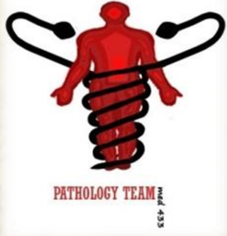

Lecture 8&9:

Inflammatory Bowel Diseases (IBD)

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Objectives

1. Know the two forms of idiopathic inflammatory bowel disease (IBD).
2. Compare and contrast Crohn's disease and ulcerative colitis with respect to:
   a. clinical features and extraintestinal manifestations
   b. pathogenesis
   c. pathology (gross and microscopic features)
   d. complications (especially adenocarcinoma preceded by dysplasia

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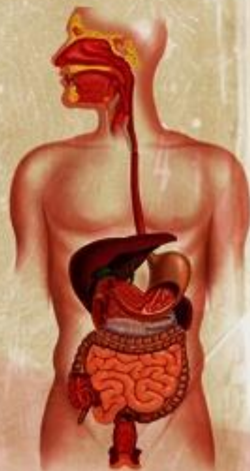
What is ulcerative colitis
What is crohn's disease



Inflammatory Bowel Diseases:

Inflammatory bowel disease (IBD): is a chronic condition resulting from inappropriate mucosal immune activation.

It has two categories :

1- Crohn's disease
2- ulcerative colitis

Epidemiology:

- more common in females and in young adults.
- it is most prevalent in North America, northern Europe, and Australia and is becoming more common in regions in which the prevalence was historically low.
- improved food storage conditions and decreased food contamination

is the suggested cause of IBD, so as a result ,exposure to normally innocuous microbes later in life triggers inappropriate immune responses due to loss of intestinal epithelial barrier function

Pathophysiology :

- Doctor said pathophysiology **NOT IMPORTANT**, because the cause is unknown, and will not ask you about it, but you should know the two diseases result from a combination of:

1. Defects in host interactions with intestinal microbes
2. Genetic base re-deposiotion
3. Intestinal epithelial dysfunction
4. Aberrant mucosal immune responses

- The clinical manifestation of IBD depend on the area involved :

Colon	Small intestine	Extraintestinal manifestations
Bloody diarrhea, Tenesmus	Abdominal pain, Intestinal obstruction. Steatorrhea	Arthritis Eye manifestation Skin manifestation

Pathology of Crohn’s disease

Crohn's disease :

is a chronic inflammatory disorder that most commonly affects the ileum (30%) and colon (20%), but has the potential to involve any part of the gastrointestinal tract from the mouth to the anus. Commonly (75%) have perianal lesions such as abscesses, fistulas, and skin tags

Clinical Features :

Can effect any age but has its highest incidence in young adults

Extremely variable clinical feature

- Acute phase: fever, diarrhea, and right lower quadrant pain may mimic acute appendicitis .
- Chronic disease: remissions and relapses over a long period of time .

Gross Appearance:

-Involvement is typically segmental, with skip areas of normal intestine between areas of involved bowel. (Affects mucosa, submucosa, muscularis and serosa that's why they called it Transmural.)

-Marked fibrosis causing luminal narrowing with intestinal obstruction.

- Fissures (deep and narrow ulcers that look like stabs with a knife that penetrate deeply into the wall of the affected intestine)

-fistulas (communications with other viscera).

-**Mucosa:** longitudinal serpiginous ulcers separated by irregular islands of edematous mucosa. This results in the typical cobblestone *effect.

-**FAT** : In involved **ileal** segments, the mesenteric fat creeps from the mesentery to surround the bowel wall (creeping fat)

* are stones that were frequently used in the pavement of early streets

Microscopic Features :

- Distortion of mucosal crypt architecture with mucosal inflammation
- Transmural * inflammation
- Epithelioid granulomas ** (only in Crohn's) [60%]
- Fissure-ulcers and fistulas can be seen microscopically

Clinical findings:

- Recurrent right lower quadrant colicky pain (obstruction) with diarrhea and weight loss
- Bleeding occurs only with colon or anal involvement (fistulas; abscesses)
- Aphthous*** (ulcers in mouth)
- Extragastrointestinal:-

1. erythema nodosum ****
2. Sacroiliitis***** (HLA-B27 association)
3. Iritis more in Crohn's disease
4. pyoderma gangrenosum******

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* extending through or affecting the entire thickness of the wall of an organ or cavity
**collection of activated macrophages
*** small ulcers, especially the whitish or reddish spots in the mouth
**** skin disorder characterized by painful red nodules appearing mostly on the shins
***** an inflammation of the sacroiliac joint
******A chronic skin disease, usually of the trunk, characterized by large spreading ulcers

Complications of Crohn's disease :

1. Intestinal obstruction

2. Fistula formation

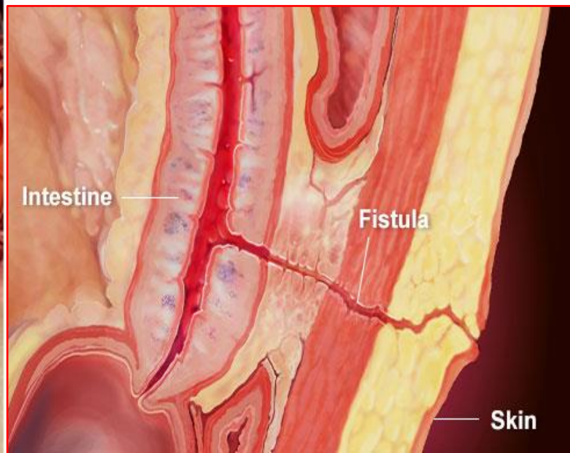
a) **between the ileum and the colon** result in malabsorption

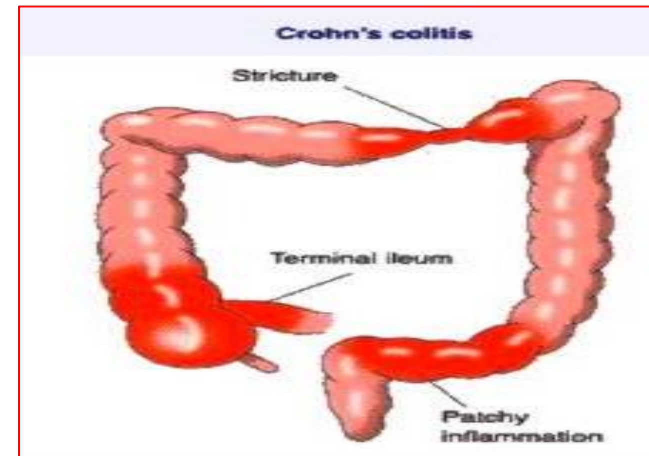
b) **Enterovesical** fistulas lead to urinary infections and passage of gas and feces with urine.

c) **Enterovaginal** fistulas produce a fecal vaginal discharge.

3. Extraintestinal manifestations (arthritis and uveitis)

4. Slight increased risk of development of carcinoma of the colon—much less than in ulcerative colitis.





Ulcerative Colitis:

- General notes:
- It is a chronic relapsing ulceroinflammatory disease of undetermined etiology.
- Can occur at any age but mainly 20-30 yrs
- Most common type of IBD
- The ulcerations are continuous.

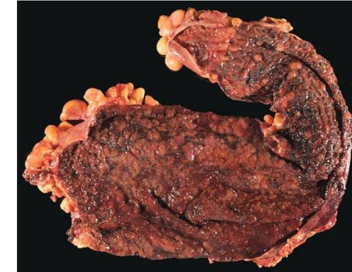
- Etiology:
- Unknown
- Antibodies react with intestinal epithelial cells
- Certain E. Coli strains have been demonstrated in the serum of some patients

- Clinical Picture:
- The disease in chronic in nature but during relapses and acute phases the patient will present with:

1. Fever
2. Leukocytosis
3. Lower abdominal pain
4. Bloody diarrhea
5. Mucus in stool

- Sites of involvement:

- In colon , starts at the rectum and moves proximally, sparing no epithelium (no skip areas).
- Ileum is not involved (some cases have been reported lately, but they are very rare)

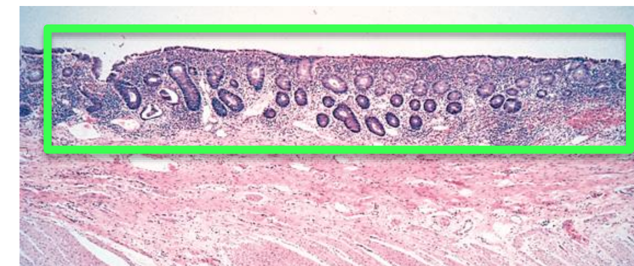


- Gross appearance:

- Involves the mucosa
- Diffuse hyperemia (redness)
- multiple superficial ulcerations (acute active phase)
- Inflammatory Pseudopolyps (not due to epithelial cell multiplication but due the the depression and atrophy by ulcerations around the polypoid structure).

- Microscopic appearance:

- Inflammation is restricted to the mucosa
- Active phase: cryptitis – neutrophils – crypt abscesses
- Chronic phase: crypt atrophy – distortion
- The active inflammation correlates with the severity of symptoms
- We may see dysplasia which could lead to malignancy in some cases (more than in crohn's disease)

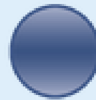


- Clinical picture:
- Recurrent left-sided abdominal cramps
- Bloody diarrhea and mucus
- Fever, tenesmus, and weight loss
- Toxic megacolon
- Extra-gastrointestinal: primary sclerosing choleangitis (UC > CD), erythema nodosum, iritis/uveitis (UC < CD), pyoderma gangrenosum, HLA-B27 positive arthritis
- P-ANCA (+) in > 45% (anti-neutrophil cytoplasmic antibodies)

> - **Sclerosing choleangitis:** fibrosis around the bile duct leading to obstructive jaundice
> - **Toxic megacolon:** dilation of colon with functional obstruction

- Complications:
- **Acute phase:** severe bleeding – toxic megacolon – electrolyte loss
- **Chronic phase:** increased risk for colonic carcinoma (the presence of high grade dysplasia in the mucosal biopsy imposes a high risk of cancer so it indicates colectomy)

Summary from Robbins



SUMMARY

Inflammatory Bowel Disease

- Inflammatory bowel disease (IBD) is an umbrella term for Crohn disease and ulcerative colitis.
- Crohn disease most commonly affects the terminal ileum and cecum, but any site within the gastrointestinal tract can be involved; skip lesions and noncaseating granulomas are common.
- Ulcerative colitis is limited to the colon, is continuous from the rectum, and ranges in extent from only rectal disease to pancolitis; neither skip lesions nor granulomas are present.
- Both Crohn disease and ulcerative colitis can have extraintestinal manifestations.
- The risk of colonic epithelial dysplasia and adenocarcinoma is increased in patients who have had IBD for more than 8 to 10 years.