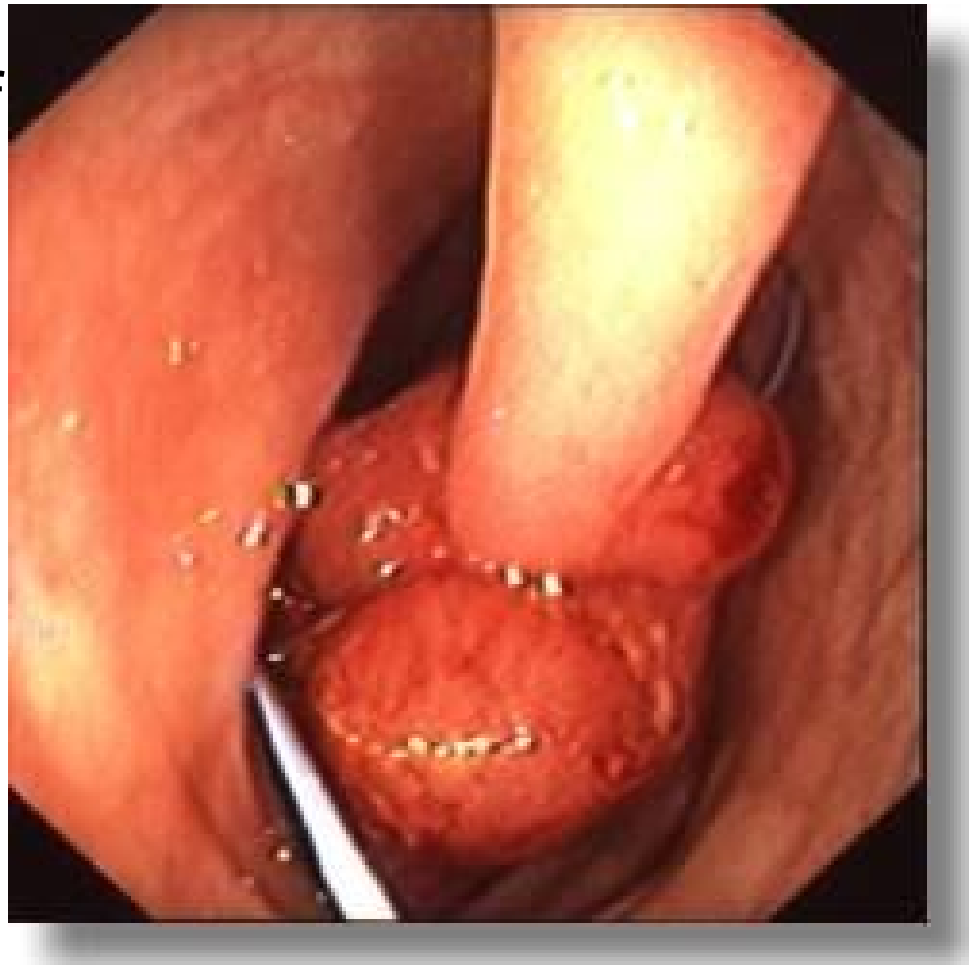
N.B.! In 40% of healthy people, asymptomatic colon polyps are detected





Diagnostics

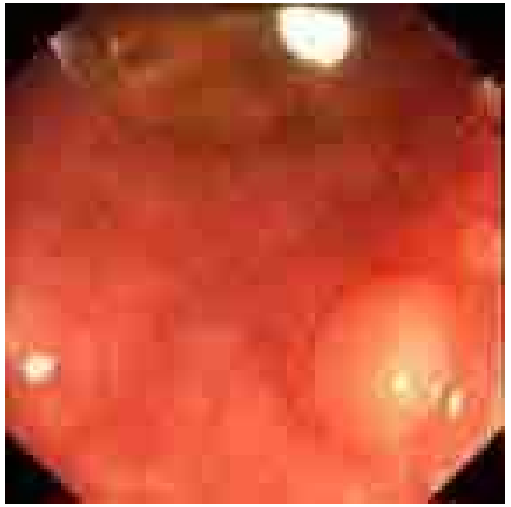
- Finger examination of the rectum
- Irrigography
- Rectoscopy
- Colonoscopy
- Biopsy
- Identification of mutations in the APC and MYH genes



Полип сигмовидной кишки на ножке

Полип толстой кишки на широком основании

Полип толстой кишки на ножке



Аденома на широком основании

Небольшое кровотечение на месте удаленного полипа

Крупный полип толстой кишки (6х6 см), диаметр основания 3 см. Полип значительно сужает просвет кишки, вызывая частичную непроходимость

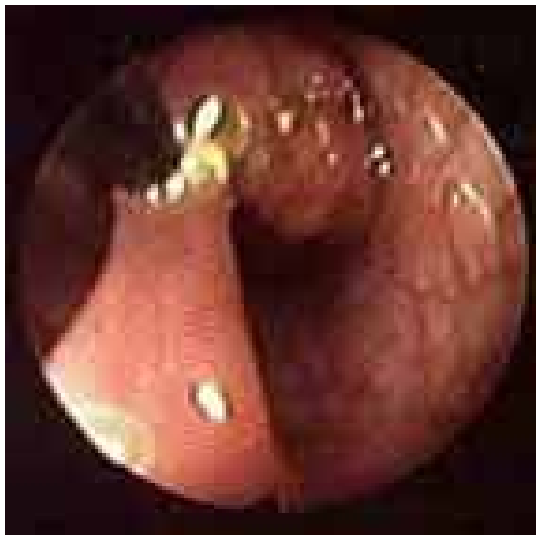
- The timely detection and removal of asymptomatic polyps of the colon is the main measure for the prevention of colon cancer.
- Colon cancer (adenocarcinoma) in 95% of cases grows from a benign polyp (adenoma).
- Glandular polyps of the colon (adenoma) are a precancerous lesion. With the increase in the size of the colon adenomas and the complication of their microscopic structure (increase in villous structures), the potential of their malignant transformation increases.

Benign juvenile colon polyps should be removed and thoroughly examined histologically to exclude the presence of adenomatous elements and signs of dysplasia

TREATMENT

- Conservative treatment of colon polyps is futile.
- Endoscopic polypectomy
- Bowel resection
- After endoscopic removal of large polyps (more than 2 cm) or multiple polyps (5 or more) and villous adenomas of any size, control endoscopy is necessary after a year, and if there is no relapse, then colonoscopy is repeated every 3 years.

Пример эндоскопического удаления полипа (полипэктомия)



Отжиг полипа полипной петлей

Оставшаяся культя полипа с крупным центральным сосудом

Наложение клипсы на сосуд во избежание кровотечения

Surgical treatment of polyposis

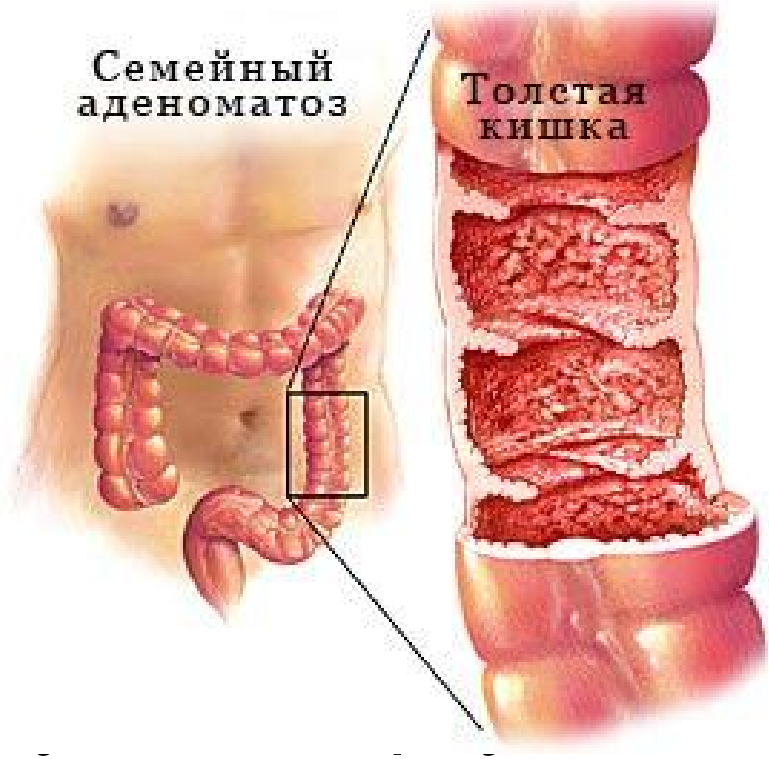
- endoscopic polypectomy;
- colectomy with the formation of an ileorectal anastomosis;
- colectomy with abdominal-anal resection of the rectum, Brook ileostomy;
- colproctectomy, ileostomy according to Brooke;
- colectomy, resection of the rectum with the formation of a J-shaped small intestinal reservoir, Tornboll ileostomy, mucosectomy of the mucosa of the remaining part of the rectum

Colon polyposis

- In almost half of all patients with colon polyps, these neoplasms are discrete (several rare polyps far from each other) or multiple.
- The more polyps in the intestine, the higher their malignant potential.
- It is believed that if up to 100 polyps are detected, then this is multiple, and if more than 100, diffuse polyposis.

DIFFUSIVE FAMILY POLYPOSIS

Autosomal dominant disease, adenomatous polyps in the colon and rectum.



CLINIC

- Abdominal pain
- Diarrhea
- Bleeding

Diagnosis - sigmoidosco[illegible]y survey.

DIFFUSIVE FAMILY POLYPOSIS. TREATMENT

- proctocolectomy
- Colectomy with abdominal anal rectal resection
- Subtotal colon resection with the formation of ileorectal anastomosis

Hereditary syndromes polypoid

Gardner's Syndrome

- Polyposis of the colon and rectum
- Polyps of the small intestine and stomach
- Osteomas (lower jaw and skull)
- Cysts
- Soft Tumors
- Desmoid tumors of the abdominal wall and mesentery of the intestine
- Tooth abnormalities
- Periampular cancer
- Thyroid cancer

Treatment is surgical, radical.

Peitz-Egers Syndrome

- Hamartoma polyps throughout the digestive tract
- Pigmentation of the skin and mucous cheeks, lips, on fingers, fingers like “drumsticks”
- Colicky abdominal pain, symptoms of intestinal invagination
- Recurrent bleeding possible

Treatment is the removal of polyps. Bowel resection - rare in a minimum volume

Juvenile polyposis

- Polyps of the colon, small intestine, stomach
- Bleeding
- Malignancy at a late age

Turco syndrome is a family polyposis in combination with malignant tumors of the central nervous system.

Kronkhait-Kenada syndrome is a rare combination of intestinal polyps with alopecia, hyperpigmentation and lack of nails.

Zollinger – Ellison syndrome is a combination of familial adenomatosis of the colon with tumors of the endocrine glands (most often, thyroid tumors).

General clinical manifestations

- bloody diarrhea
- exhaustion
- developmental delay,
- chronic anemia
- severe metabolic disorders (decreased levels of protein, albumin, cholesterol, hypokalemia),
- severe dysbiosis,
- secondary immunodeficiency.

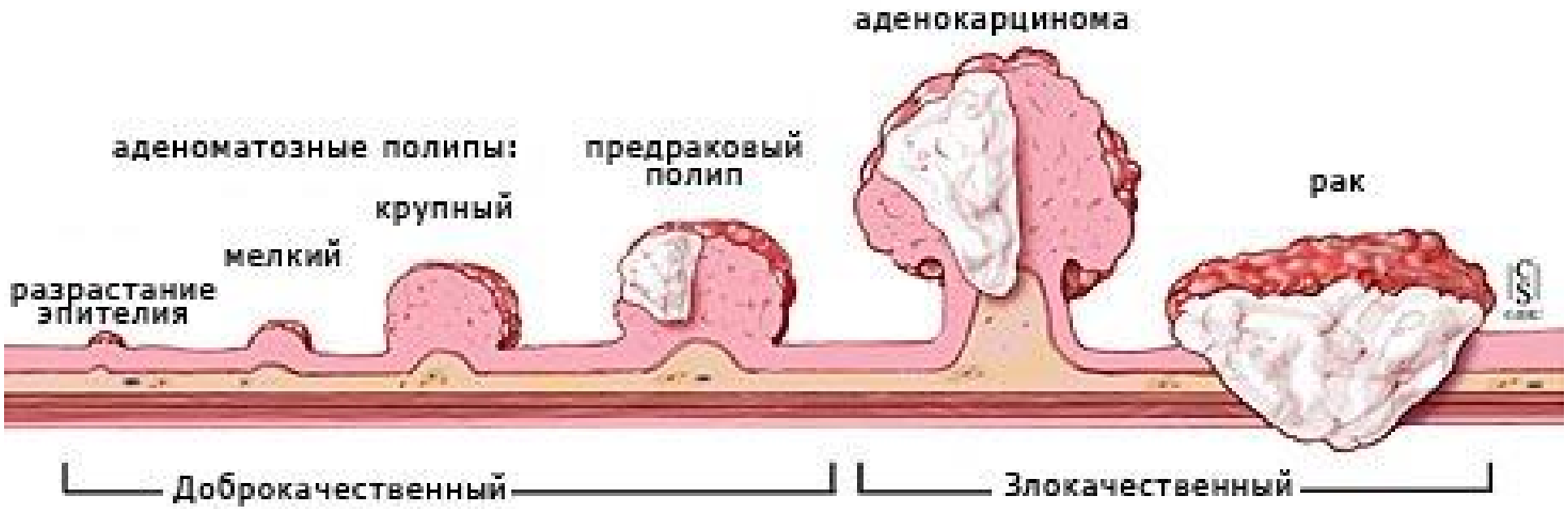
Treatment - Radical Surgery

Colon cancer
Etiological factors and precancerous diseases

- Diet.
- Colorectal polyps
- Inflammatory diseases of the colon.
- ulcerative colitis
- Crohn's disease
- Heredity
- family diffuse polyposis
- Gardner's syndrome
- Turco syndrome and others ...

Colon cancer
Etiological factors and precancerous diseases

- malignant tumors of other organs.
- over 50 years old
- suffering from chronic diseases of the gastrointestinal tract, genitals, cardiovascular system, obesity


аденокарцинома
аденоматозные полипы:
предраковый полип
рак
крупный
мелкий
разрастание эпителия
Доброкачественный
Злокачественный

Localization and pathological anatomy of colon cancer, M. Corman (1989)

- ***In the ascending colon - in 18% of cases,***
- ***in the transverse colon - in 9%,***
- ***in descending - 5%***
- ***in sigmoid - in 25%***
- ***in the rectum - in 43%.***

Macroscopically

•Exophytic

•Endophytic

•Mixed

As a result of ulceration - saucer-shaped form

International Histological Classification (2010)

Epithelial tumors

I. Benign tumors

a. Tubular adenoma
b. Villous adenoma
c. Tubular-villous adenoma
d. Adenomatous polyp

II. Intraepithelial neoplasia (dysplasia) associated with chronic inflammatory bowel disease

a. High grade glandular intraepithelial neoplasia
b. Low grade glandular intraepithelial neoplasia

International Histological Classification (2010)

III. Cancer*

a. Adenocarcinoma
b. Mucous adenocarcinoma **
c. Cricoid Cell Cancer ***
d. Small cell carcinoma
e. Squamous cell carcinoma
f. Adeno-squamous cell carcinoma
g. Medullary cancer
h. Undifferentiated cancer

Metastasis

- Lymphogenous path
- Hematogenous pathway
- Implantation path.

Distant metastases

- Liver
- Brain
- Lungs
- Bones
- Ovaries
- omentum

TNM Colon Cancer Stages

T - primary tumor

TX - insufficient data to evaluate the primary tumor.

Tis - pre-invasive carcinoma (intra-epithelial invasion or invasion of the own plate of the mucous membrane).

T1 - the tumor grows in the submucosal layer of the colon wall

T2 - the tumor grows on the muscle layer, without germination of the colon wall.

T3 - Tumor invades all layers of the intestinal wall in the spread of fat, without injury to adjacent organs.

T4 - the tumor grows into surrounding organs and tissues or the serous membrane when localized in the upper ampullar part of the rectum and rectosigmoid part of the colon (covered with peritoneum).

T4a - germination of the visceral peritoneum

T4b– germination in other organs and structures

TNM Colon Cancer Stages

N - regional lymph nodes

NX - insufficient data to assess regional lymph nodes.

N0 - there are no lesions of regional lymph nodes.

N1– metastases in 1-3 (inclusive) regional lymph nodes.

N1a - metastases in 1 regional lymph node.

N1b - 2-3 lymph nodes.

N1c - Disseminates in the mesentery without damage to the regional lymph nodes

N2 - metastases in more than 3 regional lymph nodes.

N2a - 4-6 lymph nodes are affected.

N2b - 7 or more lymph nodes are affected.

TNM Colon Cancer Stages

M - distant metastases

M0 - there are no distant metastases.

M1 - the presence of distant metastases.

M1a - the presence of distant metastases in one organ.

M1b– the presence of distant metastases in more than one organ or along the peritoneum.

Three parameters are important for the outcome of the disease:

a) transverse germination or spread of the tumor along the layers of the intestinal wall;

b) involvement of regional lymph nodes;

c) distant metastases.

Группировка по стадиям

Стадия	T	N	M
0	is	0	0
I	1,2	0	0
II	3,4	0	0
IIA	3	0	0
IIB	4a	0	0
IIC	4b	0	0
III	Любая	1,2	0
IIIA	1,2 1	1 2a	0 0
IIIB	3,4a 2,3	1 2a	0 0
IIIC	4b 4a 3,4a	1,2a,2b 2a 2b	0 0 0
IV	Любая	Любая	1
IVa	Любая	Любая	1a
IVb	Любая	Любая	1b

Dukes Classification

Stage A - the tumor is limited to the wall of the intestine without germination in the surrounding tissue and without metastases in the regional lymph nodes.

Stage B - the tumor grows into the surrounding tissues, but there are no metastases in the regional lymph nodes.

Stage C1 - a tumor with / without germination in the surrounding tissue, with the presence of metastases in the perienteric lymph nodes.

Stage C2 - a tumor penetrating all layers of the intestinal wall with the presence of metastases in the lymph nodes located in the area of the ligated supply vessels.

Stage D - the presence of distant metastases.

Stage	5 year survival
A	80-90%
B	64-70%
C1	35%
C2	15%
D	0-15%

МКБ 10

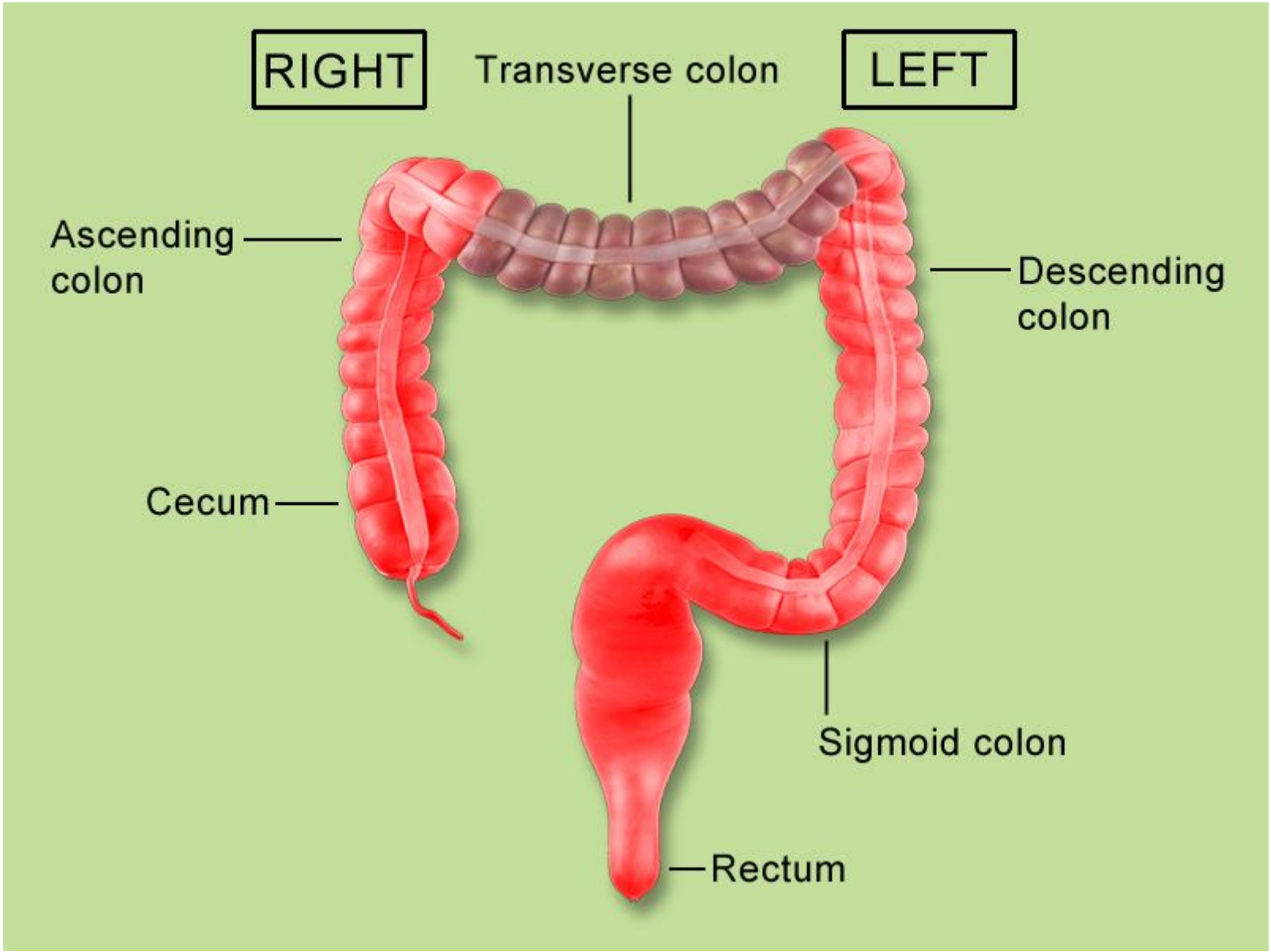
C18 Malignant neoplasm of the colon
C18.0 Cecum
C18.1 of the appendix [appendix]
C18.2 Ascending colon
C18.3 Hepatic bend
C18.4 Transverse colon
C18.5 Spleen bend
C18.6 Descending colon
C18.7 Sigmoid colon
18.8 Damage to the colon outside one or more of the above
localizations
C18.9 Unspecified colon
C19 Malignant neoplasm of rectosigmoid compound
D01.0 – D01.3 Carcinoma in situ

Clinical symptoms:

- *1. Change evacuation function*
- *2. Bleeding.*
- *3. Tenesmus.*
- *4. Abdominal pain.*
- *5. Palpation of the tumor.*
- *6. Anemia.*
- *7. Weight loss*

Clinical forms of colon cancer

- ***Obstructive***
- ***Toxic anemic***
- ***Tumor***
- ***Pseudo-inflammatory***
- ***Enterocolitic***
- ***Painful***
- ***Hidden***
- ***Metastatic***


RIGHT
Transverse colon
LEFT
Ascending colon
Descending colon
Cecum
Sigmoid colon
Rectum

Diagnostics

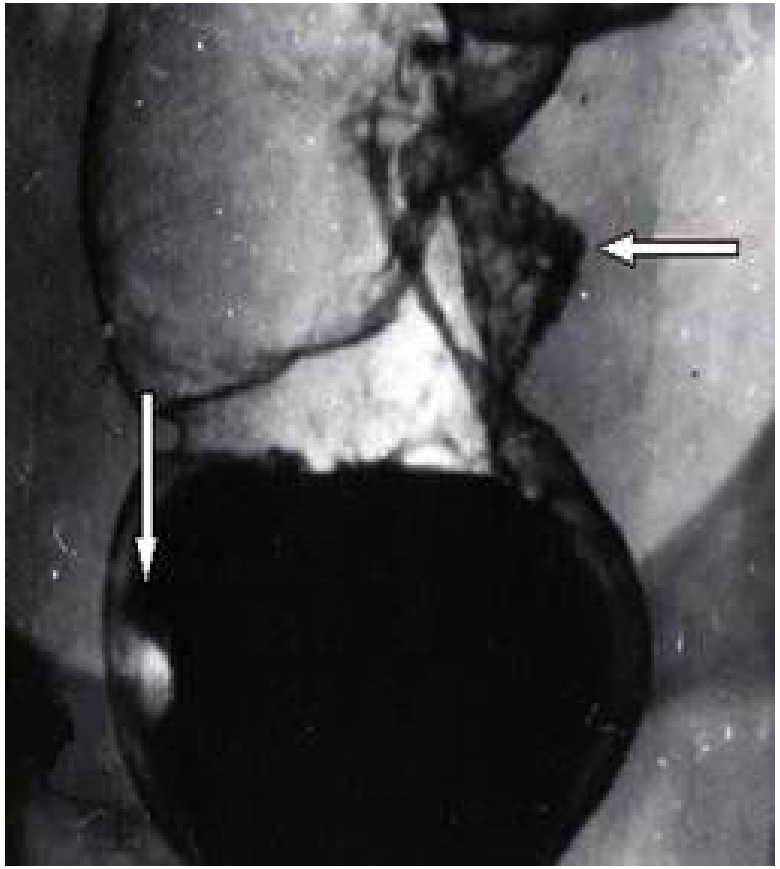
- analysis of complaints and medical history;
- digital examination of the rectum;
- sigmoidoscopy;
- clinical blood test;
- analysis of feces for occult blood;
- colonoscopy;
- irrigoscopy;
- Ultrasound of the abdomen and pelvis, CT, MRI;
- endorectal ultrasound;
- biopsy of the detected tumor.

Рак печеночного угла толстой кишки: неравномерное утолщение стенки кишки, ее неоднородность, инфильтрация окружающей клетчатки, утолщение близлежащего участка брюшины

Рак слепой кишки: неравномерное утолщение стенок, инфильтрация окружающей клетчатки

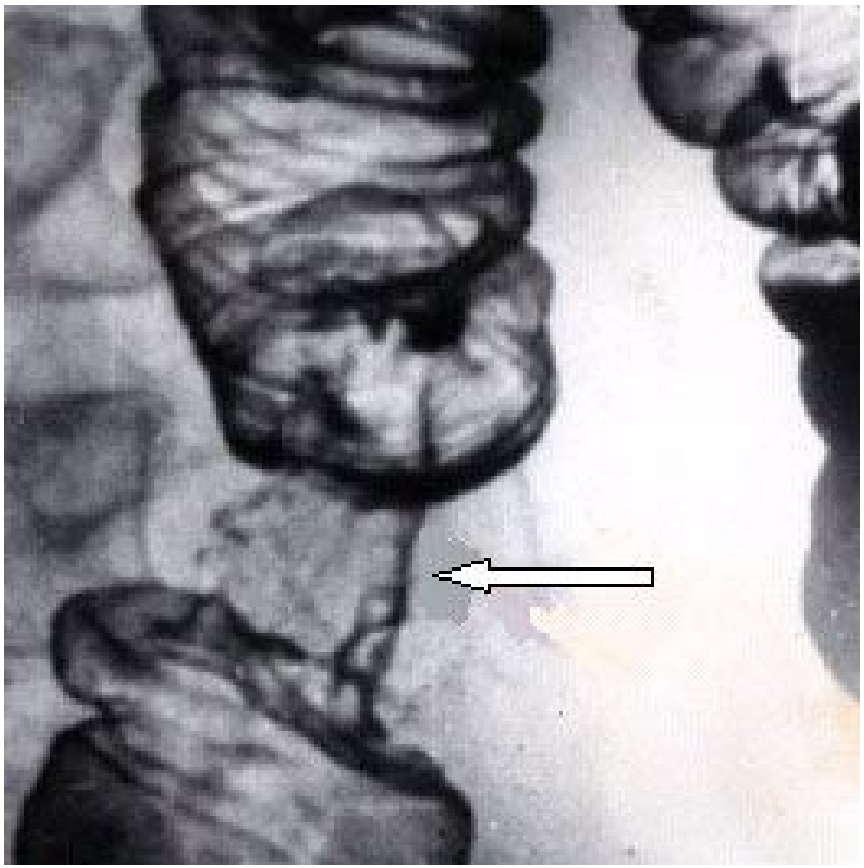
Рак поперечноободочной кишки: локальное утолщение задней стенки кишки вблизи печеночного изгиба, увеличенные до 1,1 см лимфоузлы вблизи измененной кишки (стрелки).

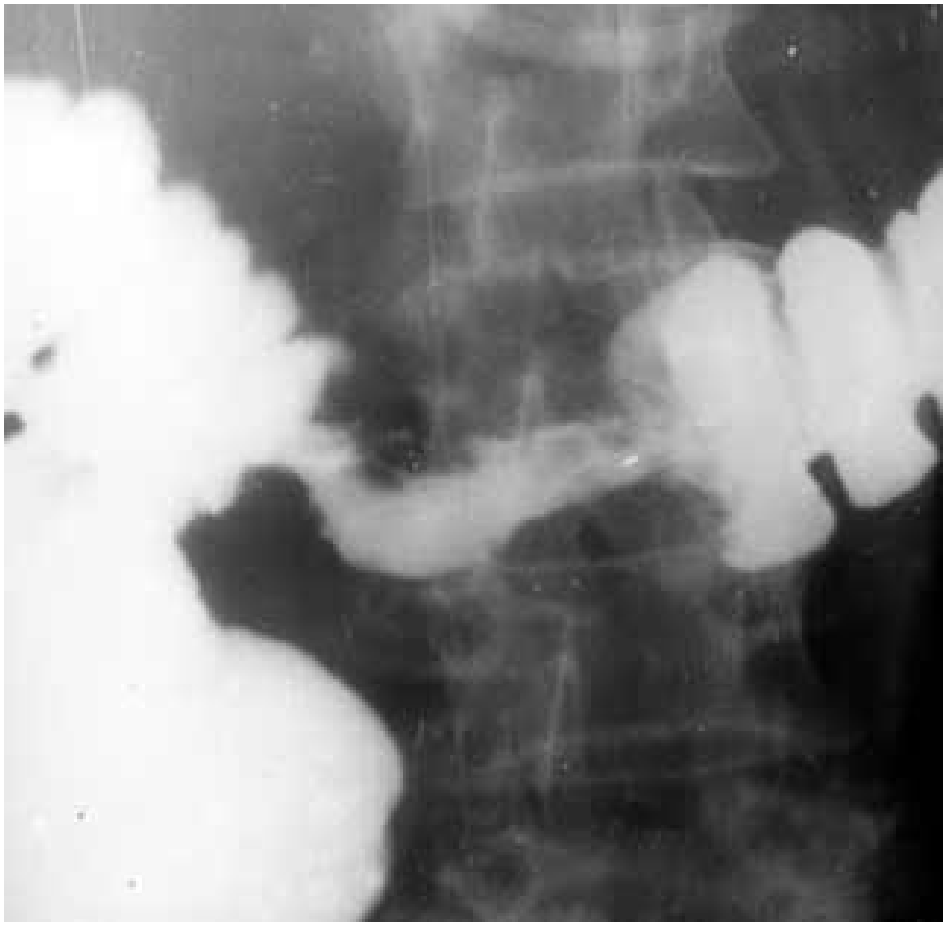
Полип на ножке (стрелка) визуализируется на фоне газа в селезеночном изгибе толстой кишки



Циркулярный рак сигмовидной кишки с инвагинацией верхнего полюса опухоли в непораженный участок кишки (стрелка).

Блюдцеобразный рак среднеампулярного отдела прямой кишки (горизонтальная стрелка). «Пограничный» полип нижнеампулярного отдела (вертикальная стрелка).





Colon Cancer Treatment

Currently, patients with colon cancer have no alternative to surgical methods of treatment. Radiation and chemotherapy, laser exposure are only auxiliary.

Principles of Surgery

ABLASTICITY

ANTIBLASTICITY

When resecting a segment of the intestine, it is necessary to deviate from the edge of the tumor in the proximal direction of at least 12 cm, and in the distal - at least 5 cm

Types of Surgery

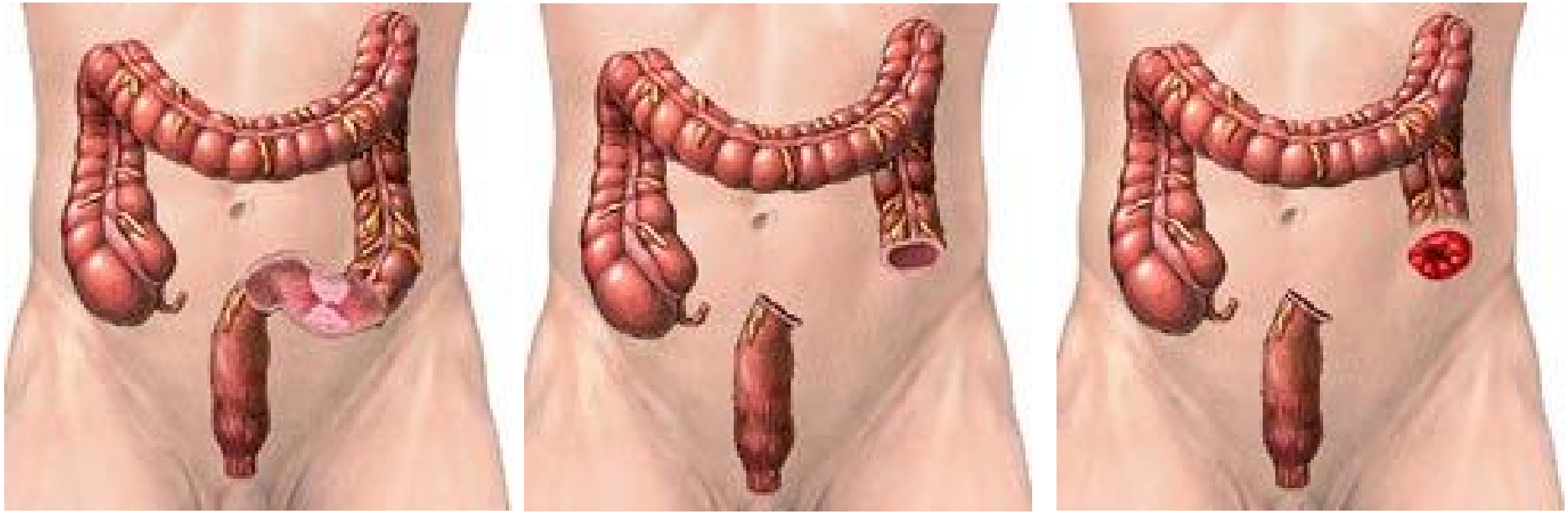
- **right hemicolectomy**
- **transverse colon resection**
- **left hemicolectomy**
- **subtotal colon resection**
- **segmental resection of the sigmoid colon**
- **sigmoidectomy**
- **endoscopic mucosal resection**

Techniques for surgery for colon cancer are single-stage, two- and three-stage.

The first stage is the removal of a malignant tumor with the formation of:

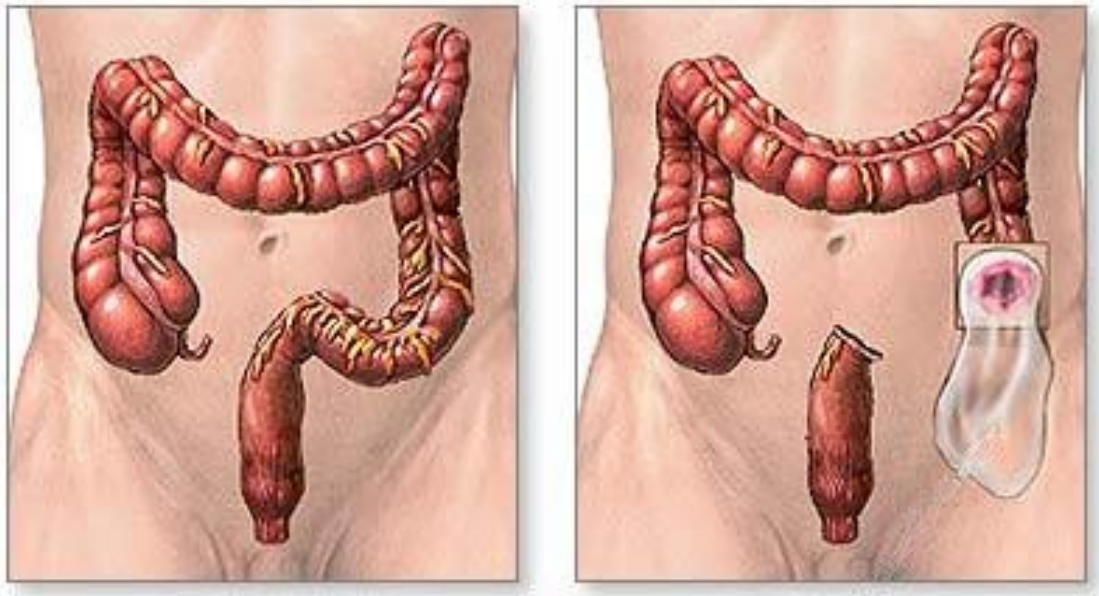
- Double-barreled colostomy (Mikulich operation)
- Single Colostomy (Hartmann Surgery)
- Transversostomy
- Double-barreled ileostomy according to Thornbol.

The second stage - the application of an anastomosis

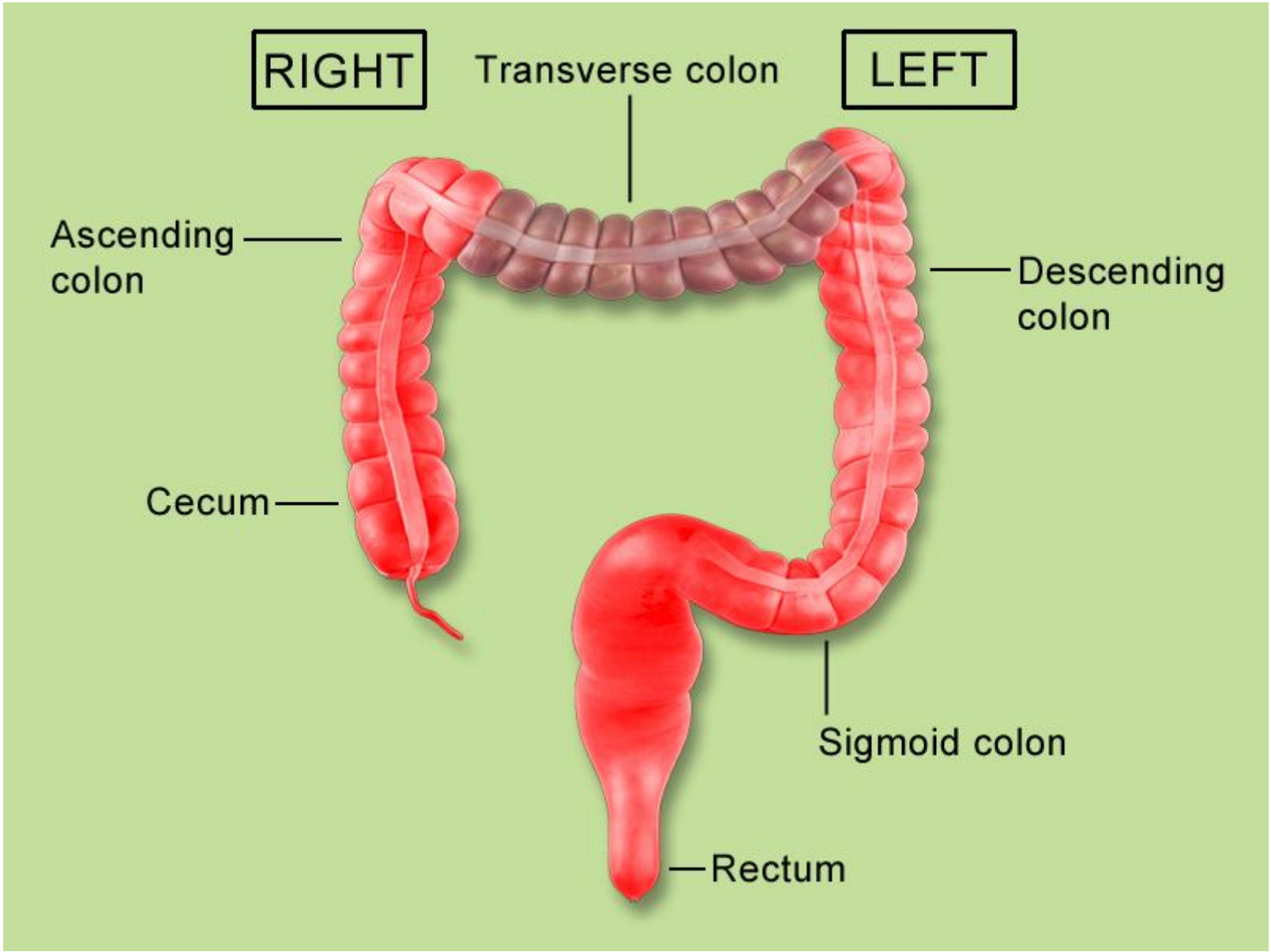


До

После



Колостома


RIGHT
Transverse colon
LEFT
Ascending colon
Descending colon
Cecum
Sigmoid colon
Rectum

When a tumor grows into neighboring organs, resection with a single block of affected segments of the colon and the involved organ (bladder, small intestine, stomach, etc.). 5-year survival rate reaches 50%.

Tactics for distant metastases (liver)

The first stage is the removal of the primary tumor

Additional examination (CT, etc.)

The second stage is an edge, wedge-shaped resection of the liver or hemihepatectomy.

Five-year survival of 25-30%.

Or

Puncture (under the control of ultrasound or CT) radiofrequency ablation of metastatic nodes.

Five-year survival of more than 30%.

Treatment

Early colon cancer of stage 0-I

(T_{is} – T_1sm1NoMo).

5-year survival rate of over 90%

endoscopic mucosal resection

Resectable localized and locally advanced colon cancer

of the II – III stages

(T_2 N_{1-2} M_0, T_{3-4} N_{0-2} M_0)

Surgical treatment

Adjuvant chemotherapy for regional lymph nodes, tumor germination of the serous membrane.

Treatment

Unresectable colon cancer ($T_4 N_{0-2} M_0$).

Colorectal cancer, growing in the main vessels, bone structures. If it is impossible to carry out surgical treatment in a radical volume - the formation of bypass anastomoses / colostomy / ileostomy.

In the future, patients underwent palliative chemotherapy.

Treatment

Generalized colon cancer with resectable / potentially resectable synchronous metastases to the liver or lungs (M_{1a}).

- **Chemotherapy to achieve resectability of metastatic lesions**
- **Removal of the primary tumor with lymphadenectomy, removal of metastases in the liver or lungs**
- **Radiofrequency ablation (RFA) of liver metastases or stereotactic radiation exposure is both an addition to liver resection and an independent method when surgical treatment is not possible.**

Treatment

- Generalized colon cancer with unresectable synchronous metastases. The purpose of treatment is the maximum long-term control of the disease while maintaining a satisfactory quality of life; in a number of patients it is possible to achieve the transfer of unresectable metastases to resectable. The question of the removal of the primary tumor is decided individually, taking into account the risk of complications.
- Colon cancer against the background of severe concomitant pathology (functionally inoperable). Palliative symptomatic therapy. Perhaps stenting the tumor or the formation of an unloading intestinal stoma.
- Relapse of colon cancer. First of all, they are considering the possibility of repeated surgical treatment. If impossible, systemic chemotherapy

Emergency surgical treatment

- The volume of surgical intervention should not be different for emergency and planned surgical treatment of colon cancer.
- With the localization of a tumor of the cecum, ascending colon, hepatic bending of the colon, proximal third of the transverse colon, the formation of a primary anastomosis is permissible.
- With tumor localization in the left parts of the colon, Mikulich operations, such as Hartmann's, are indicated.
- The formation of a primary anastomosis after intestinal decompression is acceptable.
- An alternative is a three-stage treatment with the formation of a proximal colostomy, delayed bowel resection and colostomy closure.
- Endoscopic decompression of the colon by stenting with delayed surgical treatment is also possible.

Treatment

- Adjuvant chemotherapy is indicated for patients with pT4N0 or pT1-4N + (A), and can also be recommended for patients with pT3N0M0 colorectal cancer with negative prognosis factors (low differentiation, presence of lymphovascular / perineural invasion, R +, surgical operation in conditions of intestinal obstruction / peritonitis, surgery with an inadequate volume of lymphadenectomy). The total duration of adjuvant chemotherapy is 6 months.

Symptomatic therapy
best supportive care

Bleeding

- urgent endoscopic examination
- systemic hemostatic therapy
- endoscopic arrest of bleeding
- if impossible / ineffective - emergency surgery.

Tumor stenosis

- Installation of a self-healing stent in the area of tumor stenosis
- Surgical treatment (colostomy / ileostomy)

Symptomatic therapy
best supportive care

Pain treatment

- Remote radiation therapy
- Drug therapy
- locoregional anesthesia

Ascites treatment

- Diuretics
- Laparocentesis

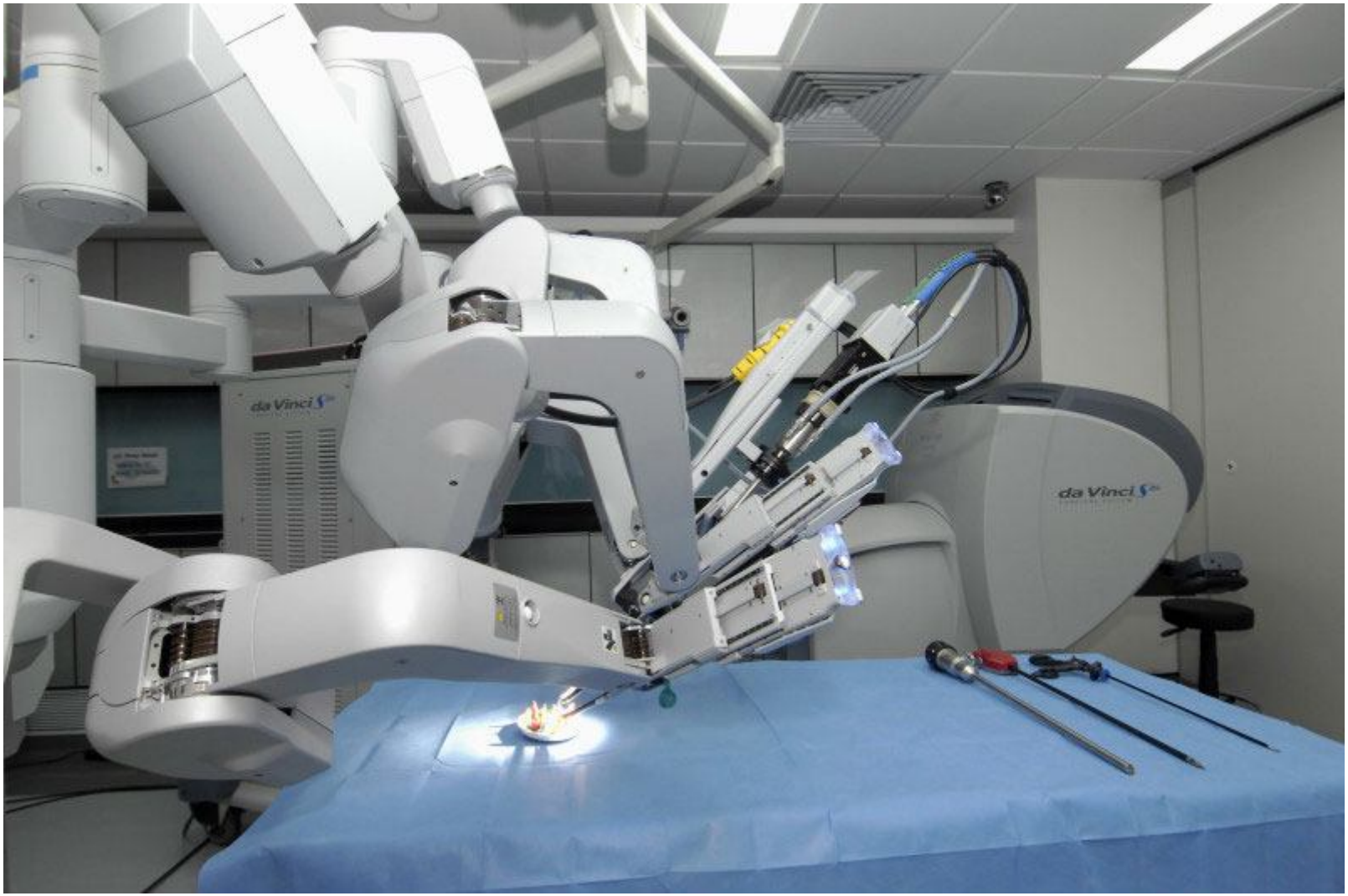
Dynamic observation (clinical examination)

- In the first 1-2 years, a physical examination and analysis of complaints is recommended every 3-6 months,
- for a period of 3-5 years - 1 time in 6-12 months.
- After 5 years from the date of the operation, visits are carried out annually or when complaints arise.

The volume of the examination:

- Anamnesis and physical examination (fingers examination of the rectum)
- Oncomarkers every 3 months for the first 2 years and then every 6 months for the next 3 years.
- Colonoscopy 1 and 3 years after resection of the primary tumor, then every 5 years to identify a metachronous tumor or to remove detected colon polyps.
- If polyps are detected, colonoscopy is performed annually.
- If prior to treatment, colonoscopy was not performed due to a stenotic tumor, it is performed within 3-6 months. after resection.
- Ultrasound of the abdominal cavity and pelvis every 3-6 months. depending on the risk of progression;
- Chest x-ray every 12 months.
- CT of the organs of the chest and abdominal cavity with contrasting once 12-18 months after surgery
- Genetic counseling.

Currently, laparoscopic surgery is increasingly being used.
Modern surgical technique allows us to perform not only radical removal of the tumor, but also expanded lymphatic dissection, removal of metastases.
For complex, difficult operations, robot-assisted surgical technologies are used.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- Трехмерное стереоскопическое изображение с возможностью его увеличения и прецизионность, обеспечивающие высочайшую точность хирургических манипуляций с минимальной травматизацией тканей
- Минимизация кровопотери
- Степени свободы инструментов, превышающие таковые у человеческой кисти
- Возможность проведения вмешательств, трудновыполнимых или невыполнимых, традиционным и эндовидеохирургическим способами