



Internal Medicine

Subject: IBD

Group no: C8

Done by: Anas Zakarneh

هَذَا خُلِقَ اللَّهُ فَأَرْوَحِي مَاذَا خَلَقَ الَّذِينَ مِنْ دُونِهِ ۚ بَلِ الظَّالِمُونَ فِي ضَلَالٍ مُبِينٍ

Inflammatory Bowel Disease (IBD) → Auto immune diseases.

IBD is a group of chronic inflammatory disorders of the gastrointestinal tract, primarily including:

- Ulcerative colitis (UC)
- Crohn's disease (CD)
- Undetermined colitis (cases that cannot be classified as either UC or CD)

Epidemiology

Disease	Incidence (cases/100,000 person-years)	Prevalence (cases/100,000)
Ulcerative colitis (UC)	2-14	238
Crohn's disease (CD)	3-20	201

- Age of onset: **Bimodal distribution**: **عندي 2 peaks**
- Primary peak: **15-30 years**
- Secondary peak: **50-80 years** (less common)
- Sex differences:
 - Slight **female** predominance in **Crohn's disease**, suggesting hormonal influence.
 - Slight **male** predominance in **ulcerative colitis**.
- Ethnicity: Higher incidence in **Jewish** populations compared to non-Jewish populations.
- **Physical activity**: Associated with a **reduced risk of Crohn's disease**, but not ulcerative colitis.

Clinical Risk Factors

Lifestyle Factors

Factor	Effect on Crohn's Disease	Effect on Ulcerative Colitis
Smoking VIP	- Increases risk of developing CD. - Increases complications (e.g., strictures, fistulas, need for surgery).	- May lower the risk of developing UC. - Smoking cessation is associated with increased disease activity and hospitalization .

Ulcerative Colitis (UC)

Definition & Pathophysiology

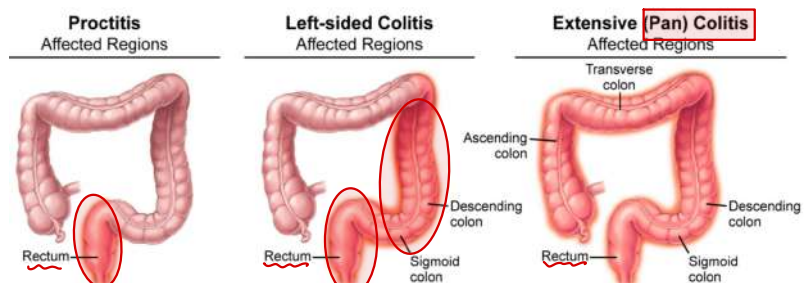
- **Chronic** relapsing and remitting inflammatory condition limited to the mucosal layer of the colon.
- Almost **always** involves the **rectum**, with continuous proximal spread.

Clinical Features

Feature	Description
Symptoms	Diarrhea (± bloody) , urgency , tenesmus (painful rectal spasm), abdominal pain , fever.
Onset	Gradual , progressing over weeks .
Severity	- Mild : ≤4 stools/day, ± blood. - Severe : ≥10 stools/day, severe cramps, continuous bleeding.

Systemic symptoms

Fever, fatigue, weight loss, dyspnea, palpitations due to **anemia** (iron deficiency, anemia of chronic disease, autoimmune hemolytic anemia).



* the rectum is always involved.

Clinical parameters	Disease severity			
	Mild	Moderate	Severe	Fulminant
Stool variables				
Number per day	<4	≥4	>6	>10
Stool appearance	±blood	±blood	+blood	Continuous rectal bleeding
Clinical features				
Temperature (°C)	Normal	Normal or >37.5	>37.5	>37.5
Heart rate	Normal	Normal or tachycardic	Tachycardic	Tachycardic
Clinical signs	No signs of toxicity	Minimal signs of toxicity	Increasing signs of toxicity; abdominal pain	Toxic-appearing; abdominal pain/distension
Objective data				
Erythrocyte sedimentation rate (mm/hour)	≤30 (normal)	Normal or elevated	>30 (elevated)	>30 (elevated)
Hemoglobin	Normal	Normal or low	Anemia (<75% of normal value)	Anemia requiring transfusion
Radiographic imaging			Colonic air and bowel wall edema with thumbprinting	Colonic dilation

* A classification to classify the patient to choose the best management.

Acute Complications

Complication	Features
Severe bleeding	Can lead to <u>anemia</u> and <u>hemodynamic instability</u> .
Fulminant colitis	≥10 stools/day, continuous bleeding, abdominal pain, fever, anorexia.
Toxic megacolon Involve muscle layer of colon	Colonic dilation ≥6 cm (cecal dilation >9 cm) with systemic toxicity .
Perforation	High risk in toxic megacolon.

Extraintestinal Manifestations (EIMs) → 35% of the patients (one third high %)

System	Manifestation
Musculoskeletal	Peripheral arthritis (large joints, non-destructive), ankylosing spondylitis, osteoporosis. + arthralgia + osteopenia.
Hematologic	Increased risk of thromboembolism, autoimmune hemolytic anemia.
Ocular	Uveitis, episcleritis, scleritis, iritis, conjunctivitis.
Pulmonary	Rare (airway inflammation, lung disease, serositis, thromboembolic disease).
Dermatologic	Erythema nodosum, pyoderma gangrenosum.
Hepatobiliary	Primary sclerosing cholangitis, fatty liver, autoimmune liver disease.

Another disease come with it — **primary biliary cholangitis**
Chronic autoimmune destruction of the intrahepatic small bile ducts → leading to cholestasis and eventually cirrhosis.

Epidemiology:

- Most common in middle-aged women (40–60 yrs).
- Strong association with other autoimmune diseases.

Positive AMA (Anti-Mitochondrial Antibody) in >90%

Key Features (Symptoms):

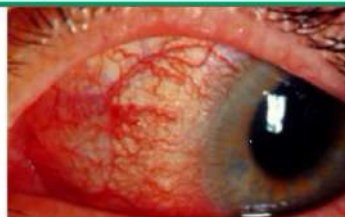
- Fatigue (very common)
- Pruritus (itching)
- Jaundice (late)

Anterior uveitis in a patient with inflammatory bowel disease



Anterior uveitis in a patient with inflammatory bowel disease is characterized by injection of the conjunctiva and opacity in the anterior chamber.

Diffuse episcleritis



Monocular attack of diffuse episcleritis in a patient with relapsing polycondritis. There is diffuse injection of the episcleral vessels, but the underlying sclera is normal.

Erythema nodosum



Patient with inflammatory bowel disease with red nodular areas on the shins which are characteristic of erythema nodosum.

Pyoderma gangrenosum (less severe)



Early lesion in pyoderma gangrenosum presenting as a pustular and violaceous plaque with incipient breakdown. Courtesy of Cynthia Magro, MD.

Pyoderma gangrenosum (Severe)



Multiple active and healing lesions of pyoderma gangrenosum with criniform scarring in patient with inflammatory bowel disease.

Laboratory Findings

Test	Finding
CBC	Anemia (iron deficiency, chronic disease, autoimmune hemolysis).
ESR , CRP	≥ 30 mm/hr (elevated inflammatory marker).
Albumin	Low (due to chronic inflammation and malnutrition).
Electrolytes	Abnormalities in severe cases . <i>due to dehydration.</i>
Alkaline phosphatase	Elevated (suggesting hepatobiliary involvement).
Fecal markers	* Elevated calprotectin/lactoferrin (suggesting intestinal inflammation , but nonspecific). *

Imaging

- Abdominal imaging is **not required for the diagnosis** of ulcerative colitis but may be performed in patients who present with **symptoms of colitis**.
*→ toxic megacolon.
 → perforation*
- Abdominal radiography is usually normal in patients with mild to moderate disease, **but may identify proximal constipation, mucosal thickening or "thumbprinting" secondary to edema, and colonic dilation** in patients with severe or fulminant ulcerative colitis.



→ in case they have: Primary Sclerosing Cholangitis.

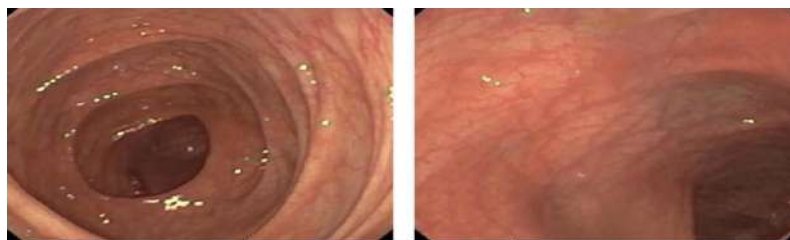
- * 4% of patients with ulcerative colitis have PSC.
- * 80% of patients with PSC will develop UC.

أولئك لو أجاني مريض وشخصته وبالجانب من PSC أول خطوة لازم

أعملها هي Colonoscopy لأننا ما عنده UC حتى لو كانت *asympt.*

Diagnosis

- Clinical: Chronic diarrhea (>4 weeks) + evidence of inflammation.
- Gold Standard **Colonoscopy with biopsy**: Active inflammation and chronic mucosal changes.
- Sigmoidoscopy if fulminant colitis is suspected.



هذي الصورة من transverse colon
 عرفتنا من شكل الـ lumen مثل الخفاش

Normal endoscopy

- normal color.
- well preserved vascularization.
- no ulcers.
- no erosions.



Abnormal endoscopy

we should take a biopsy!!

Differential Diagnosis

- Crohn's disease
- Infectious colitis
- Radiation colitis
- Medication-induced colitis
- Diverticular colitis
- Graft-versus-host disease (GVHD) in allogeneic transplant patients.

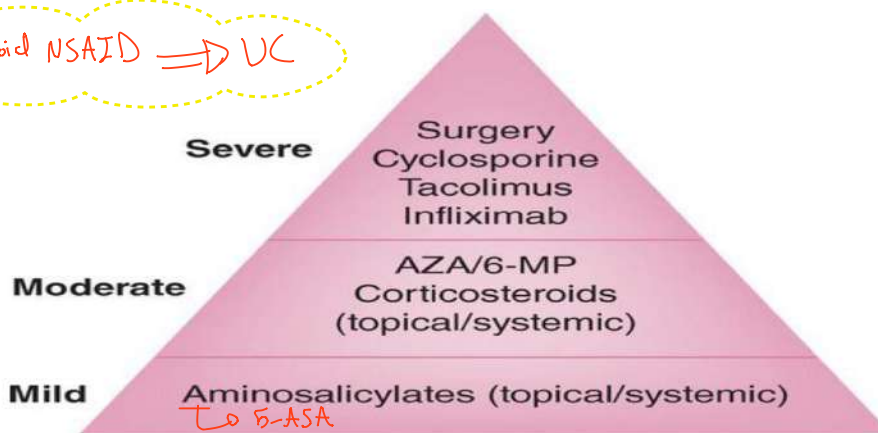
Chronic Complications

- Strictures
- Dysplasia → Colorectal cancer (CRC)

- Surveillance colonoscopy is recommended. *we have to do it after 8 years of symptoms and repeat it*

Treatment :

* Avoid NSAID ⇒ UC



Notes on treatment:-

- * it depends on :
- having complications
 - the extension of the disease.
 - Extraintestinal manifestation.

((ولويك علاج كل مريض مختلف عن الآخر))
* هازي الدكتور كان هانا عليه استيفام

Ulcerative colitis is classified by how far the continuous mucosal inflammation extends starting from the rectum upward.

1) Ulcerative Proctitis (E1)

Extent:

- Rectum only (0–15 cm)
- No proximal spread.

Symptoms:

- Rectal bleeding (hallmark)
- Tenesmus (feeling of incomplete evacuation)
- Urgency
- Usually no abdominal pain
- Normal stool volume (because proximal colon is normal)

Endoscopy:

- Erythema, friability, superficial ulcerations limited to rectum

Complications:

- Very low cancer risk
- No systemic symptoms

Treatment notes:

- Responds well to topical mesalamine (5-ASA)

2) Left-Sided Colitis / Distal Colitis (E2)

Extent:

- Rectum → Sigmoid → Descending colon → Up to splenic flexure

Symptoms:

- Bloody diarrhea
- LLQ abdominal pain
- Urgency
- Mucus in stool
- Mild weight loss possible

Endoscopy:

- Continuous inflammation extending to splenic flexure
- Loss of vascular pattern, granularity

Complications:

- Moderate colorectal cancer risk
- Higher risk of anemia from chronic bleeding

Treatment notes:

- Oral + topical 5-ASA
- Consider steroids for flare
- Biologics in moderate/severe disease

Ulcerative colitis

C - Continuous involvement

O - Origin - Rectum

L - Lead pipe Appearance

I - Increase growth of mucosa

T - Toxic megacolon

I - ↑ Severity of sx

S - ↑ chance of Colon Cancer



Note

* the treatment depends on the affected area, the stage, symptoms and complications.

4-Proctosigmoiditis (Type of UC)

Extent:

Inflammation of the rectum + sigmoid colon.

- Starts in the rectum
- Extends through the sigmoid colon
- Does NOT reach the descending colon
- Less extensive than left-sided colitis

Symptoms:

- Rectal bleeding
- Mucus in stool
- Urgency
- Tenesmus
- Mild LLQ abdominal pain
- Mild diarrhea (low stool volume)
- Usually no systemic symptoms (no fever, no weight loss)

Endoscopy:

- Continuous inflammation from rectum upward
- Erythema, granularity
- Loss of vascular pattern
- Superficial ulcerations
- Limited only to rectum + sigmoid

Complications:

- Low colorectal cancer risk (higher than proctitis, lower than left-sided colitis)
- Mild anemia from chronic bleeding
- No toxic megacolon unless disease extends proximally

Treatment notes:

- Responds very well to topical mesalamine (5-ASA enemas/suppositories)
- Oral 5-ASA if needed
- Topical steroids for flares
- Systemic therapy (steroids / biologics) only if moderate-severe or recurrent

3) Extensive Colitis / Pancolitis (E3)

Extent:

- Inflammation extends proximal to splenic flexure
- May involve entire colon → Pancolitis

Symptoms:

- Severe bloody diarrhea
- Crampy abdominal pain (often diffuse)
- Fever
- Fatigue
- Weight loss
- Extra-intestinal manifestations (joints, skin, eyes)

Endoscopy:

- Continuous diffuse inflammation
- Pseudopolyps
- Widespread ulceration, friability

Complications:

- Highest colorectal cancer risk
- need early and frequent colonoscopic surveillance
- Toxic megacolon
- Severe anemia
- Hypoalbuminemia
- Electrolyte imbalance

Treatment notes:

- Systemic therapy (steroids, biologics like anti-TNF, vedolizumab, ustekinumab)
- Immunomodulators (azathioprine)
- Colectomy if refractory or complications

Crohn's Disease (CD)

Definition & Pathophysiology

- **Transmural inflammation** (affecting the full thickness of the bowel wall).
- **Skip lesions** (normal areas between inflamed segments).
- Most commonly affects the **ileum and proximal colon**, but can involve any part of the GI tract.

Clinical Features

Feature	Description
Symptoms	Abdominal pain, diarrhea, weight loss, anorexia, fatigue, perianal pain/discharge.
Diarrhea causes	1) Inflamed bowel → Fluid secretion & impaired absorption . 2) Bile salt malabsorption (terminal ileum involvement). 3) Steatorrhea (fat malabsorption due to bile salt loss). 4) Fistulas (bypass of absorption areas).

Features of Transmural Inflammation

Complication	Description
Fistulas	Abnormal tracts between organs (e.g., enterovesical , enteroenteric , enterocutaneous , enterovaginal).
Phlegmon/Abscess	Walled-off inflammatory mass or infected abscess , causing localized peritonitis.
Perianal disease	Occurs in 40% of patients (fissures, abscesses, fistulas).

→ A connection between 2 epithelial-lined organs.

→ without bacterial infection.

↳ Can be palpated on physical examination.

↳ Right lower quadrant mass

Other gastrointestinal features

- Examples include:

- 1) **Oral** involvement may present with **aphthous ulcers** or pain in the mouth and gums.
- 2) **Esophageal** involvement may present with **odynophagia or dysphagia**.
- 3) **Gastroduodenal involvement** is seen in up to 15 percent of patients and may present with upper abdominal pain, nausea, and/or postprandial vomiting.

The clinical features of gastroduodenal CD may be **similar to those of peptic ulcer disease or gastric outlet obstruction**.

The distal antrum of the stomach and duodenum are the most commonly affected upper gastrointestinal (GI) sites in patients with CD.

Extraintestinal Manifestations

Same as UC, with additional risks of:

- **Secondary amyloidosis**
- **Renal stones** (due to **fat malabsorption** → **calcium oxalate & uric acid stones**).
- **Osteoporosis** (due to malabsorption, steroid use, vitamin D deficiency).
- **Pulmonary involvement**.

↳ ↓ Calcium

↳ glucocorticoids

- **Malabsorption** — Patients with small bowel CD and **bile salt malabsorption** may present with watery diarrhea and steatorrhea that can lead to protein calorie malnutrition, hypocalcemia, vitamin deficiency (eg, vitamin B12), and metabolic bone disease.

When the terminal ileum is involved, it disrupts the normal reabsorption of bile salts, which has two key effects depending on the extent of the disease

Small bowel disease involving greater than 100 cm of terminal ileum usually results in severe impairment of the enterohepatic circulation of bile salts such that the liver's ability to upregulate de novo bile acid synthesis is inadequate to meet normal physiologic needs for bile production, **resulting in fat malabsorption**.

Shorter segments of terminal ileal disease (ie, <100 cm) may result in **chronic diarrhea**, even though it may not result in **fat malabsorption**, since the bile acids that are not absorbed in the small intestine may **stimulate water and electrolyte secretion in the colon** (which is called "**cholerrheic diarrhea**").

Normally, bile salts are reabsorbed in terminal ileum, returned to the liver (enterohepatic circulation).

If **more than 100 cm** of the terminal ileum is diseased or resected: A large portion of bile salts is lost in the stool instead of being reabsorbed → The liver tries to compensate by making new bile salts de novo, but it cannot produce enough to maintain normal fat digestion → This results in **fat malabsorption (steatorrhea)** → diarrhea, loss of fat-soluble vitamins (A, D, E, K), and metabolic bone disease (from vitamin D deficiency and hypocalcemia).

If **less than 100 cm** of the terminal ileum is affected: The liver can still compensate by producing more bile salts. However, excess bile salts spill into the colon because they are not fully reabsorbed. In the colon, bile salts act as irritants, stimulating water and electrolyte secretion, leading to watery diarrhea (called **cholerrheic diarrhea**).

- Unlike extensive disease, this does not cause fat malabsorption since enough bile salts remain for fat digestion.

Extent of Terminal Ileum Involvement	Effect	Mechanism	Symptoms
>100 cm affected (severe disease)	Fat malabsorption (steatorrhea)	Insufficient bile salts → Inadequate fat digestion	Oily stools, vitamin deficiencies, metabolic bone disease
<100 cm affected (mild disease)	Cholerrheic diarrhea	Bile salts enter colon → Stimulate water secretion	Watery diarrhea without steatorrhea

مهم جداً جداً

مرضى UC ينجوا بـ diarrhea بين Crohn و شريط

غالباً ينجي بـ Abdominal pain

Laboratory Findings Make dexta scan

Test	Finding
CBC	Anemia (iron, B12, or chronic disease-related).
CRP	Elevated (inflammation marker).
Electrolytes	May show abnormalities in severe disease.
Stool markers	Elevated fecal calprotectin/ lactoferrin.

+ ↑ WBC

Differential Diagnosis

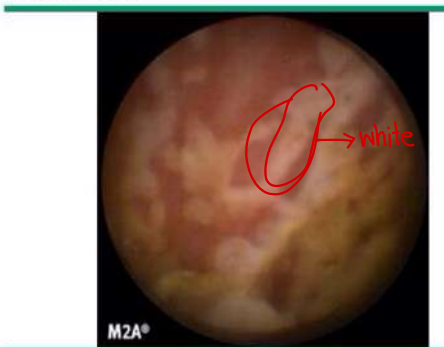
- Infectious colitis
- Ulcerative Colitis (when involves the colon)
- Diverticular colitis
- Celiac disease
- Irritable bowel syndrome

Diagnosis

- Blood tests, stool studies. in patients with diarrhea.
- Magnetic resonance enterography (MRE) for small bowel disease.
- Colonoscopy with intubation of the terminal ileum, including mucosal biopsies. During colonoscopy, biopsies are obtained from the right colon, left colon, and rectum even if endoscopically normal in appearance to assess for histologic evidence of inflammation.

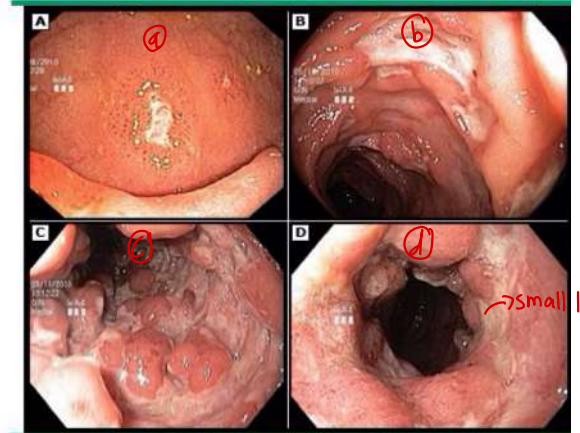
Granulomas may be noted in up to 30% of patients with CD and this histologic finding supports but is not required to establish the diagnosis.

Crohn disease



Small bowel ulceration as seen during capsule endoscopy.

Endoscopic findings in Crohn disease



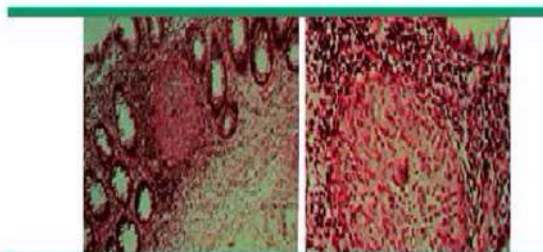
The dominant endoscopic feature in Crohn disease is the presence of ulcerations. Endoscopic findings in Crohn disease include: aphthous ulcers, which are the earliest lesions seen in Crohn disease (panel A); large ulcers interspersed with normal mucosa, which are typical for the segmental distribution of Crohn disease (panel B); cobblestone appearance that is characterized by nodular thickening, with linear or serpiginous ulcers (panel C); and strictures due to fibrosis (panel D).

Ileocecal fistulae in Crohn disease



Small bowel follow through examination demonstrates nodular thickening of the terminal ileal mucosal folds in a patient with Crohn disease (arrow). Several fistulae extend from the terminal ileum to the adjacent cecum (arrowheads).

Typical granuloma of Crohn disease



Light micrographs showing a granulomatous lesion that is diagnostic of Crohn disease. Low and high power views show a central giant cell surrounded by epithelioid cells and rimmed by lymphocytes.

Risk Factors for Progressive Disease

- Age <40 years
- Tobacco use
- Perianal or rectal involvement
- Glucocorticoid-dependent disease

لمثال ، علايكوت المرض ماضي على 40mg يتكون أمره متنازة ولو نزل ل 20mg
تخرج الـ 100mg.

- Risk of surgery : The 10-year risk of surgical resection for CD is nearly 50 percent

Cancer Risk (UC > CD)

- CRC
- Squamous cell carcinoma of the anus and skin
- Adenocarcinoma of the small bowel.
- Duodenal neoplasia.
- Testicular cancer, and
- Leukemia have all been reported in CD, although the strength of these associations is unclear.
- In addition, patients receiving thiopurine therapy for IBD had an increased risk of developing lymphoproliferative disorders

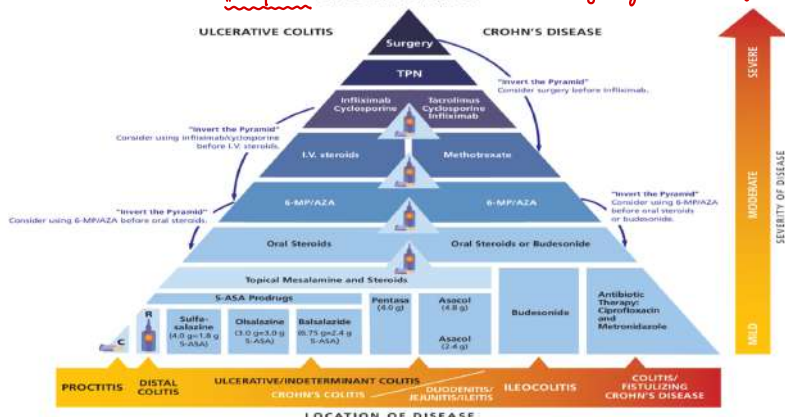
TABLE 10-2. Ulcerative Colitis vs. Crohn's Disease

	ULCERATIVE COLITIS	CROHN'S DISEASE
Pathology	• Inflammation of the mucosa only (exudate of pus, blood, and mucus from the "crypt abscess") • Always starts in rectum (up to one third don't progress) • Limited to colon and rectum	• Inflammation involves all bowel wall layers, which is what may lead to fistulas and abscess • Rectal sparing in 50% • May affect mouth to anus
Diagnosis	• Continuous lesions • Rare • Lead pipe colon appearance due to chronic scarring and subsequent retraction and loss of haustra	• Skip lesions interspersed normal and diseased bowel • Aphthous ulcers • Cobblestone appearance from submucosal thickening interspersed with mucosal ulceration
Complications	• Perforation • Stricture • Megacolon • Cancer	• Abscess • Fistulas • Obstruction • Cancer • Perianal disease

* The risk of Colorectal Cancer is higher in both and depend if the disease is Control or not

* More dangerous there is more than one site

هناك قدم شوي Treatment : start with biological agents (better prognosis)



INDICATIONS FOR OPERATIVE MANAGEMENT

- Bowel perforation.
 - Intra-abdominal, retroperitoneal, or abdominal wall abscess refractory to nonoperative management.
 - Gastrointestinal bleeding refractory to nonoperative management.
 - Symptomatic fibrotic stricture causing intestinal obstruction.
 - Enteric fistula refractory to medical therapy.
 - Small bowel or colorectal cancer arising from longstanding Crohn disease.
 - Persistent inflammation causing symptoms refractory to medical therap.
 - Growth retardation in children with Crohn disease
- Complications, failed to medical therapy , perforation, abscess, strictures, fistula with infection. شرط

Quiz question

1)

A 28-year-old male presents with bloody diarrhea, urgency, and tenesmus for 5 weeks. Colonoscopy shows continuous mucosal inflammation starting at the rectum and extending only through the sigmoid colon.

Which classification best fits this case?

- A. Ulcerative proctitis (E1)
- B. Proctosigmoiditis
- C. Left-sided colitis (E2)
- D. Extensive colitis (E3)
- E. Indeterminate colitis

2)

A patient with ulcerative colitis is admitted with fever, tachycardia, abdominal distention, and abdominal imaging shows marked colonic dilation.

What is the most likely diagnosis?

- A. Fulminant colitis
- B. Toxic megacolon
- C. Obstructive ileus
- D. Pseudomembranous colitis
- E. Perforated diverticulitis

3)

A 35-year-old woman with chronic pruritus and fatigue is found to have positive AMA (anti-mitochondrial antibodies). She has a known history of ulcerative colitis.

Which associated condition explains her symptoms?

- A. Primary sclerosing cholangitis
- B. Primary biliary cholangitis
- C. Autoimmune hepatitis
- D. Gallstone obstruction
- E. Viral hepatitis B infection

4)

A 24-year-old patient presents with RLQ abdominal pain, diarrhea, and weight loss.

Colonoscopy reveals skip lesions and biopsy shows transmural inflammation with granulomas.

Which diagnosis is most consistent?

- A. Ulcerative colitis
- B. Infectious colitis
- C. Crohn's disease
- D. Celiac disease
- E. IBS

5)

In Crohn's disease, involvement of less than 100 cm of terminal ileum leads to which complication?

- A. Severe fat malabsorption with steatorrhea
- B. Acute bowel obstruction
- C. Watery diarrhea from bile salt irritation
- D. Vitamin A, D, E, K deficiency
- E. Pernicious anemia

6)

Which of the following is a risk factor for progressive Crohn's disease and higher likelihood of future surgery?

- A. Age >60 years
- B. Non-smoker
- C. Perianal disease
- D. Female sex
- E. High-fiber diet

Answer Key

1. B

2. B

3. B

4. C

5. C

6. C