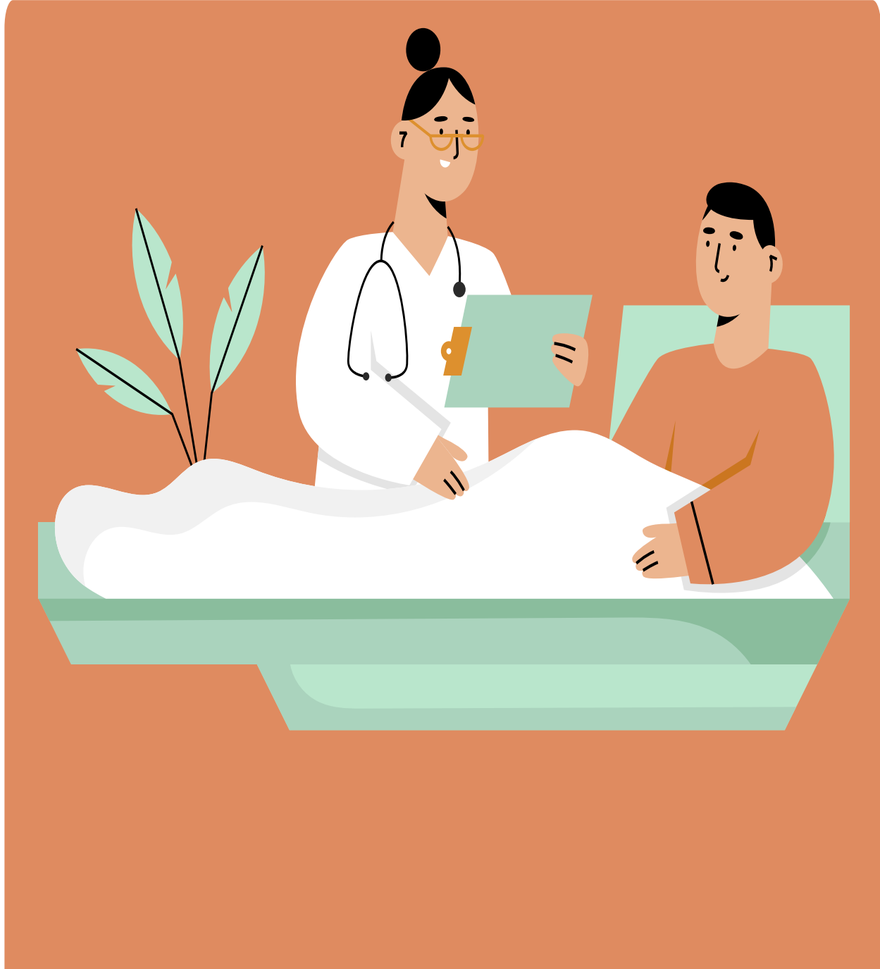
MED437
KING SAUD UNIVERSITY

SURGERY TEAM 437



# Inflammatory Bowel Disease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Same as 436's lecture


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- Important
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Editing File / Feedback

# Overview

## What is IBD?

Inflammatory bowel disease (IBD) is a term generally used to denote two diseases of unknown etiology with similar general characteristics:

1. Ulcerative colitis

2. Crohn's disease

## How do we differentiate between them?

**The distinction between the two entities can usually be established based on clinical and pathologic criteria, including:**

- History & Examination
- Radiologic and Endoscopic studies
- Gross appearance
- Histology

About 10% to 15% of patients with inflammatory disease confined to the colon, **a clear distinction cannot be made**, and the disease is labeled **indeterminate colitis.**

The **medical** and **surgical management** of ulcerative colitis and Crohn's disease often **differ** significantly.

# Crohn's Disease

## History of Crohn's Disease (CD):

- In retrospect, case descriptions of what appeared to be Crohn's disease date back to at least **1612**, when Fabry reported on the death of a boy experiencing severe abdominal pain.
  - Autopsy revealed a contracted ulcerated cecum and ileum with complete bowel obstruction.
- In **1761**, Morgagni described a case of an inflamed ileum with perforation and thickened mesentery in a young man with a history of diarrhea and fever.
- In **1913**, the Scottish surgeon Dalziel described nine cases of intestinal inflammatory disease.
- The landmark paper by Crohn, Ginzburg, and Oppenheimer in **1932** that provided, in eloquent detail, the pathologic and clinical findings of this inflammatory disease in young adults.

## General information:

- A chronic, **transmural** inflammatory disease of the gastrointestinal tract of unknown cause.
- Crohn's disease can involve any part of the alimentary tract **from the mouth to the anus** but most commonly affects the **small intestine, colon, rectum & anus.**
- Both medical and surgical treatments are **palliative not curative.**

## Epidemiology:

- Crohn's disease primarily attacks young adults in the **second and third decades of life.** (teens & twenties)
  - However, a bimodal distribution is apparent with a second, smaller peak occurring in the sixth decade of life.
- The **risk** for developing Crohn's disease is about two times **higher in smokers** than in nonsmokers.

# Crohn's Disease

## Etiology:

- **Unknown**
- Potential causes have been proposed:
  - Infectious
  - Immunologic (associated with autoimmune disorders e.g. DM & vitiligo)
  - Genetic
    - **The single strongest risk factor for developing disease is having a relative with Crohn's disease.**
- Other possibilities that have met with various levels of enthusiasm include **environmental** and **dietary factors**, **smoking**, and psychosocial factors.
- Smoking is known to exacerbate existing Crohn's disease and can accelerate its recurrence after resection.
- The component of cigarette smoke that is responsible for these deleterious effects on the clinical course of Crohn's disease is not known

## Pathology:

- The most common sites of occurrence of Crohn's disease are the small intestine & colon.
- The involvement of both large and small intestine has been noted in about 55% of patients.
- 30 % of patients present with small bowel disease alone.
- 15%, the disease appears limited to the large intestine.
- The disease process is **discontinuous and segmental.** (skip lesions)
- In patients with colonic disease, **rectal sparing** is characteristic of Crohn's disease and helps to distinguish it from ulcerative colitis.
- Perirectal and perianal involvement occurs in about 1/3 of patients with Crohn's disease, particularly those with colonic involvement.
- Crohn's disease can also involve the mouth, esophagus, stomach, duodenum, and appendix.
- Involvement of these sites can accompany disease in the small or large intestine, but in only rare cases have these locations been the only apparent sites of involvement.

# Crohn's Disease

## Microscopy:

- **Mucosal and submucosal edema** may be noted microscopically before any gross changes.
- A chronic inflammatory infiltrate appears in the mucosa and submucosa and extends **transmurally**.
- This inflammatory reaction is characterized by extensive edema, hyperemia, lymphangiectasia, an intense infiltration of mononuclear cells, and lymphoid hyperplasia.
- Well-formed lymphoid aggregates in an edematous fibrotic submucosa is a classic histological feature of the disease.
- Characteristic histologic lesions of Crohn's disease are noncaseating granulomas with **Langerhans' giant cells**.
- **Granulomas appear later** in the course and are found in the wall of the bowel or in regional **lymph nodes** in **60% to 70% of patients**

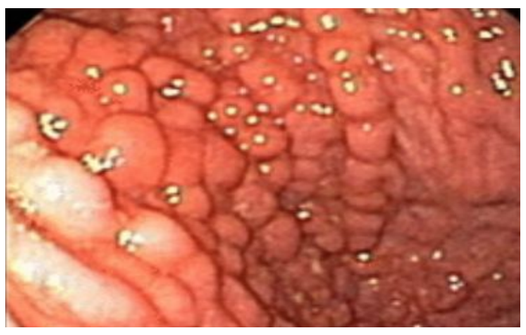
## Gross Pathological Features:

- **At Exploration:**
  - Thickened grayish-pink or dull purple-red loops of bowel
  - **Thick gray-white exudate** or fibrosis of the serosa.
  - **Skip areas** areas of diseased bowel separated by areas of grossly appearing normal bowel.
  - **Extensive fat wrapping (imp.MCQ)** the fat get bigger until it cover the whole bowel wall caused by the circumferential growth of the mesenteric fat around the bowel wall.
- With early acute intestinal **inflammation**, the bowel wall is hyperemic and boggy متنفخ .
- As the inflammation becomes chronic, **fibrotic scarring** develops and the bowel wall becomes thickened and leathery in texture.
- Involved segments often are adherent to adjacent intestinal loops or other viscera, with internal **fistulas** common in these areas.
- The **mesentery** of the involved segment is usually **thickened**, with enlarged lymph nodes.

# Crohn's Disease

## Gross Pathological Features Cont. :

- **On opening the specimen:** (colonoscopy)
  - **The earliest gross manifestations** of Crohn's disease are the development of small mucosal ulcerations called **aphthous ulcers**.
  - Aphthous ulcers appear as  or focal mucosal depressions.
  - As the inflammation progresses, the aphthous ulcers enlarge and become stellate.
- The **ulcers** are characteristically **linear** and may coalesce to produce transverse sinuses with islands of normal appearing mucosa in between, thus giving the characteristic **cobblestone appearance**.



- Mucosal ulcerations may penetrate through the submucosa to form intramural channels that can bore deeply into the bowel wall and create sinuses, abscesses, or fistulas.

## Clinical Manifestations:

- **The onset of disease is often insidious, with a slow and protracted course.**
  - Characteristically, there are symptomatic periods of **abdominal pain and diarrhea** interspersed with asymptomatic periods of varying lengths.
  - With time, the symptomatic periods gradually become **more frequent,** more severe, and **longer lasting.**
    - The pain used to come every year now it's every 2 months and it used to last for half an hour now it lasts for a one hour
- **The most common symptom** is intermittent and **colicky abdominal pain**.
  - Most commonly in the lower abdomen
  - The pain may be more severe and localized and may mimic the signs and symptoms of **acute appendicitis**.
- **Diarrhea** without blood **is the next most frequent symptom** and is present, at least intermittently, in about 85% of patients.
  - In contrast to ulcerative colitis, patients with Crohn's disease typically have fewer bowel movements, and the stools rarely contain mucus, pus, or blood

# Crohn's Disease

## Clinical Manifestations Cont. :

- **Systemic nonspecific symptoms:**
  - Low-grade fever (present in about 1/3)
  - Weight loss
  - Loss of strength
  - Malaise
- Perianal disease (fissure, fistula, stricture, or abscess) is common
  - We have to do a colonoscopy to every patient that comes with perianal fistula and diarrhea. Also, for those with recurrent perianal fistula to rule out CD
- Perianal disease may be the **sole presenting feature** in **5%** of patients and may precede the onset of intestinal disease by months or even years.
- **Crohn's disease should be suspected in any patient with multiple, chronic perianal fistulas.**

## Extraintestinal Manifestations:

- **Present in 30% of patients:**
  - The most common symptoms are skin lesions, which include erythema nodosum and pyoderma gangrenosum,
  - Arthritis and arthralgias
  - Uveitis and iritis
  - Hepatitis and Pericholangitis
  - Aphthous stomatitis
- Amyloidosis
- Pancreatitis
- Nephrotic syndrome
- These symptoms may precede, accompany, or appear independent of the underlying bowel disease.

## Complications:

- Obstruction
- Perforation.
- Fistulas occur between the sites of perforation and adjacent organs, such as loops of small and large intestine, the urinary bladder, the vagina, the stomach, and sometimes the skin
- Localized abscesses.
- Bleeding
- Toxic megacolon in patients with Crohn's colitis.
- Cancer

# Crohn's Disease

## Indications for operation:

- Limited to complications: to treat the complications not the disease! (Palliative)
  - Intestinal obstruction
  - Intestinal perforation with fistula formation or abscess
  - Free perforation
  - GI bleeding
  - Urologic complications
  - Cancer
  - Perianal disease
  - Failure to thrive

## Differential Diagnosis:

- Acute appendicitis
- Mesenteric Lymphadenitis
- Intestinal TB
- Acute distal ileitis may be a manifestation of early Crohn's disease, but it also may be unrelated, such as when it is caused by a bacteriologic agent (e.g., Campylobacter or Yersinia).
- Ovarian pathology
- Salmonella and Shigella
- UC (Ulcerative Colitis)
- protozoan infections, such as amebiasis, may present as an ileitis.
- In the immunocompromised host, rare infections, particularly mycobacterial & CMV.

# Ulcerative Colitis (UC)

## Definition

- A chronic disease that affects the mucosa and submucosa, with sparing of the muscularis of the rectum and colon.
- **Surgery is curative.**
- Diagnostic characteristic of ulcerative colitis is **continuous, uninterrupted** inflammation of the colonic mucosa **beginning in the distal rectum** and extending proximally to a variable distance. (This is in contrast to Crohn's disease, in which normal segments of colon **(skipped areas)** may be interspersed between distinct segments of colonic inflammation).
- The entire colon, including the cecum and appendix, may be involved in ulcerative colitis. (In contrast to Crohn's disease, ulcerative colitis does not involve the terminal ileum except in cases of **backwash ileitis**, when the ileal mucosa may appear inflamed in the presence of extensive proximal colonic involvement).
    - Backwash ileitis is a severe right colon disease causing a severe inflammation of the terminal ileum

## History

- Hippocrates described diarrheal diseases that were colitis-like well before 360 BC.
- Late 1800s that ulcerative colitis was distinguished clinically from common infectious enteritis.
- 1875, Wilks and Walter Moxon, described ulceration and inflammation of the entire colon in a young woman who had succumbed to severe bloody diarrhea, and it is more likely the first detailed account of ulcerative colitis.

## Epidemiology

- Same epidemiology of crohn's disease
- There appears to be a seasonal variation in the activity of the disease, with onset as well as relapse occurring statistically more often between August and January.
- Commonly affects patients younger than 30 years.
- A small secondary peak in the incidence occurs in the sixth decade.

## Etiology

Unknown

| Environmental | Infectious | Genetic |
|---|---|---|

A family history of IBD is a significant risk factor.

- **Smoking** appears to confer a **protective** effect against the development of ulcerative colitis, as well as providing a therapeutic influence; nicotine has been reported to induce remission in some cases. (This is in contrast to Crohn's disease, which is more common in smokers and appears to be aggravated by the habit).

- Patients who have had an appendectomy appear to be at increased risk for developing ulcerative colitis

# Ulcerative Colitis

## Pathology

- Despite the disease's name, ulceration of the mucosa is not invariably present. (In severe cases it will appear)

- **Rectum** is invariably involved with the inflammatory process. (start from the rectum)

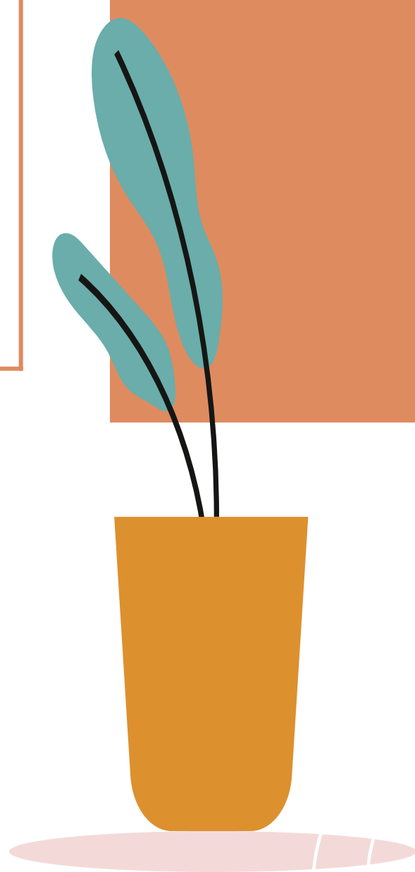
- Left sided colitis: anything distal to splenic flexure (left colon, sigmoid, & rectum)

- Pancolitis: anything proximal to the splenic flexure

- In fact, rectal involvement (proctitis) is the **sine qua non** of the disease, and the diagnosis should be seriously questioned if the rectal mucosa is not affected.

- The mucosal inflammation extends in a **continuous** fashion for a variable distance into the more proximal colon. But never exceed the colon!

| Gross Appearance | Microscopy |
|---|---|
| The typical gross appearance of ulcerative colitis is **hyperemic mucosa.** | The typical microscopic finding in ulcerative colitis is **inflammation of the mucosa and submucosa.** |
| **Friable** and **granular mucosa** is common in more severe cases. ulceration may not be readily evident, especially early in the course of the disease. | |
| Ulceration may appear and vary widely, from small superficial erosions to patchy ulceration of the full thickness of the mucosa. | **The most characteristic lesion is the crypt abscess**:<br>- Collections of neutrophils fill and expand the lumina of individual crypts of Lieberkühn.<br>- Not specific for ulcerative colitis and can be seen in Crohn's disease and infectious colitis. |
| **Pseudopolyps**, **or inflammatory polyps**, represent regeneration of inflamed mucosa and are composed of a variable mixture of non-neoplastic colonic mucosa and inflamed lamina propria. | |



# Ulcerative Colitis

## Clinical manifestations

- Ulcerative colitis and colonic Crohn's disease often have similar clinical presentations.

- Both may present with **diarrhea** and the passage of **mucus and blood.**

- Patients with ulcerative colitis tend to have more **urgency** (it's known as tenesmus which is fecal urgency; يصير عايش حياته بالحمام) than those with Crohn's disease, likely because ulcerative colitis is invariable associated with distal proctitis.

- **Rectal bleeding** is also common in ulcerative colitis.

- Patients with the acute onset of ulcerative colitis often complain of abdominal discomfort, but the pain is seldom as severe as that found in patients with Crohn's disease.

## Extraintestinal Manifestations (Common in UC)

- Arthritis, particularly of the knees, ankles, hips, and shoulders, occurs in about 20% of patients, typically in association with increased activity of the intestinal disease.
- Ankylosing spondylitis, occurs in 3% to 5%. (Not curative)
- Erythema.
- Nodosum.
- Pyoderma gangrenosum.
- Primary sclerosing cholangitis, occurs in 5% to 8% of patients with ulcerative colitis. (not curative)

Colectomy has no effect on the course of ankylosing spondylitis and primary sclerosing cholangitis. While other manifestations will be cured once we do colectomy

## Indications for surgery

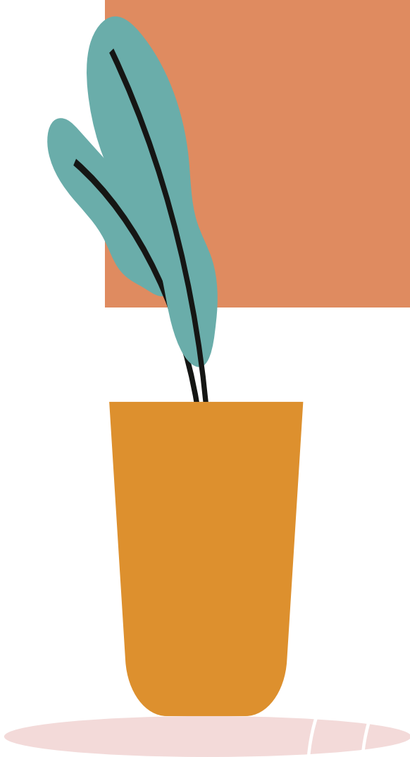
**Fulminant colitis** with toxic megacolon

Massive bleeding

Intractable disease

Dysplasia or carcinoma.

Malnutrition and growth retardation may necessitate resection in pediatric and adolescent patients.



| | CD | UC |
|---|---|---|
| **Symptoms and Signs** | | |
| Diarrhea | Common | Common |
| Rectal bleeding | Less common | Almost always |
| Abdominal pain (cramps) | Moderate to severe | Mild to moderate |
| Palpable mass | At times | No (unless large cancer) |
| Anal complaints | Frequent (>50%) | Infrequent (<20%) |
| **Proctoscopic Findings** | | |
| Anal fissure, fistula, abscess | common | Rare |
| Rectal sparing | Common (50%) | Rare (5%) |
| Ulceration | Linear, deep, scattered | Superficial, universal |
| Distribution | Skip areas | Rectum extending proximally |

# Extremely Important!!

The doctor said he wrote these question in exam!!!

Q1) Right iliac fossa pain in young boy 19 years old. You suspect acute appendicitis. You take him to OR, during laparoscopic exploration you found the fat wrapping the bowel wall. your diagnosis is?

Answer is crohn's disease

Q2) the earliest manifestation of Ulcerative Colitis is?

Answer: Mucosal hyperemia

Q3) Ulcerative colitis patient came with extraintestinal manifestations. They cured him except with witch of the following disease ?

Answer: PCS or Ankylosing spondylitis

Q4) 30 years old female with Ulcerative Colitis she came to the hospital with severe abdominal pain and PR bleeding (bloody diarrhea). on examination she's having tender abdomen, no distension. Which of the following is the most likely diagnose?

1)bowel ischemia
2)toxic megacolon
3)perforated meniscus
4)fulminant colitis

The answer is fulminant colitis

Justification:

1) wrong , they will have no tenderness
2) Toxic megacolon > wrong, they have distension
3) Perforated meniscus > wrong, air under diaphragm

So the only left is fulminant colitis

# Summary

| | Crohn's disease | Ulcerative colitis |
|---|---|---|
| **Involvement** | ●mouth to anus<br>●commonly small intestine and colon<br>●discontinuous and segmental<br>●rectal sparing | ●rectum and entire colon, including the cecum and appendix, may be involved<br>●rectum is invariably involved<br>●continuous |
| **Microscopic appearance** | ●extends transmurally<br>●non-caseating granulomas | ●affect the mucosa and submucosa<br>●crypt abscess |
| **Gross appearance** | ●skip areas<br>●fat wrapping<br>●aphthous ulcers<br>●cobblestone appearance | ●hyperemic mucosa |
| **Symptoms** | ●intermittently :<br>-colicky abdominal pain<br>-diarrhea<br>●stools rarely contain mucus, pus, or Blood.<br>●perianal disease[1] ( fissure, fistula, stricture ) is **common**.<br>●complications :<br>-obstruction<br>-perforation<br>-fistulas<br>- Localised abscesses<br>-toxic megacolon<br>-cancer | ●Bloody diarrhea<br>●passage of mucus<br>●urgency ( due to distal proctitis )<br>●abdominal discomfort |
| **Surgical indications** | (surgery is palliative)<br>●Limited to complications :<br>-intestinal obstruction<br>-intestinal perforation with fistula or abscess<br>-GI bleeding<br>-urological complications<br>-cancer<br>-free perforation<br>-perianal disease | (surgery is curative)<br>●fulminant colitis with toxic megacolon<br>●Massive bleeding<br>●Intractable disease<br>●Dysplasia<br>●malnutrition and growth retardation<br>●May necessitate resection in pediatric And adolescent patients<br>●note :<br>- Ankylosing spondylitis and sclerosing cholangitis are considered as extraintestinal manifestations of UC, And colectomy has no effect on the course of these 2 conditions. |

1-Might be the only symptom of Crohn's

# Questions

Q1 19 y.o patient came to the ER with abdominal pain suspected appendicitis, he has been taken to OR during laparoscopic  exploration we found fat wrapping bowel wall what is your diagnosis?

A- Crohn's disease
B- Ulcerative colitis
C- Intestinal TB
D- Acute appendicitis

Q2 The earliest manifestation of ulcerative colitis is?

A- Hyperemic mucosa
B- Skip areas
C- aphthous ulcers
D- Fat wrapping

Q3 which of the following diseases does not cure after surgery for US?

A- Ultheritits
B- Ankylosing spondylitis, primary sclerosing cholangitis.
C- Erythema nodosum
D- Chron

Q4 A 30 female with ulcerative colitis presented with abdominal pain and bloody diarrhea and PR bleeding on examination she has a tinder abdomen with no distention what is the most likely diagnosis?

A- Bowel ischemia
B- Toxic megacolon
C- Fulminant colitis
D- Perforated viscus

Q5 Which of the following is a feature of ulcerative colitis?

A- skin lesions
B- crypt abscess
C- transmural inflammation
D- granuloma

1- A
2- A
3- B
4- C
5- B