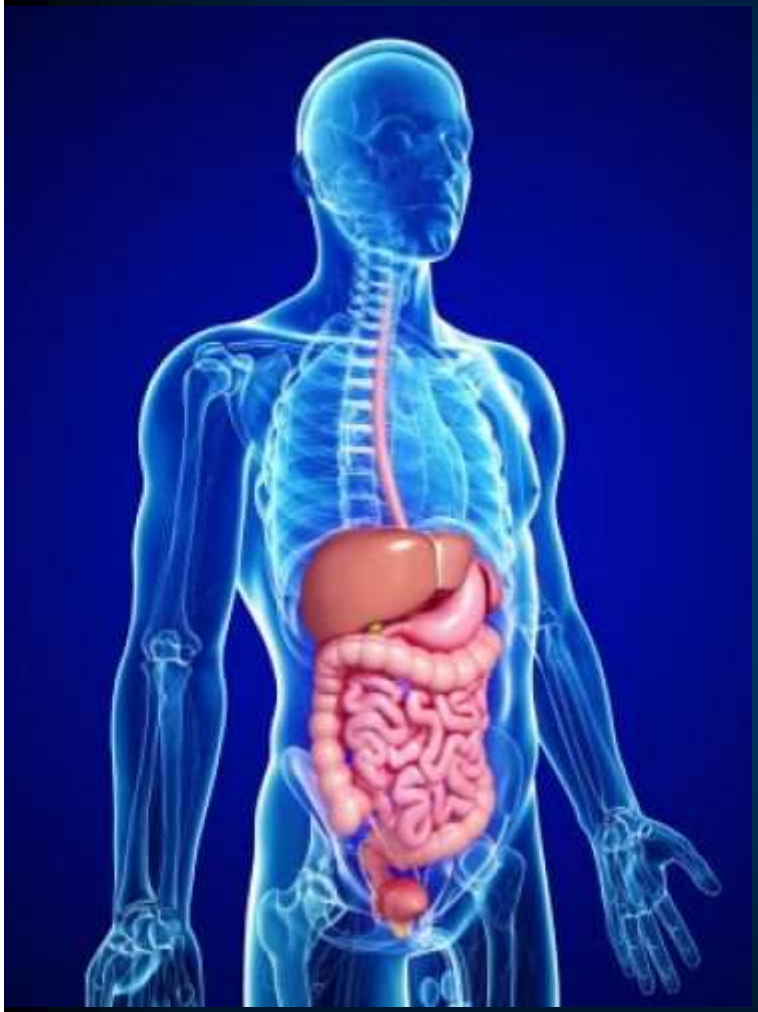
Summer Pathophysiology courses



GASTROINTESTINAL DISORDERS 2

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Pathophysiology of lower GIT

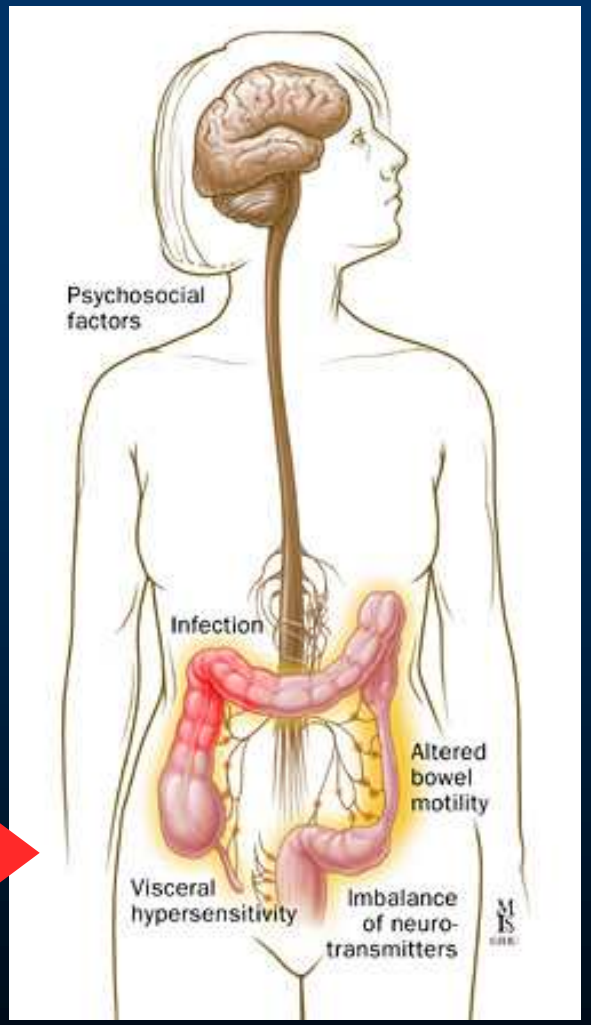
- Irritable Bowel Syndrome (IBS)
- Crohn disease
- Ulcerative collitis
- Colorectal cancer

1 Irritable Bowel Syndrome (IBS)

- **Def:** referred to as spastic or irritable colon diarrhea nervosa, "unhappy colon; is functional (not an inflammatory) chronic bowel disorder most likely of polycausal psychosomatic origin

- **Occ:** common; in Asia, Africa, Europe and US ~ 15% of adults; only **about 10% of people with IBS present to physicians** for evaluation; costs are enormous (3.5 million physician visits in the U.S./year); impact on quality of life (absenteeism from work and schol). is equally as significant as dialysis-dependent renal failure

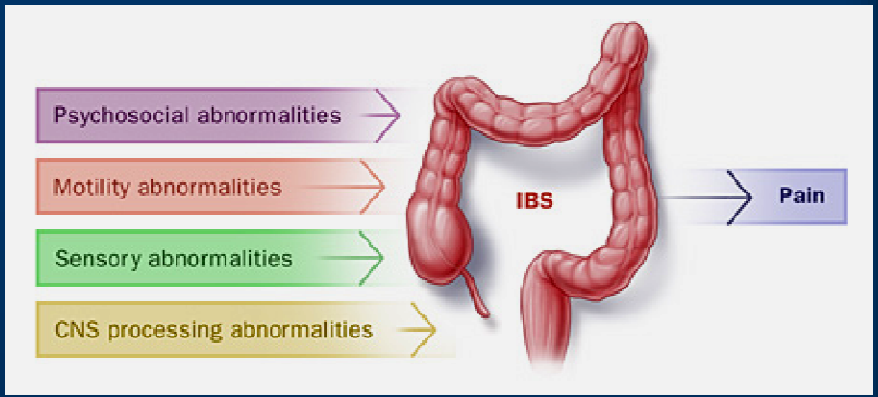
- **Etio:** combination: **psychosocial factors, visceral hypersensitivity, altered bowel motility, infection neurotransmitters imbalance**

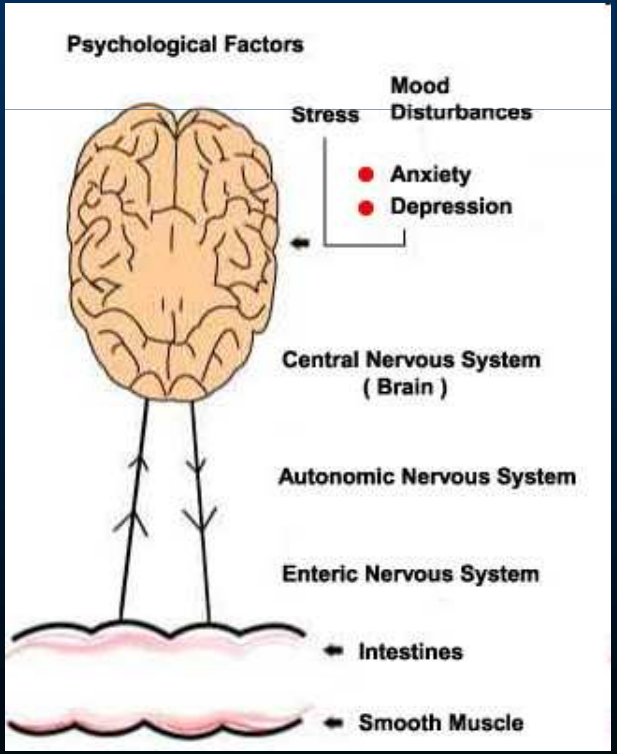


Causes of Irritable Bowel Syndrome

Irritable Bowel Syndrome (IBS)

- Irritable bowel syndrome is a **functional disease**, so organic lesions, detectable by laboratory techniques are absent.
- Disease evolves slowly and gradually; patients are wandering from doctor to doctor (practitioner, gastroenterologist, surgeon)
- Anxiety and depression – ? Stress as a cause of disease is further perpetuated by fear of doctors
- Finally they are anxious of serious disease, stressed of „untreatability“, depressed with false fear of cancer and finding help in psychiatrist
- The fund of this disease can be constipation, which can be linked to lack of fiber in the diet and sedentary lifestyle, with the appearance of mucus stools or diarrhea, which occur most often under stressful conditions.



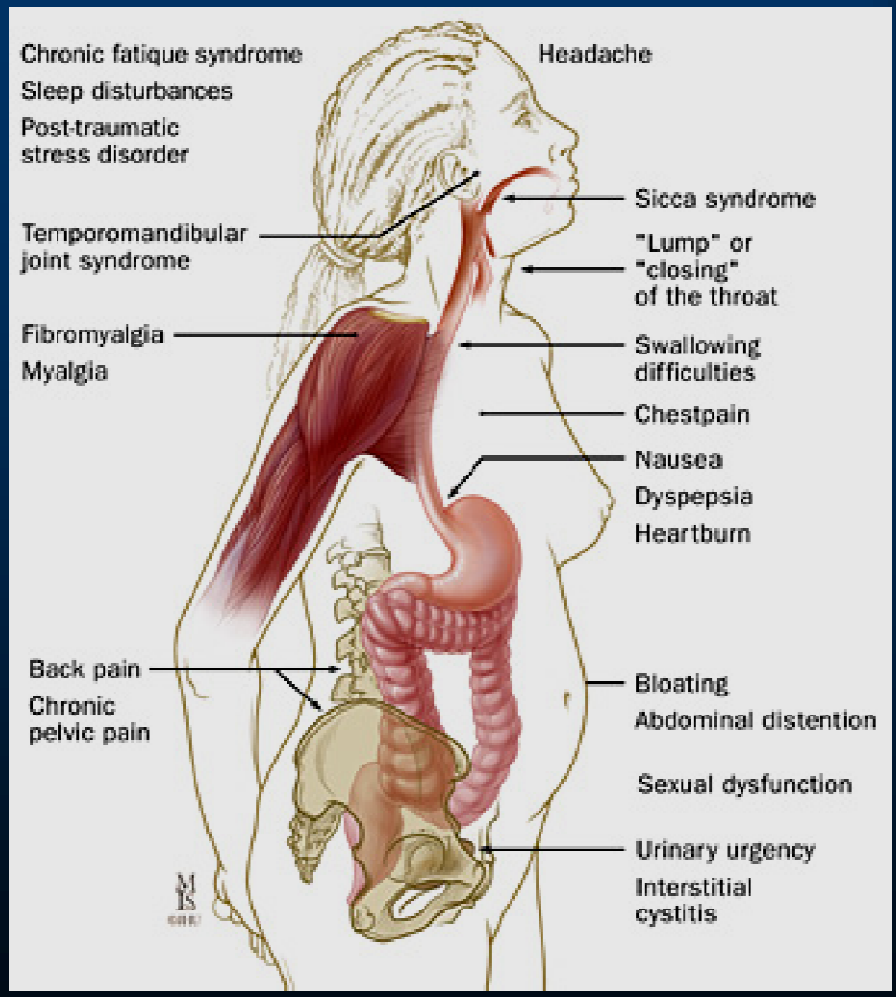


Irritable Bowel Syndrome (IBS)

- **Symptoms**: abdominal pain, discomfort, change in the consistency and/or frequency of bowel movements and defecation (distention, bloating); individual unique sy: from occasional nuisance to intense pain
  - pain associated with diarrhea - 25 contractions a day
  - pain associated with constipation no contractions;
  - pain and diarrhea alternating with constipation

2 main symptomatic subcategories may overlay or combine

IBD is actually „ systemic disease“



Irritable Bowel Syndrome (IBS)

- **Pathophysiology:**
  1. **Disorganized motility dysfunction -** Impaired regulatory conduit between the central and enteric pathway
     - irregular motor activity of the small intestine, muscle spasms; very slow or fast contractions; disorganized, more intense colonic peristaltic contractions than normal
  2. **Increased sensitivity to stimuli** - defect of visceral pain processing; abnormalities in CNS processing of visceral pain
     - patients with IBS experience pain, bloating at ileal and rectosigmoid balloon-distention pressures and volumes that are significantly lower than in normal controls

- **IBS -** more common in man; role of differences between men and women - gastrointestinal transit time, visceral sensitivity, specific effects of estrogen and progesterone + copying with psychological emotional, interpersonal distress

Symptomatology

Irritable bowel syndrome symptoms include:

- **Abdominal pain -** diffuse or localized; dull, often cramp, lasting seconds or minutes. Sometimes only abdominal discomfort
- **Intesinal transit disorders** - alternation of constipation with diarrhea. Typically, the stool is hard, fragmented, covered with mucus. Often a false diarrhea can occur, because after the emission of hard stool, will appear the emission of a liquid stools, which is characteristic for colonic irritation. Diarrheal stools occur most often in the form of compelling stools. Diarheal stools appear more often in the morning, postprandial or at emotions;
- **Emission of mucus** is common and accompanies the stools. In the clinical picture of irritable bowel syndrome, blood does not appear in stool, hard stools can create anal fissures that will bleed;
- **Bloating** is common; diffuse or localized in certain areas of the abdomen. Gas emissions may ease in a transitory way the suffering of the patient.

Diagnosis

- The diagnosis is made by excluding organic disease of the colon
- Diagnosis of irritable bowel syndrome called ***Manning criteria***:
  - abdominal pain that fails after the the emission of stools;
  - stools become more frequent and softer in the presence of pain;
  - bloating, abdominal distension;
  - sensation of incomplete evacuation of the rectum;
  - elimination of mucus in the stool;
  - imperative criteria of bowel movement.

Paraclinical examination

- Paraclinical examination in irritable bowel syndrome are needed to exclude abdominal organic disease and consists of:
  - Anoscopy, rectoscope, colonoscopy to detect colon organic pathology;
  - Gastroscopy to exclude gastric pathology;
  - Pelvic and abdominal ultrasound to exclude gallbladder, pancreas or genital pathology;
  - Radiological evaluation of the intestine (entero-enema or barium-passage) or enteroscopy to exclude enteral pathology.
- The diagnosis of irritable bowel syndrome is put on the exclusion of organic lesions in paraclinical explorations, and the Manning criteria for irritable bowel syndrome.

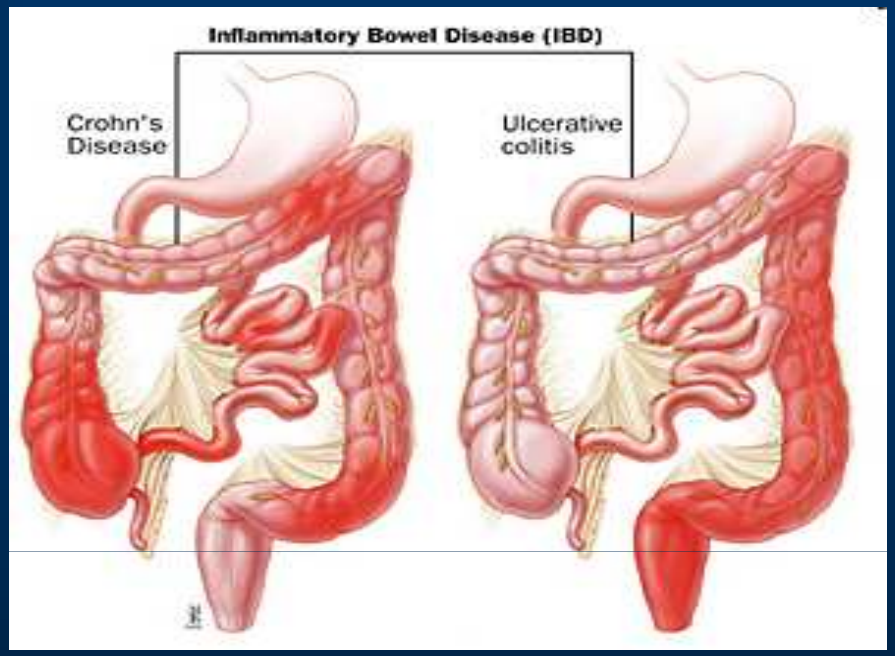
Evolution

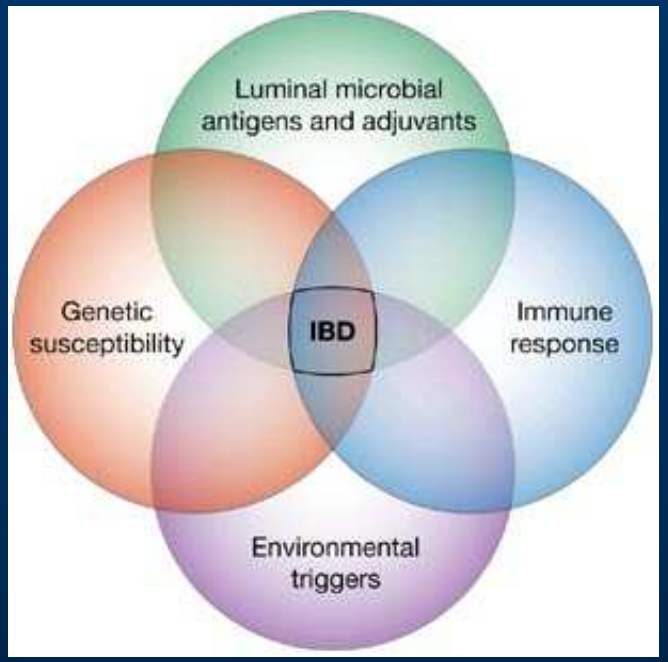
- Evolution of irritable bowel syndrome is favorable because complications will not arise. In general the disease evolves with time long quiet periods, accompanied by exacerbations, which are usually related to stress. There are some situations in which the colon diverticulosis is associated with irritable bowel syndrome.

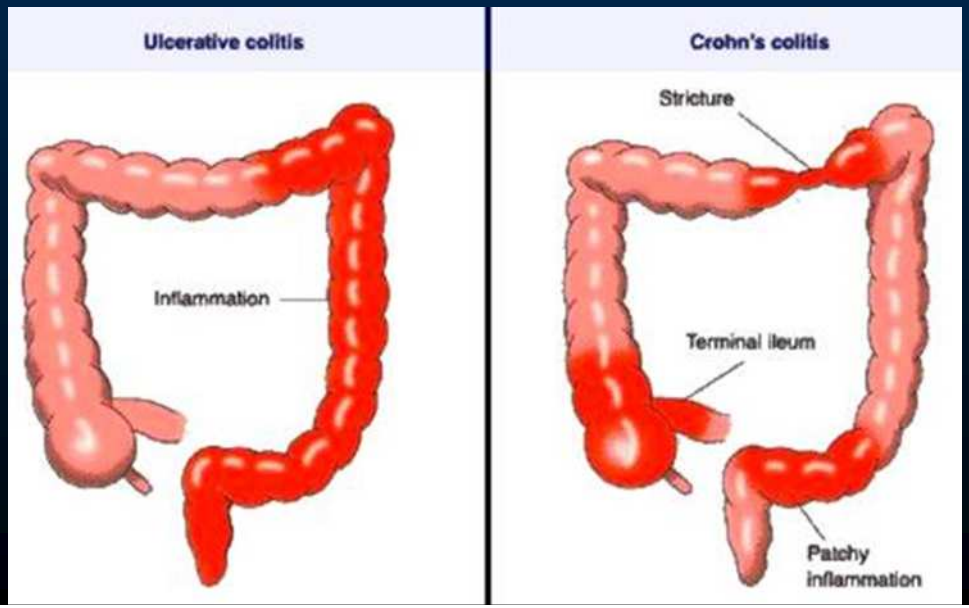
Treatment

- The treatment of irritable bowel syndrome is generally difficult and the results are often not the expected. Being a functional pathology, the mental component is important, so the role of psychological balancing is also important. **iet** should be a high-fiber, if constipation is predominant. If the diet is not sufficiently to combat constipation, than should be used laxatives that are growing the volume of the stool. It should be indicated a diet that the patient tolerates and the patient must avoid foods that cause symptoms;
  - **Antidiarrheal**, in cases of diarrhea;
  - **Antispasmodics** indicated for pain control, should be administered only if are necessary;
  - **Sedatives**. Sedative medication is as useful as psychotherapy. Often rule out the diagnosis of colon cancer (the patient imagines it), can lead to symptoms improvement;
  - In the irritable bowel syndrome, diet and drug therapy are individualized, and the role of patient trusting in his physician is very important.

2 Inflammatory bowel disease (IBD)







Ulcerative colitis

Epi: Male/ female 1: 1.6, peak incidence 30–50 years.

Etio:

- Genetic: 10% in relatives, relatives of patients (up to 40%); HLA-B27 phenotype, ? autoimmune basis,
- Smoking protects against relapse!

Pathology Colon, rectum always involved, may be 'backwash' ileitis.

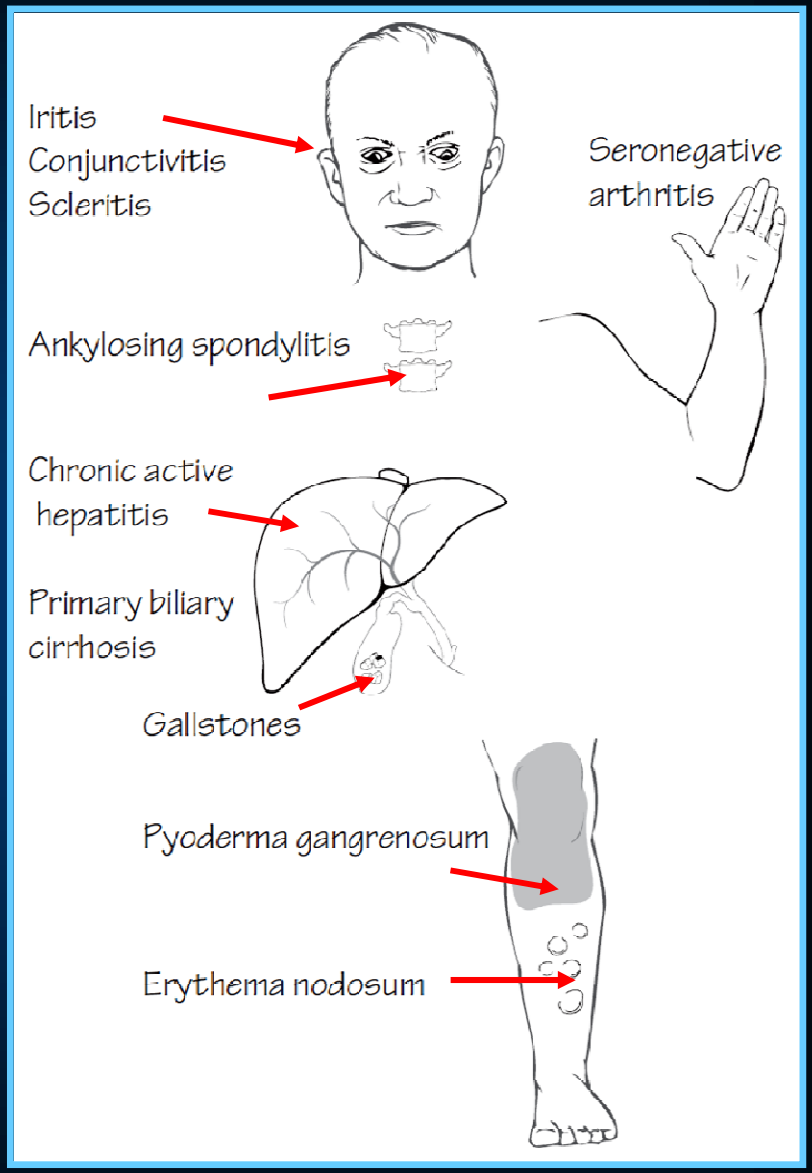
- Only the mucosa is involved: superficial ulceration, exudation and pseudopolyposis
- Crypt abscess, inflammatory polyps, highly vascular granulation tissue
- Epithelial dysplasia with longstanding disease

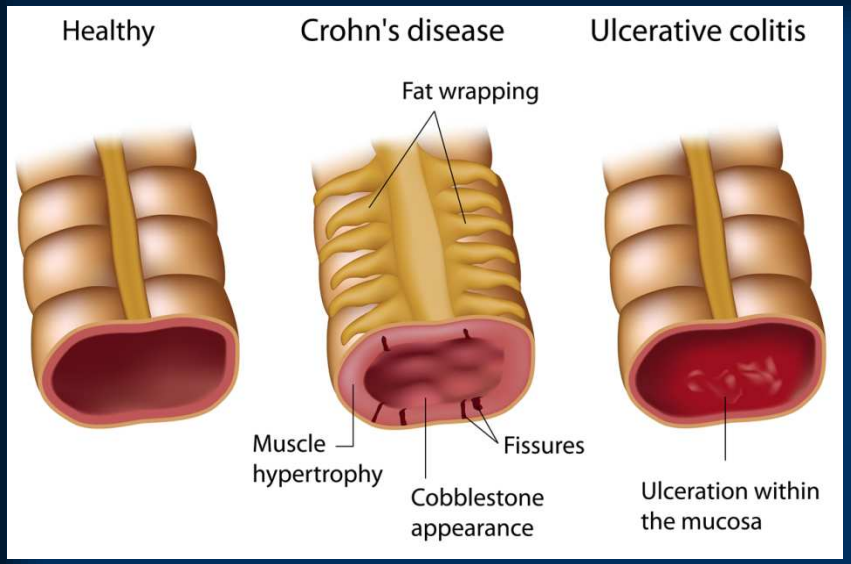
- **Clinical manifestations**
  - **Proctitis -** Mucus, pus and blood PR, Diarrhoea with urgency and frequency.
  - **Left-sided colitis** - symptoms of proctitis + abdominal pain, anorexia, weight loss, anaemia
  - **Severe/fulminant disease -** 6–20 bloody bowel motions per day
    - Fever, anaemia, dehydration, electrolyte imbalance
    - Colonic dilatation/perforation*b*'toxic megacolon'

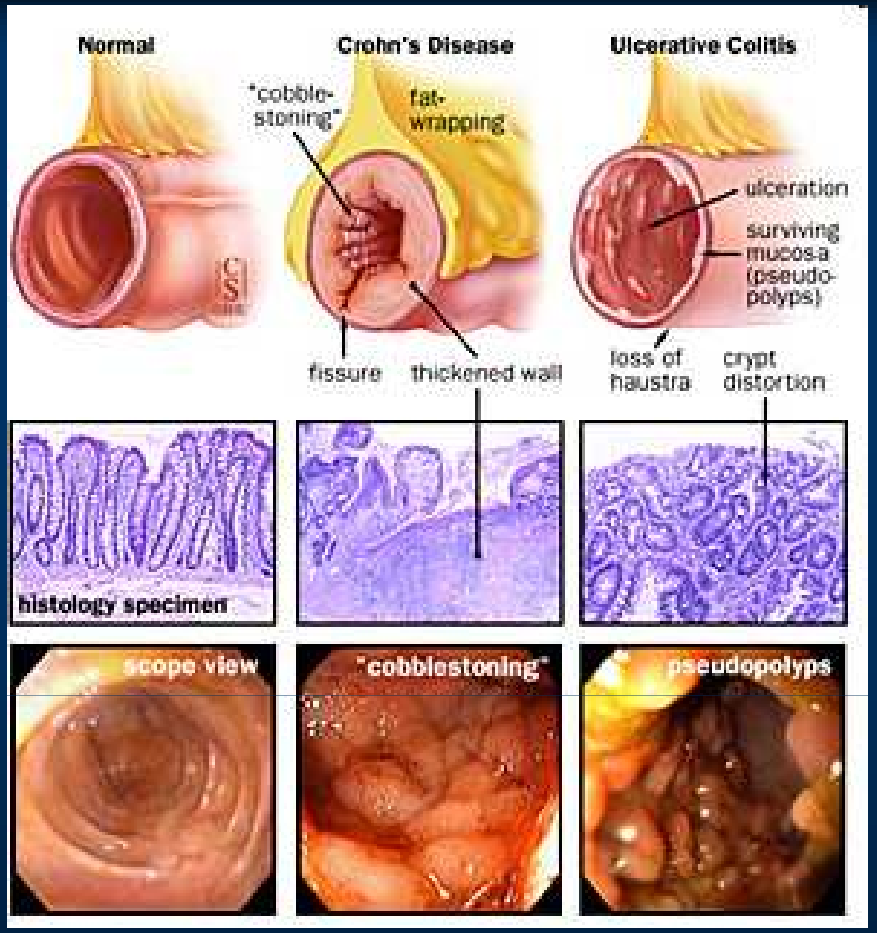
- **Extraintestinal features**
  - joints: arthritis (25%)
  - eye: uveitis (10%)
  - skin: erythema nodosum, pyoderma gangrenosum (10%)
  - liver: pericholangitis, fatty liver (3%)
  - blood: thromboembolic disease (rare)

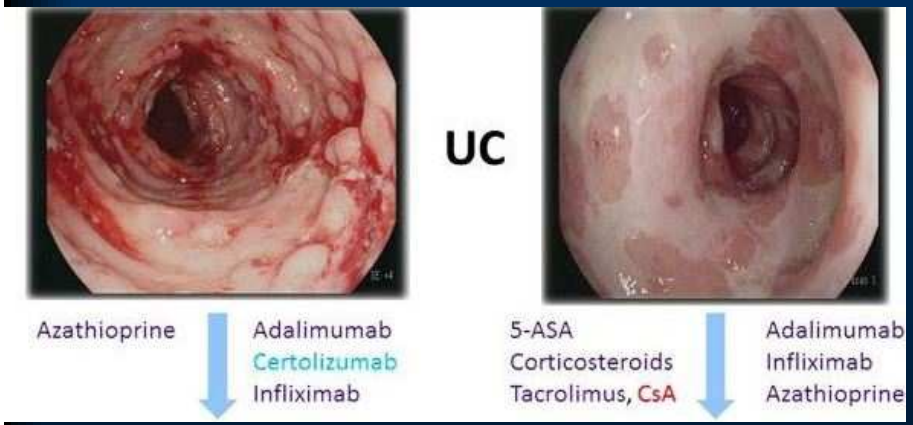
- **Investigations**
  - **FBC:** iron deficiency anaemia.
  - **Stool culture:** exclude infective colitis
  - **Plain abdominal radiograph**: colonic dilatation or air under diaphragm indicating perforation in fulminant colitis
  - **Barium enema:** loss of haustrations, shortened lead pipe colon
  - **Sigmoidoscopy:** inflammed friable mucosa, bleeds to touch
  - **Colonoscopy:** extent of disease at presentation, screening of longstanding disease for dysplasia
  - **Biopsy:** typical histological features

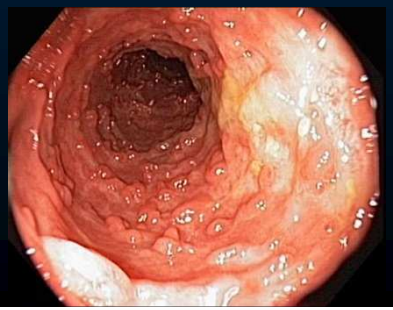
Extraintestinal findings




Healthy
Crohn's disease
Ulcerative colitis
Fat wrapping
Muscle hypertrophy
Fissures
Cobblestone appearance
Ulceration within the mucosa


Normal
Crohn's Disease
Ulcerative Colitis
"cobble-stoning"
fat-wrapping
ulceration
surviving mucosa (pseudo-polyps)
fissure
thickened wall
loss of haustra
crypt distortion
histology specimen
scope view
"cobblestoning"
pseudopolyps

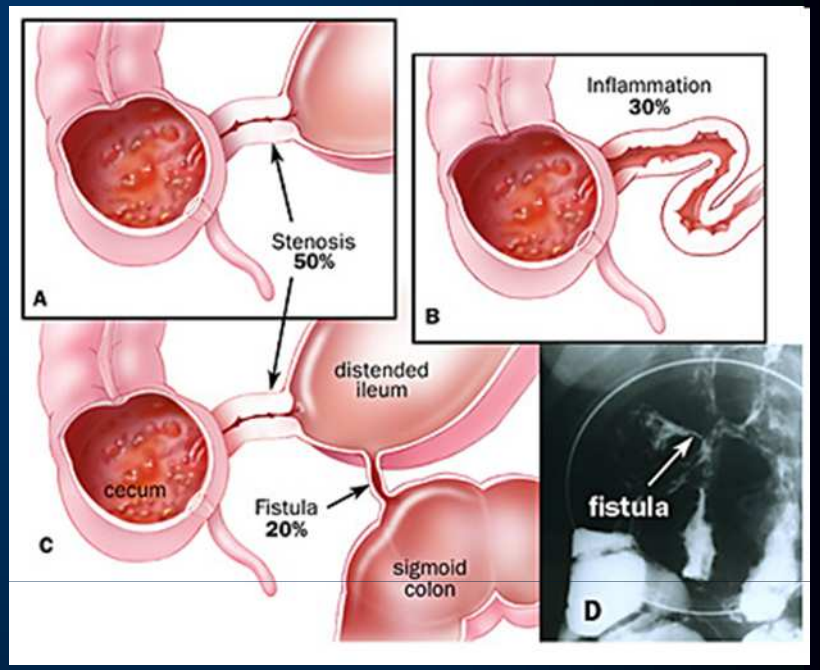

UC
Azathioprine
Adalimumab
Certolizumab
Infliximab
5-ASA
Corticosteroids
Tacrolimus, CsA
Adalimumab
Infliximab
Azathioprine

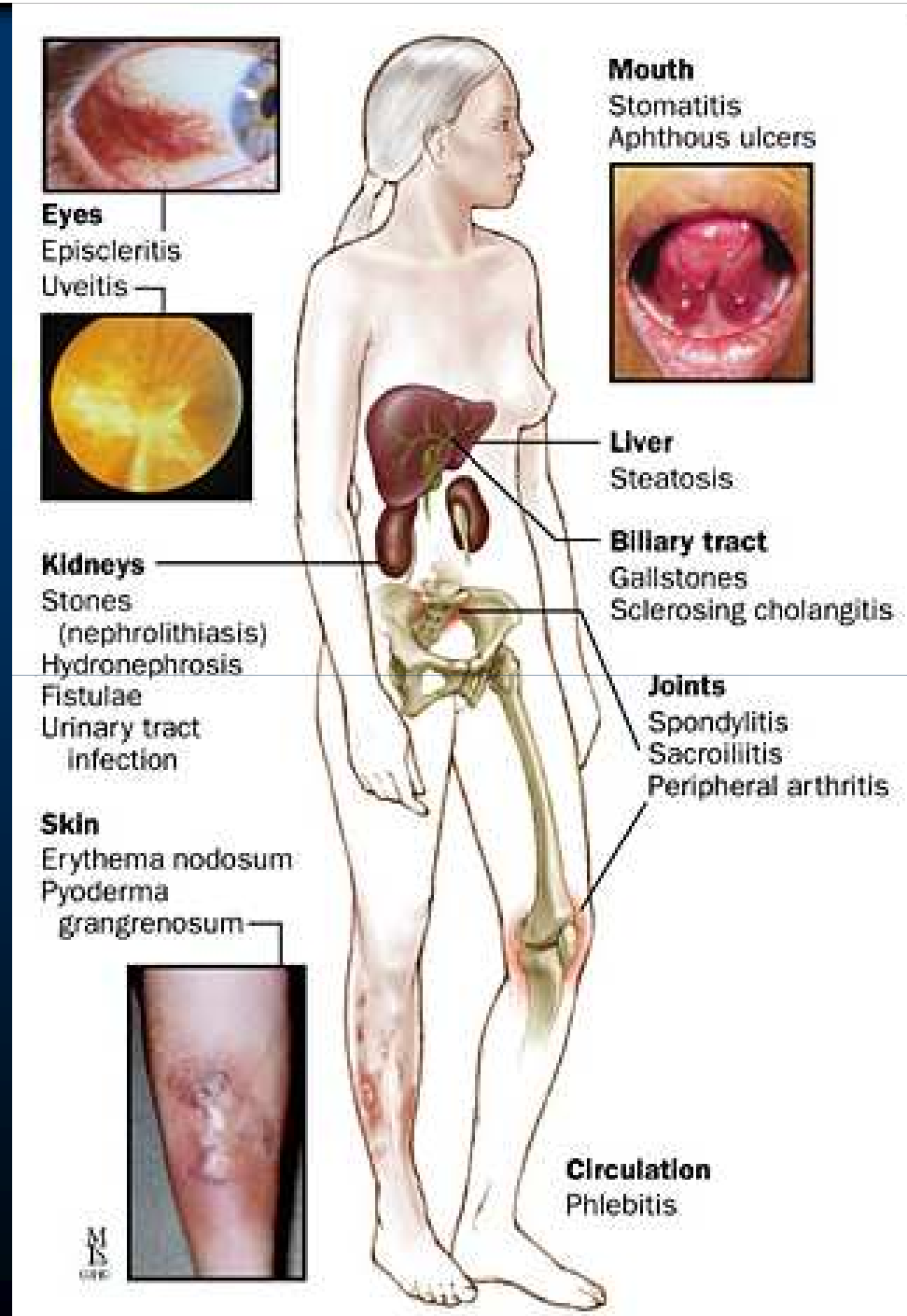


Crohn's Disease

- **Digestive symptoms:**
  - Diarrhea but without blood, which can differentiate this disease from ulcerative colitis;
  - Diffuse abdominal pain;
  - Malabsorption;
  - Perianal lesions (perianal fistulas, characteristic for Crohn's disease).
- **Extradigestive symptoms:**
  - Fever or low grade fever;
  - Asthenia;
  - Weight loss;
  - Arthritis;
  - Nodosum eritema;
  - Uveitis.
- **Diagnostics:** chronic diarrhea with low grade fever, fatigue, and perianal lesions, painful abdomen to touch, sometimes can be palpated a mass in right iliac fossa and the presence of cutaneous fistulas.

Types of Crohn's disease; A, stenosing; B, inflammatory; C, fistulizing; D, radiographic image of fistula.




Eyes
Episcleritis
Uveitis
Mouth
Stomatitis
Aphthous ulcers
Liver
Steatosis
Biliary tract
Gallstones
Sclerosing cholangitis
Kidneys
Stones
(nephrolithiasis)
Hydronephrosis
Fistulae
Urinary tract
infection
Joints
Spondylitis
Sacroiliitis
Peripheral arthritis
Skin
Erythema nodosum
Pyoderma
grangrenosum
Circulation
Phlebitis