Inflammatory Bowel Diseases

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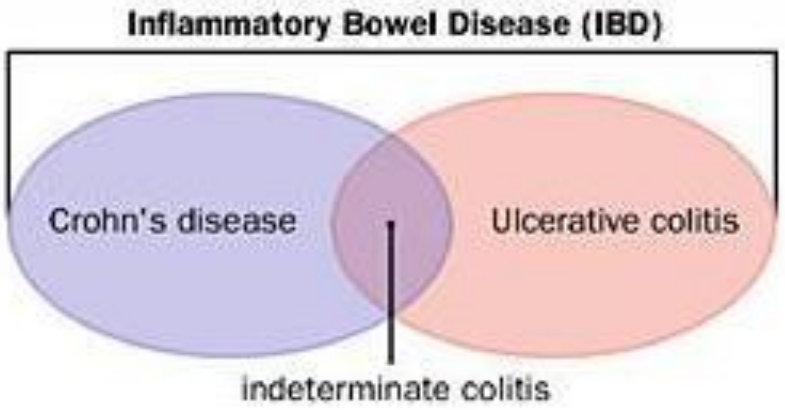
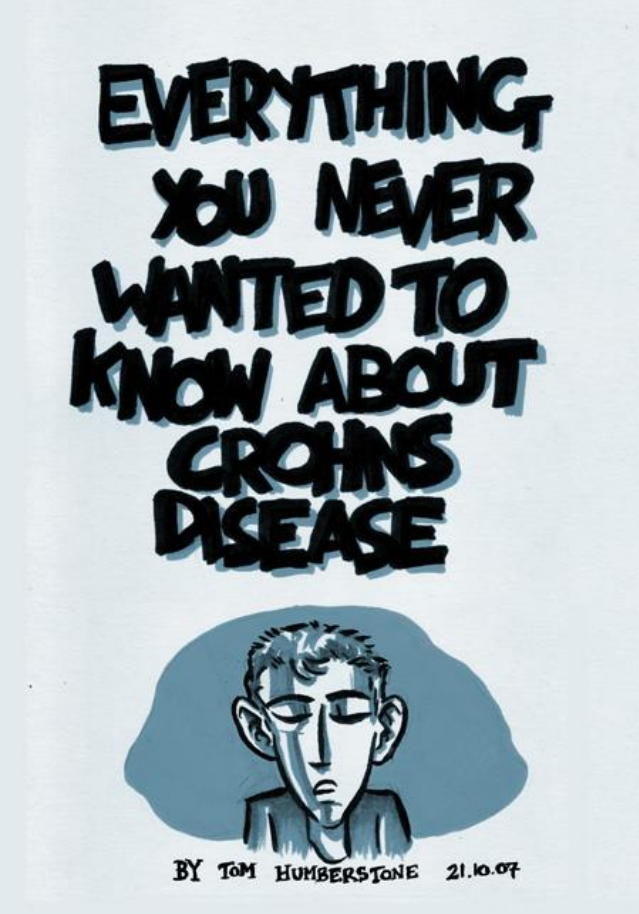
Inflammatory bowel disease encompasses two idiopathic, chronic, inflammatory diseases:

Crohn's Disease And Ulcerative Colitis

The disorders are of unknown etiology, involving genetic and immunological influence on the GI tract's ability to distinguish foreign from self antigens. They share many overlapping characteristics, and sometimes it is not possible to distinguish between the two.



Crohn's Disease



What is Crohn's Disease?

- A chronic inflammatory disease of the GIT.
- Inflammation extends all the way through the intestinal wall from mucosa to serosa.
- Relapsing and remitting disease.
- Initially only a small segment of the gastrointestinal tract may be involved, but it has the potential to progress extensively.

Epidemiology

- 3-7/100,000 in the general population
- More common in N.America & Europe
- Usually diagnosed at the 2-3rd decade and 6th decade
- Male:Female – 1:1
- More common in Smokers
- More common in the Jewish population

Etiology

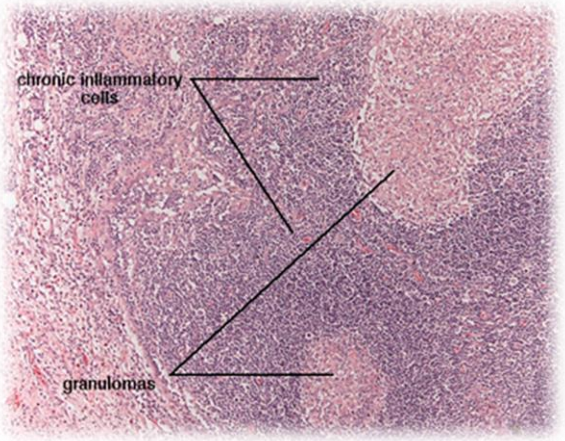
- Mainly Unknown
- Several different theories have been proposed
  - The most commonly accepted are the immunological, infectious and genetic
  - Less commonly accepted are theories try to show a connection between nutritional, environmental and psychological factors.

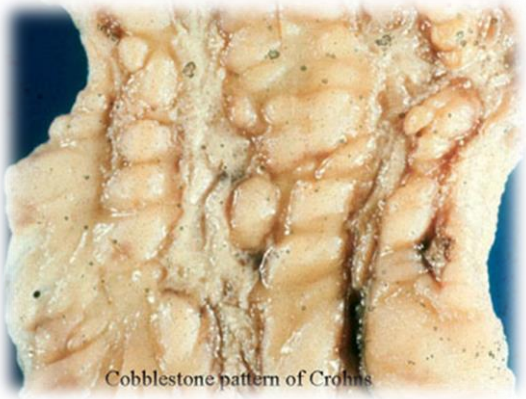
Pathology

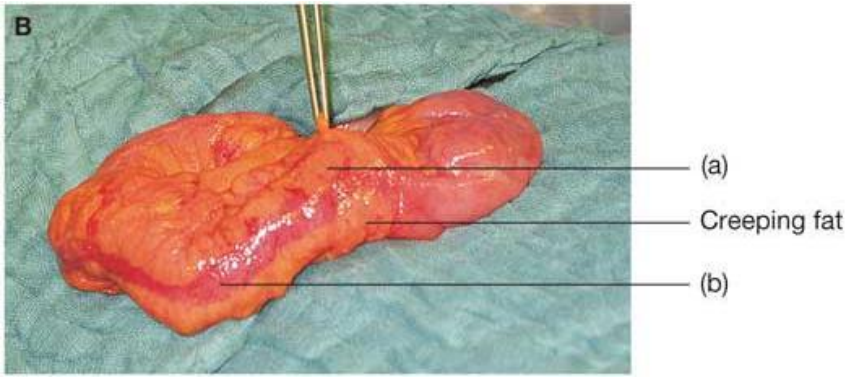
- Crohn's disease can affect any part of the GI tract
  - Distal Ileum – 75%
  - Small intestinal involvement alone– 30%
  - Colonic involvement alone – 15%
  - Duodenal involvement – 1-7%
  - Peri-anal disease exists in 1/3 patients, mainly with colonic involvement
  - Discrete involvement of other GIT areas is not common.

Pathology

- Creeping fat
- Patchy Inflammation
- Thickening of the bowel wall
- Adhesions and fistula formation
- Ulcers
- Transmural inflammation
- Noncaseating Granulomas







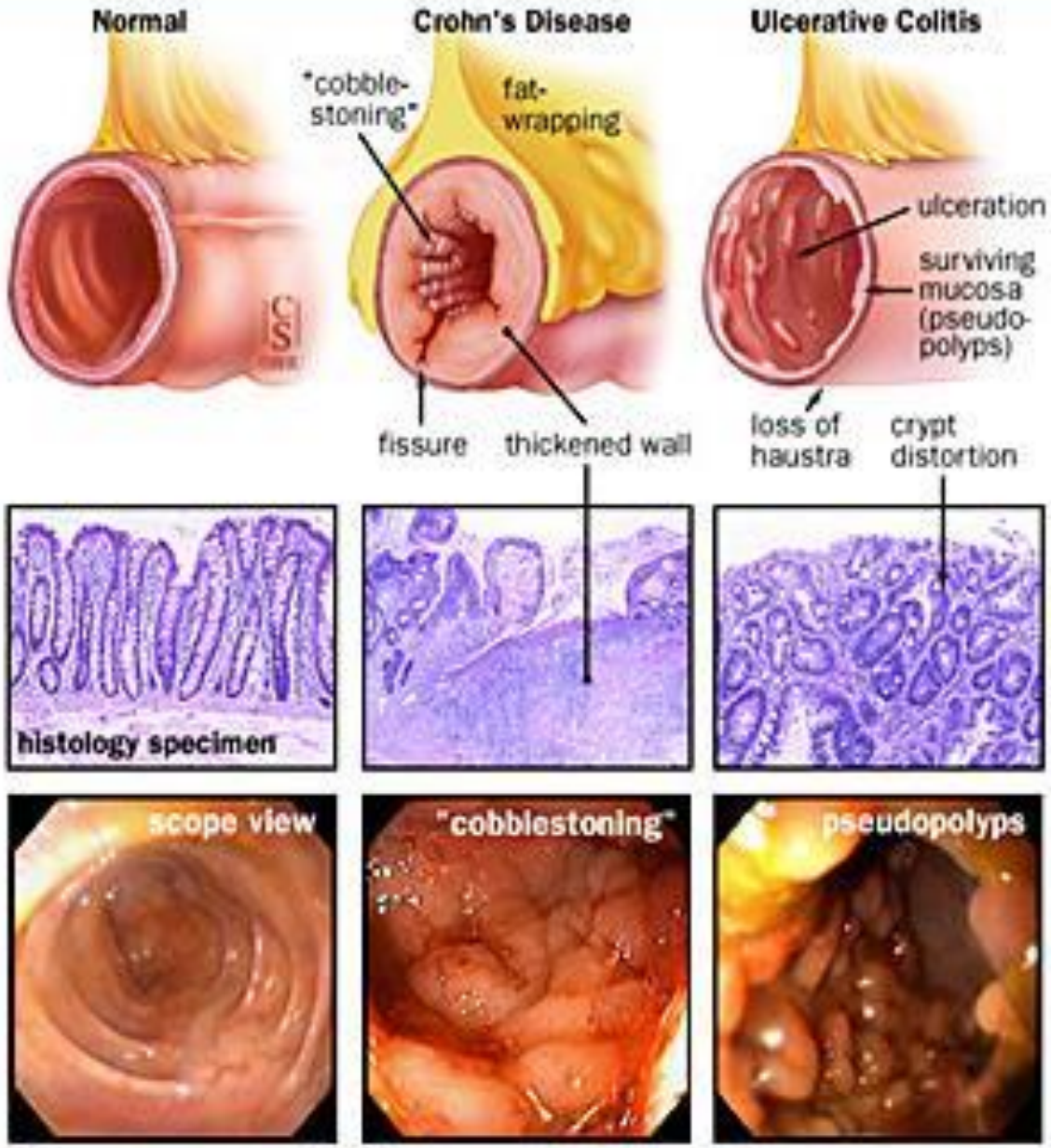


Figure 4. Comparison of the appearance of normal, Crohn's, and ulcerative colitis mucosa; gross (top); histological (center); endoscopic (bottom).

Clinical Features

Signs and Symptoms:

- Abdominal Pain – most common symptom
- Diarrhea – in 85% of patients
- Fever – 1/3 of patients
- Other Non Specific Systemic manifestations – weakness, weight loss.

Labs:

- Inflammatory markers - ↑CRP, ↑ESR
- Anemia
- ASCA +
- Possibly a lack of fat soluble vitamins

Clinical Features

Extra-Intestinal Manifestations

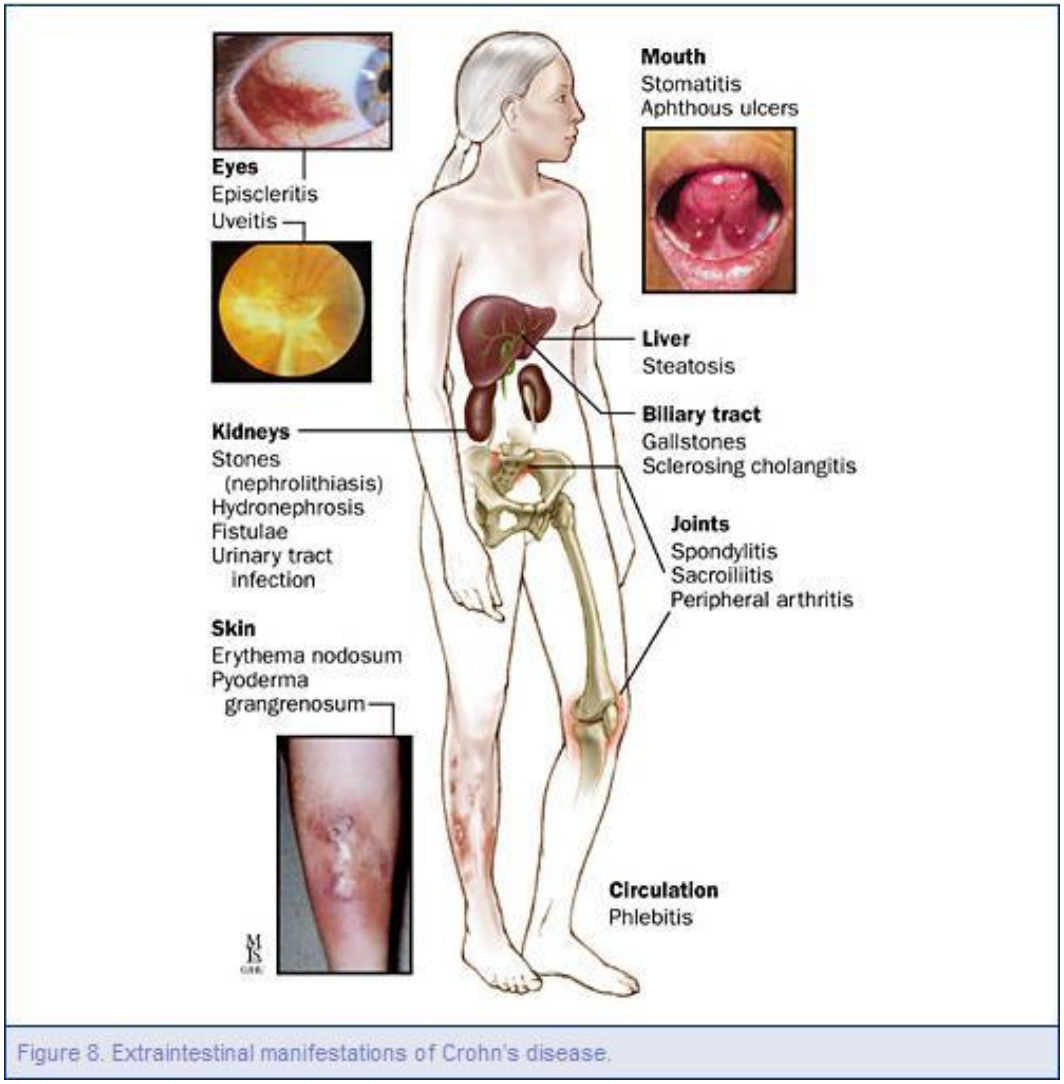


Figure 8. Extraintestinal manifestations of Crohn's disease.

Clinical Features

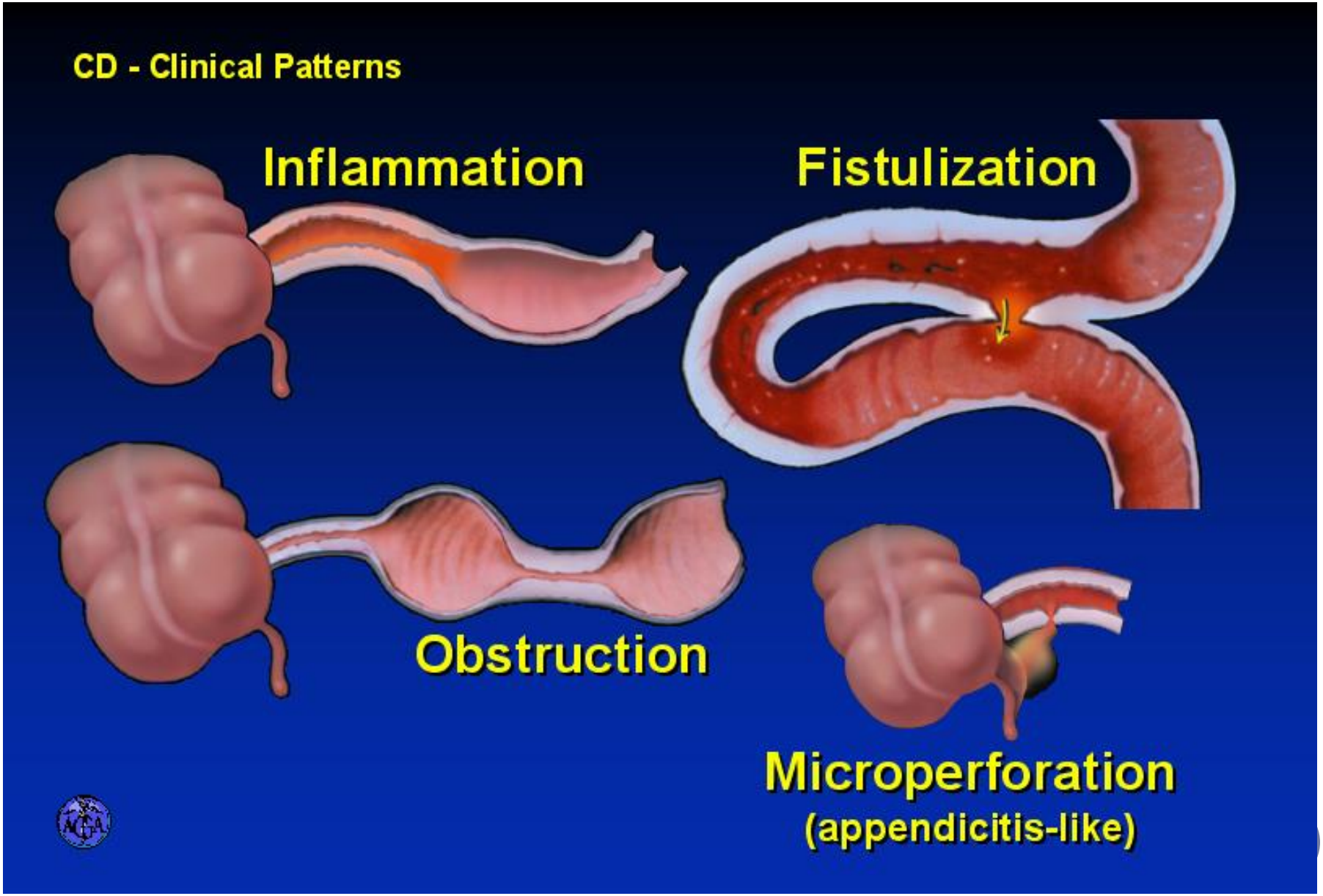
Complications:

- Intestinal obstruction
- Stricture
- Fistula
- Perforation
- Intra-abdominal abscess
- Gastrointestinal bleeding
- Peri-anal abscess
- Toxic colitis is a surgical emergency that can occur in these patients.

Clinical Features

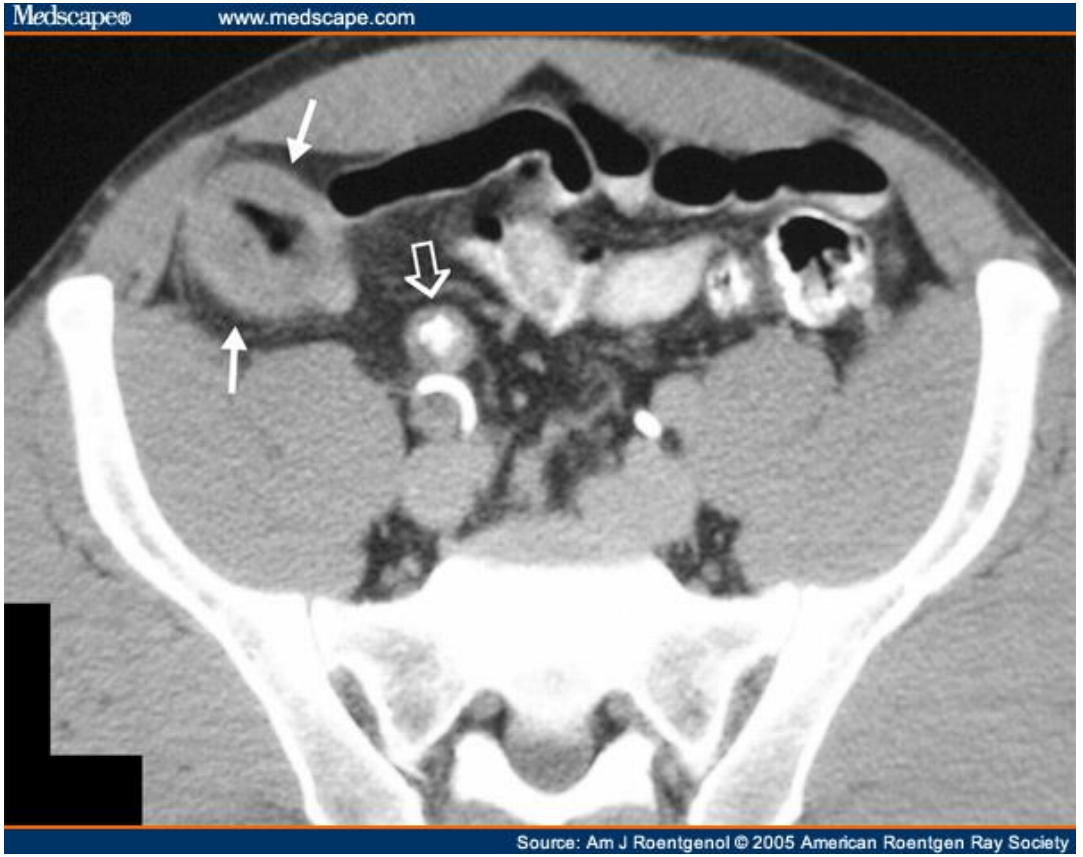
Differential Diagnosis:

- Ulcerative Colitis (!)
- IBS
- Behçet's Disease
- Infectious Causes – Salmonella, Shigella, Amebiasis, Intestinal TB
- Ischemic Colitis
- Appendicitis


CD - Clinical Patterns
Inflammation
Fistulization
Obstruction
Microperforation
(appendicitis-like)

Diagnostic Tools

- US
- Contrast Radiographs
- Endoscopy
- Capsule
- CTE/MRE



Treatment

Drug Therapy:

- Anti Inflammatory Drugs
- Antibiotics
- Steroids (good for remission, not for maintenance)
- Immuno-modulator drugs
- Biological Therapy

Treatment

Surgical Indications:

- The main indication for surgery is complication of the disease:
  - Bowel Obstruction
  - Fistula formation/Abscess
  - Perforation
  - Massive GI bleeding
  - Peri-Anal Disease
- Disease that is non responsive to drug therapy
- Failure to thrive in children

Surgical Treatment

- Important to remember that surgery in Crohn's disease is palliative measure, and isn't curative
- The surgical procedure is aimed towards the complication that needs to be resolved

Surgical Treatment

Bowel Obstruction:

- One of the most common indications for surgery in CD.
- Many times, the obstruction is partial and can be treated non surgically
- Surgery is indicated in patients with a complete obstruction, or patients that have failed to respond to other treatment options.

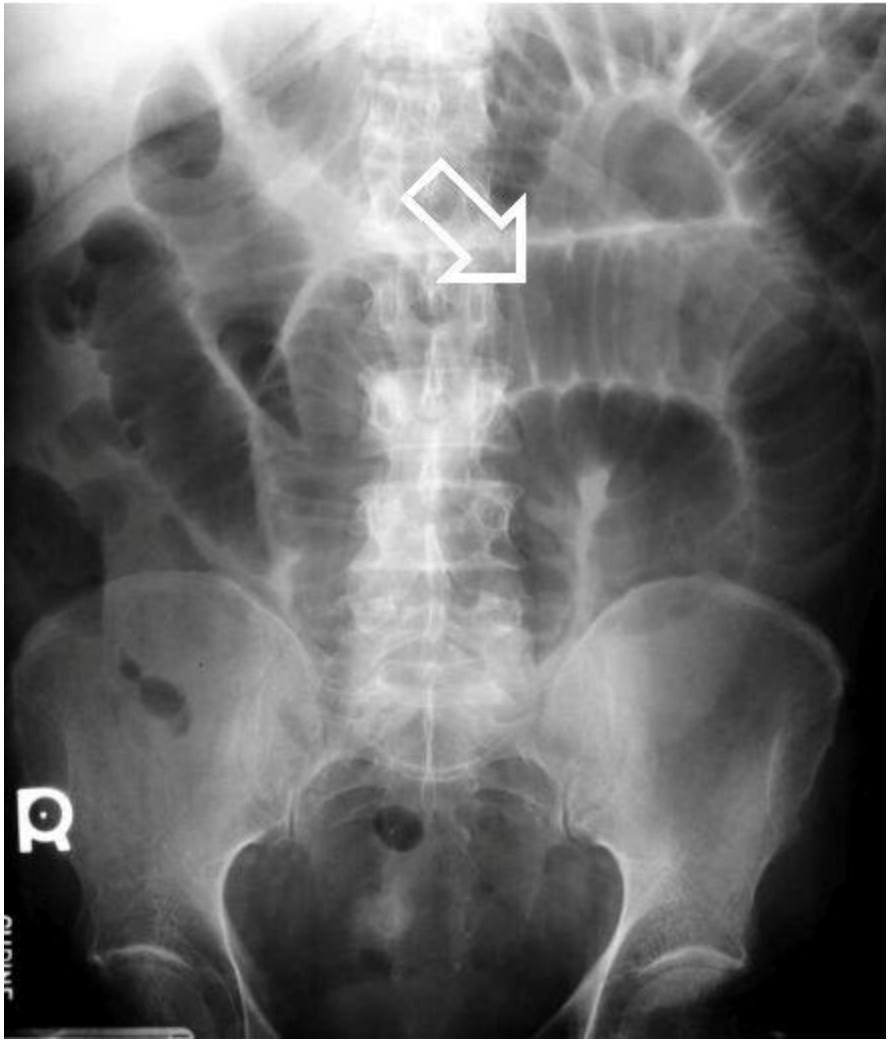
Surgical Treatment

Bowel Obstruction:

- Signs and symptoms
  - Proximal small-bowel obstructions present with early bilious vomiting.
  - Distal obstructions present later, and vomit can be thick and feculent.
  - Abdominal distention typically increases the more distal the obstruction.
  - Abdominal pain
  - Obstipation
  - With a persistent obstruction - hypovolemia
  - Bloody bowel movements suggest strangulation or a diagnosis other than obstruction.

Surgical Treatment

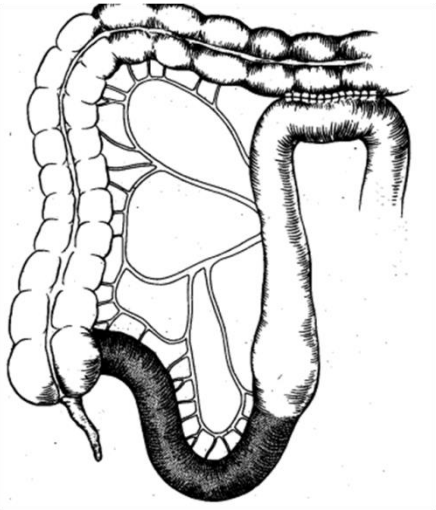
Bowel Obstruction:

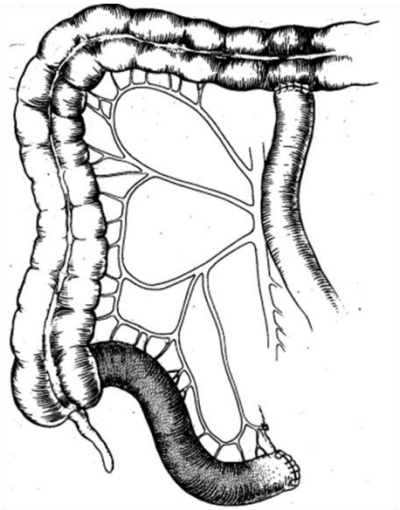


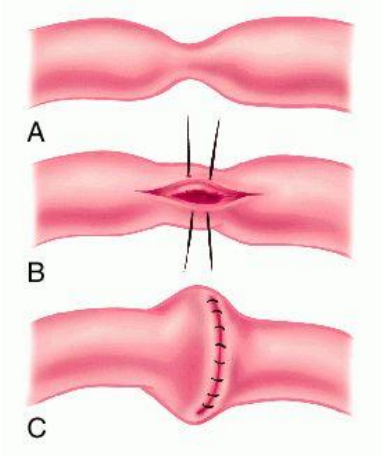
Surgical Treatment

<u>Bowel Obstruction:</u>

- Strictureplasty
- Segmental Resection with Primary anastamosis
- Bypass Procedure
  - Ileotransversostomy (side to side)
  - Exclusion Bypass (end to side)



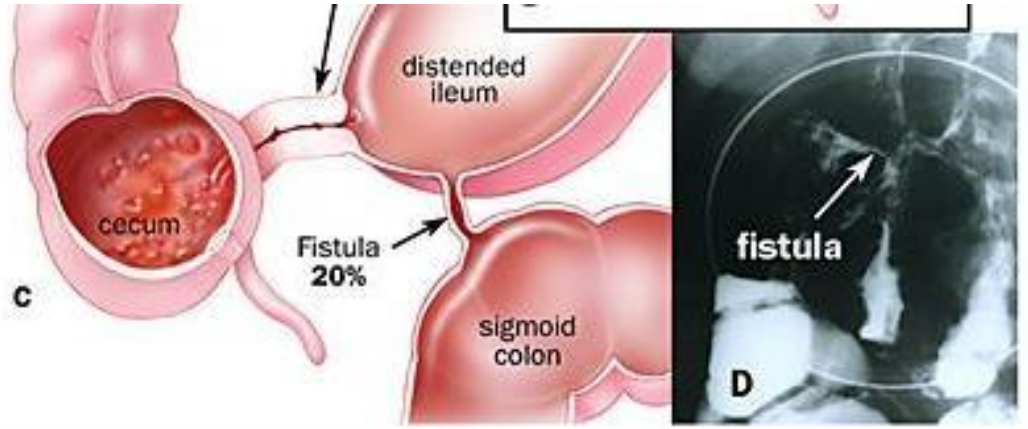




Surgical Treatment

Fistula:

- Relatively common finding in Crohn's patients
- Commonly develop in area of high pressure proximal to stricture
- Fistulas most often occur between a diseased portion of small intestine and a neighboring segment of small bowel/colon, or other abdominal structures



Surgical Treatment

Perforation:

- Not a very common complication
- Segmental resection – and if there is no infection, primary anastamosis.
- In case of diffuse peritonitis, a temporary enterostomy will be performed, that will later be re-anastamosed.

Surgical Treatment

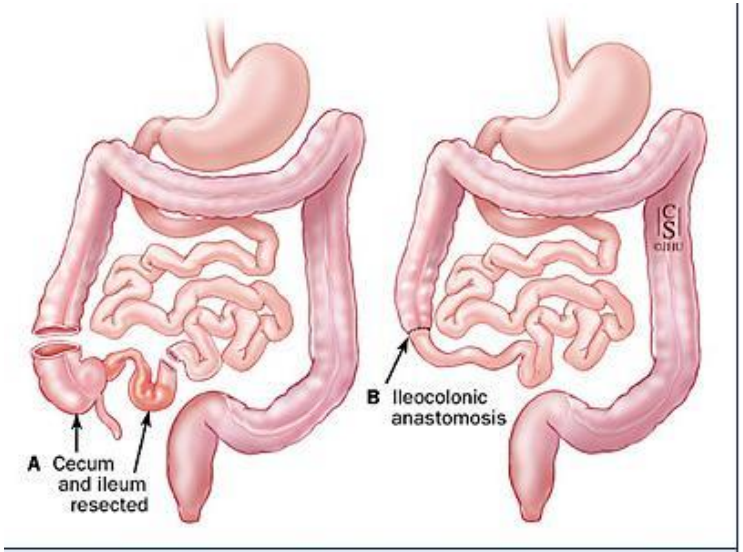


Figure 21. A, Resection of the cecum and ileum; B, with ileocolonic anastomosis.

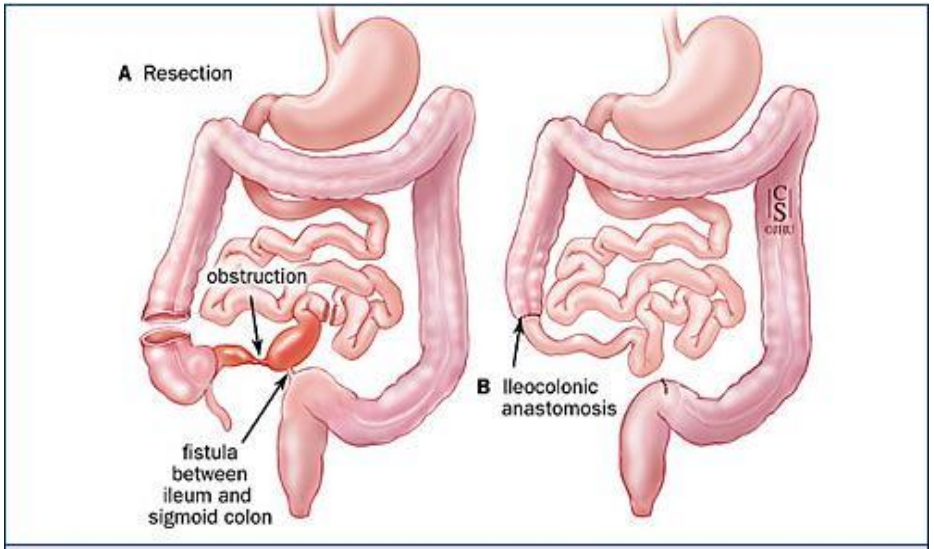


Figure 23. A, Ileal obstruction; B, repaired with ileocolonic anastomosis.

Ulcerative Colitis

What is Ulcerative Colitis?

- An inflammatory disease of the colon
- Includes characteristic ulcers
- Relapsing and remitting disease
- Has several degrees of severity and colonic involvement

Epidemiology

- 5-6/100,000 in the general population
- Occurs more often in industrialized countries
- Affects men and women similarly
- More common in Jews and Caucasians
- Smoking has a protective effect

Pathology

- Ulcerative Colitis affects the colonic mucosa in a continuous manner.
- It always affects the rectum
- Proctitis - in 1/3 of patients the colonic involvement is limited to the rectum
- Left sided Colitis – inflammatory process extends from the rectum – 40cm. Disease activity doesn't go beyond splenic flexure.
- Pancolitis – involves the colon beyond the splenic flexure

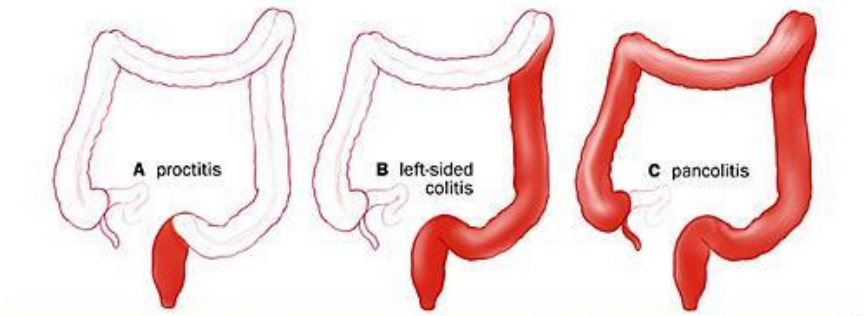
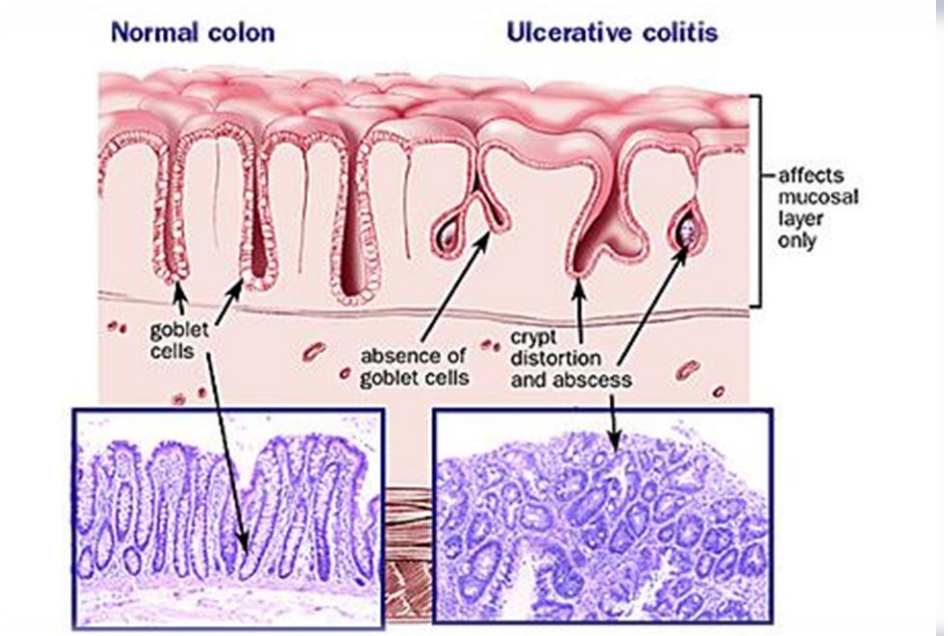


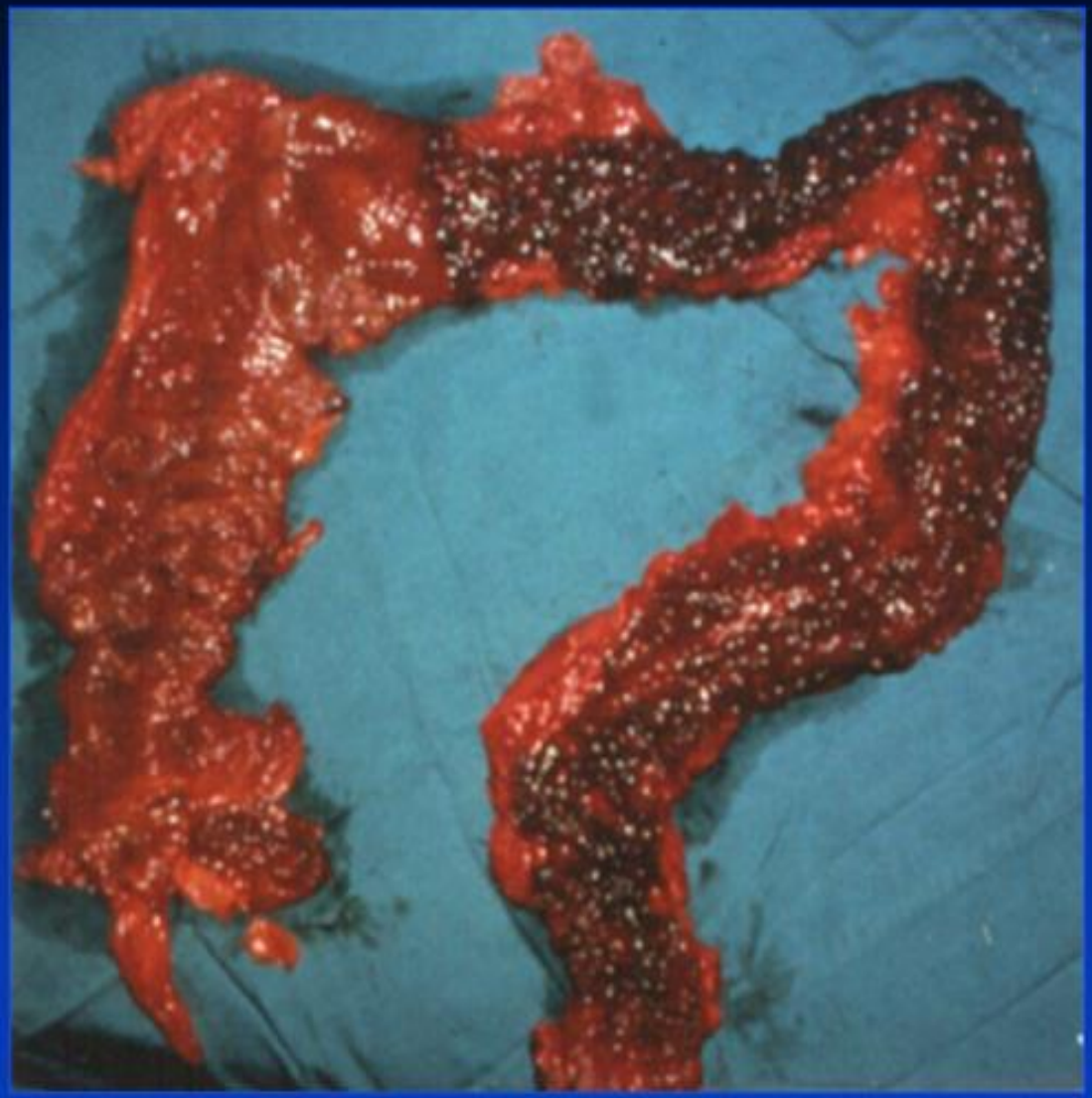
Figure 7. Extent of bowel involvement in different degrees of ulcerative colitis.

Pathology - Microscopic

- Mucosal inflammation
- Goblet cell depletion
- Crypt abscesses
- Superficial ulceration



- In severe disease, the mucosa may be described as nodular with pseudo polyps, a reticular pattern, and discrete ulcer craters.



Pathology

- Strictures exist in 6-12% of all UC patients
- UC with strictures – suspect malignancy until proven otherwise
- Malignant strictures:
  - Usually after prolonged disease
  - Are proximal to the splenic flexure
  - Cause obstruction

Clinical Features

- Signs and Symptoms
  - There are different degrees of disease

Table 289-3 Ulcerative Colitis: Disease Presentation

	Mild	Moderate	Severe
Bowel movements	<4 per day	4–6 per day	>6 per day
Blood in stool	Small	Moderate	Severe
Fever	None	<37.5°C mean	>37.5°C mean
Tachycardia	None	<90 mean pulse	>90 mean pulse
Anemia	Mild	>75%	≤75%
Sedimentation rate	<30 mm		>30 mm
Endoscopic appearance	Erythema, decreased vascular pattern, fine granularity	Marked erythema, coarse granularity, absent vascular markings, contact bleeding, no ulcerations	Spontaneous bleeding, ulcerations

- Diarrhea (with blood, mucous)
- Abdominal pain (varying degrees – mild discomfort to severe)
- Weight loss
- Anemia

Clinical Features

- Extra-Intestinal Manifestations
  - Apthous Ulcers
  - Ophthalmic
  - Musculoskeletal
  - Cutaneous
  - DVT & PE
  - Clubbing
  - PSC
- Differential Diagnosis:
  - CD (!)
  - Infectious Colitis
  - Ischemic Colitis
  - Radiation Colitis

Clinical Features - Complications

- One of the most serious complications of UC is the development of **dysplasia and malignancy**
- Risk factors include:
  - Extent of colonic involvement
  - Age of onset
  - Years with disease
- ~20% of patients will develop malignancy without a known preceding dysplasia
- Types of dysplasia:
  - Low grade - ~10% will develop into carcinoma
  - High grade - ~35% will develop into carcinoma (*definite indication for surgery*)
  - DALM (dysplasia associated with lesion/mass)

Clinical Features - Complications

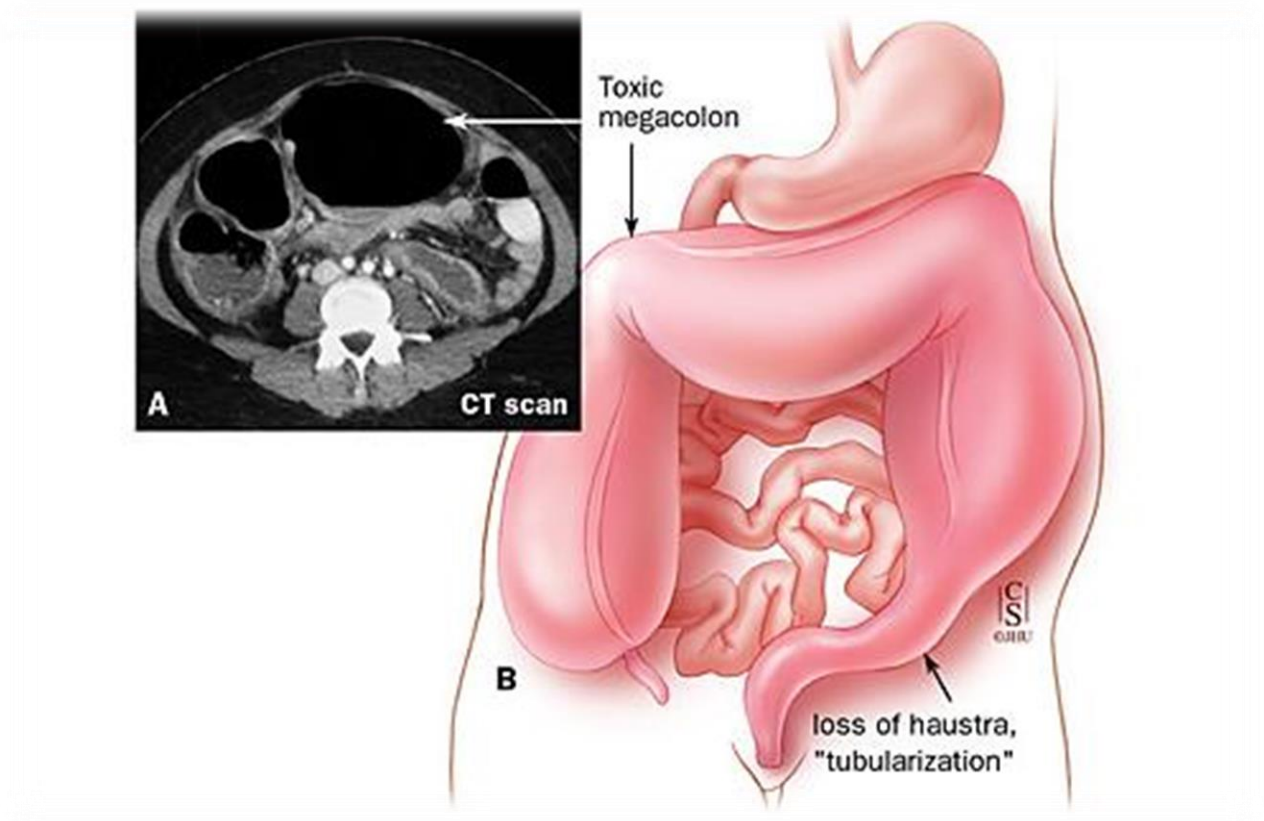
- Follow Up:
  - Pancolitis – Colonoscopy once a year, starting 8 years after diagnosis
  - Left sided colitis – Colonoscopy once a year 12-15 years after diagnosis
  - With low grade dysplasia – debate whether to follow up with colonoscopy, or have surgical intervention

Clinical Features - Complications

- Another serious complication is **Toxic Megacolon**:
  - Occurs as a result of extension of the inflammation beyond the submucosa into the muscularis.
  - Diagnosis:
    - Based on radiograph evidence of colonic distension and 3 of the following:
      - Fever higher than 38.6ºC
      - Leukocytosis > 10,500 cells/mm^3
      - Tachycardia (> 120 bpm)
      - Anemia
    - A sign of toxicity should also be present*
    - Physical Examination – tender abdomen, rebound, distension, hypoactive/absent bowel sounds

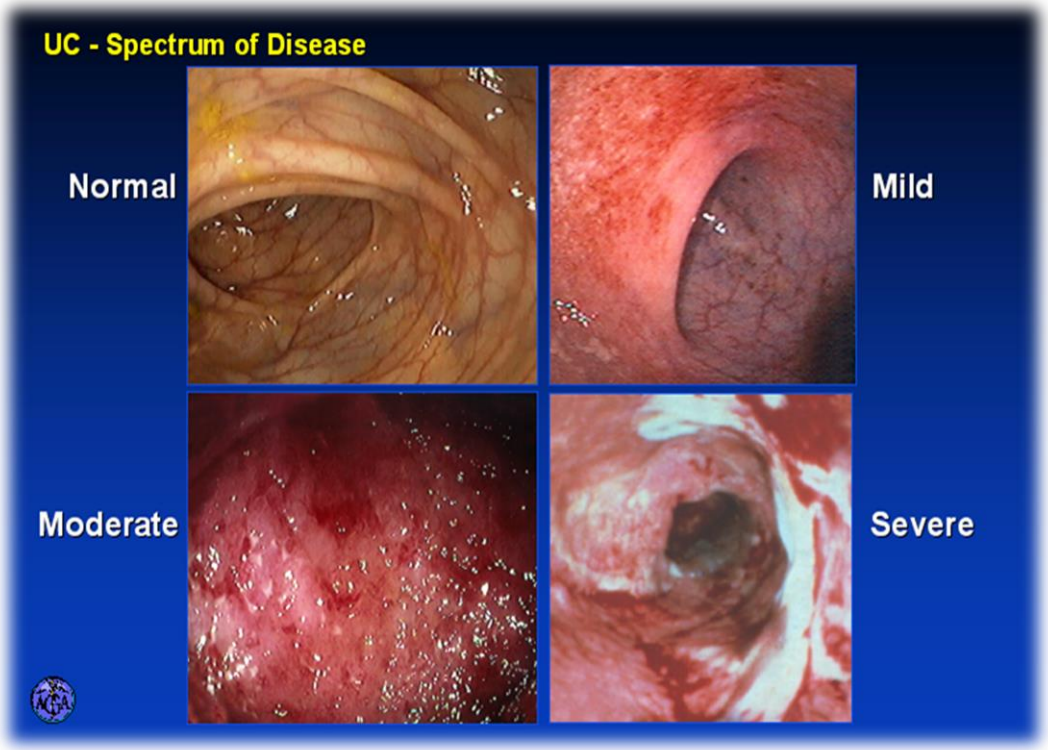
Clinical Features - Complications

- Toxic Megacolon:



Diagnostic Tools

- Abdominal X-Ray
- Barium Enema
- Colonoscopy/Flexible Sigmoidoscopy



Treatment

Depends on extent of involvement and disease severity

- Aminosalicylate (5-ASA) – can be given PO or Rectal
- Steroids – can be given PO, Rectal, IV (depending on severity)
- 6-MP/Azathioprine – Immunomodulators (take time)
- Cyclosporine – for patients with severe acute UC that are refractory to IV steroids

- Symptomatic Anti-Diarrhea Treatment

Surgical Treatment

Surgical Treatment for UC is Curative (!!)

- Indications for Surgery
  - Elective Surgery:
    - Malignancy and High Grade Dysplasia
    - FTT in children
    - Intractability
    - Fulminant Colitis (could be elective or emergency surgery)

Surgical Treatment

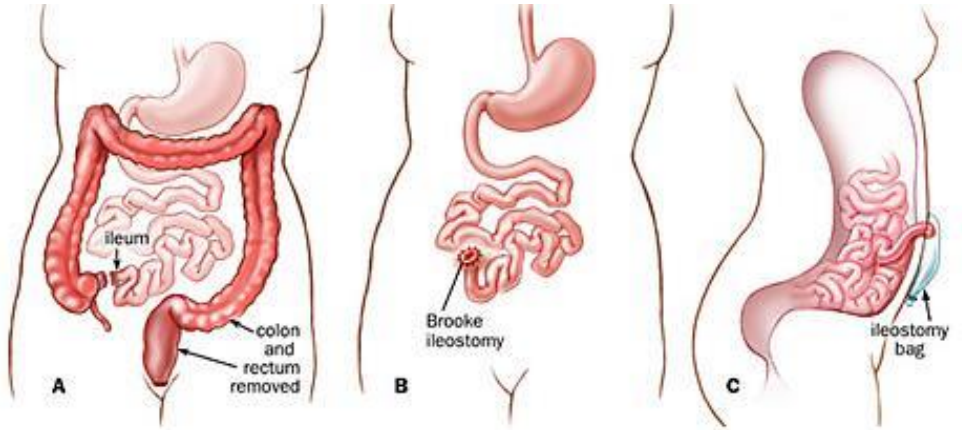
Surgical Treatment for UC is Curative (!!)

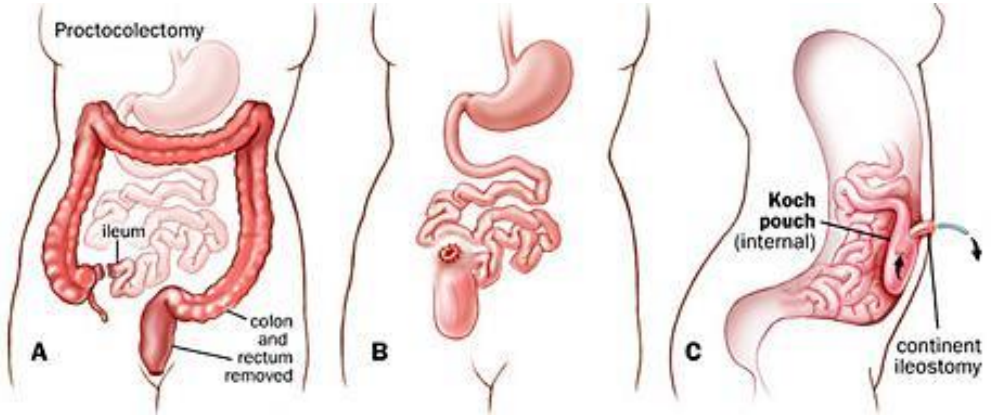
- Indications for Surgery
  - Emergency Surgery:
    - Toxic Megacolon
    - Perforation
    - Massive Colonic Bleeding

Surgical Treatment

Total Proctocolectomy with End-Ileostomy

- Removal of the whole colon, rectum and anus
- Ileostoma





Surgical Treatment

Colectomy With Hartmann's Closure of the Rectum

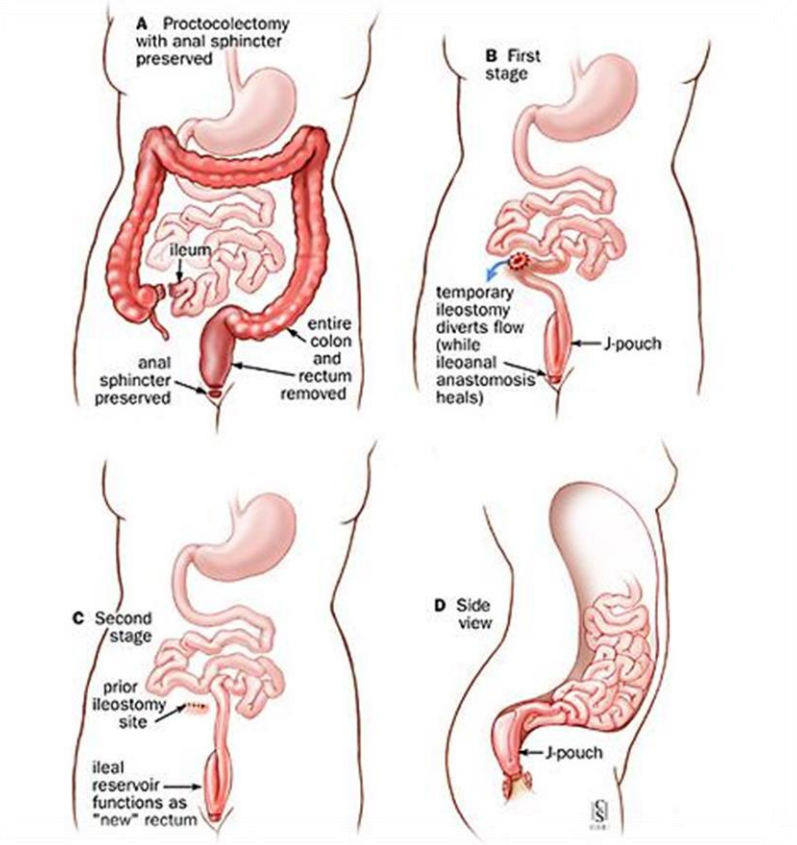
- Performed in emergency situations (Toxic Megacolon, Fulminant Colitis)
- Removal of the colon to the upper rectum.
- Ileostoma

Surgical Treatment

Total proctocolectomy with ileal pouch-anal anastomosis (IPAA)

- Most commonly performed surgical procedure for ulcerative colitis
- Usually performed in two stages:
  1. The colon and rectum are removed, the anus and anal sphincter muscles are preserved. The ileum is made into a pouch pulled down and connected to the anus + temporary ileostomy
  2. Ten to twelve weeks after the initial surgery the temporary ileostomy is closed.

Surgical Treatment



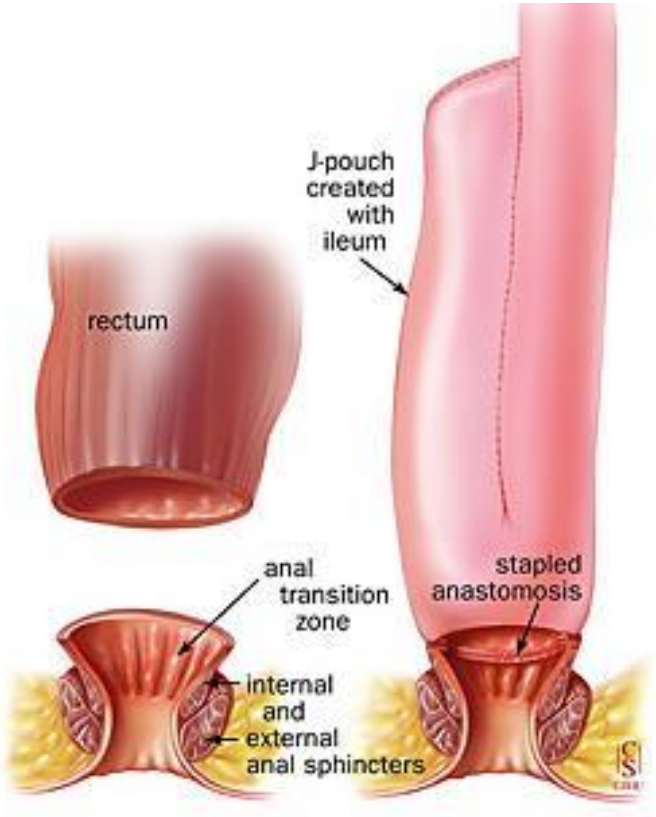


Table 289-4 Different Clinical, Endoscopic, and Radiographic Features		
	Ulcerative Colitis	**Crohn's Disease**
Clinical		
Gross blood in stool	Yes	Occasionally
Mucus	Yes	Occasionally
Systemic symptoms	Occasionally	Frequently
Pain	Occasionally	Frequently
Abdominal mass	Rarely	Yes
Significant perineal disease	No	Frequently
Fistulas	No	Yes
Small-intestinal obstruction	No	Frequently
Colonic obstruction	Rarely	Frequently
Response to antibiotics	No	Yes
Recurrence after surgery	No	Yes
ANCA-positive	Frequently	Rarely
ASCA-positive	Rarely	Frequently
Endoscopic		
Rectal sparing	Rarely	Frequently
Continuous disease	Yes	Occasionally
"Cobblestoning"	No	Yes
Granuloma on biopsy	No	Occasionally
Radiographic		
Small bowel significantly abnormal	No	Yes
Abnormal terminal ileum	Occasionally	Yes
Segmental colitis	No	Yes
Asymmetric colitis	No	Yes
Stricture	Occasionally	Frequently

Main Take Home Messages

IBD and Surgery:

- CD – Indication for surgery is a **complication** of the disease, not the disease itself. Surgery is NOT curative.

- UC – Indications for surgery vary. Surgery IS curative.

Thank You ☺