

# Gastrointestinal Pathology


## Appendix & Inflammatory Bowel Disease

---

### APPENDIX

#### I. Acute Appendicitis

##### Definition

- Acute inflammation of the appendix
- Most common cause of acute abdomen 

---

##### Pathogenesis (Flowchart)

Appendiceal obstruction → Increased intraluminal pressure → Venous congestion → Bacterial overgrowth → Ischemia + acute inflammation → Acute appendicitis

---

### Common Causes of Obstruction

Age Group	Cause
Children 🧒	Lymphoid hyperplasia
Adults 🧑	Fecalith

---

### Concept Insight

Why does obstruction cause inflammation?

Obstruction traps:

- Mucus
- Bacteria
- Secretions

👉 Pressure rises and compromises blood flow.

---

## Clinical Features

---

### 1. 🤕 Pain Migration (Classic Feature)

#### Early Pain

- Periumbilical pain

#### Reason:

- Visceral pain fibers refer pain to T10 dermatome
-

## Later Pain

Inflammation spreads to parietal peritoneum → Pain localizes to:

 Right lower quadrant (McBurney point)

---

## Pain Migration Flowchart

Luminal obstruction → Visceral inflammation → Periumbilical pain

Progressive inflammation → Parietal peritoneum involvement → RLQ localized pain

---

## 2. Fever and Nausea

Common systemic inflammatory symptoms.

---

## ! Complications

### A. ✨ Rupture → Peritonitis

Appendix perforates → Release of bacteria/inflammatory contents → Peritoneal irritation → Guarding + rebound tenderness

---

## 🧠 Concept Insight

### Rebound Tenderness

Pain worsens when pressure is released:


- Indicates peritoneal irritation
- 

### B. 🩸 Periappendiceal Abscess

- Common complication

- Localized collection of pus around appendix
- 

## Exam Focus

- Periumbilical pain → RLQ migration 
  - McBurney point tenderness is classic
  - Children: lymphoid hyperplasia
  - Adults: fecalith
- 

## INFLAMMATORY BOWEL DISEASE (IBD)

### I. Basic Principles

#### Definition

- Chronic relapsing inflammatory disorders of bowel
-

## Proposed Pathogenesis

Genetic susceptibility

+

Abnormal immune response to enteric flora  →

Chronic intestinal inflammation

---

## Typical Demographics

Commonly affects:

- Young women
  - Teens to 30s
- 

## Epidemiology

More common in:

- Western countries

- Caucasians
  - Eastern European Jews
- 

### Typical Presentation

Symptom	Explanation
Bloody diarrhea	Colonic inflammation
Abdominal pain	Chronic bowel injury
Relapsing/remitting course	Chronic immune activity

---

### Important Principle

IBD is a: Diagnosis of exclusion

Because infections and other inflammatory conditions can mimic it.

---

### Types of IBD

Type	Main Site
Ulcerative colitis (UC)	Colon/rectum
Crohn disease	Anywhere mouth → anus

---

## II. Ulcerative Colitis (UC)

### Definition

- Chronic inflammatory disease limited to:
  - Colon and rectum

---

## Pattern of Involvement

Begins in rectum → Extends proximally in continuous fashion → May involve entire colon

 No skip lesions.

---

## Most Common Pain Site

- Left lower quadrant

---

## Depth of Inflammation

Limited to:

- Mucosa
- Submucosa

---

 Clinical Features

Feature	Explanation
Bloody diarrhea 🩸	Mucosal ulceration
LLQ pain	Rectosigmoid involvement
Urgency/tenesmus	Rectal inflammation

---

 Histologic Feature

Crypt Abscesses ★

Neutrophils accumulate inside crypts → Crypt destruction

---

## Concept Insight

Why does diarrhea become bloody?

Superficial mucosal ulceration:

- Exposes blood vessels
- Causes bleeding

---

## Gross Appearance

Finding	Description
Pseudopolyps	Regenerating mucosal islands
Lead pipe colon	Loss of haustra on imaging

## Lead Pipe Formation

Chronic inflammation → Muscular damage → Loss of haustral folds → Smooth “lead pipe” appearance

---

## Complications

### A. Toxic Megacolon

Severe inflammation → Colonic dilation → Risk of perforation

---

### B. Colorectal Carcinoma

Risk increases with:

- Disease duration
- Extent of colonic involvement

 Usually significant after >10 years.

---

### Exam Focus

- Continuous lesions
  - Rectal involvement
  - Crypt abscesses
  - Lead pipe colon
- 

## III. Crohn Disease

### Definition

- Chronic transmural inflammatory bowel disease
- 

### Distribution

Can affect:

- Mouth → anus

Most common site:

- Terminal ileum

Least common:

- Rectum
- 

### Pattern of Disease

Patchy inflammation → Normal bowel between diseased areas → "Skip lesions"

---

### Depth of Inflammation

Transmural (full-thickness) ★

---

 Clinical Features

Feature	Explanation
RLQ pain	Terminal ileum involvement
Nonbloody diarrhea	Deeper inflammation
Weight loss	Malabsorption

---

 Histologic Findings

Finding	Importance
Granulomas	Seen in ~40%

Lymphoid aggregates	Chronic inflammation
---------------------	----------------------

---

### Concept Insight

Why are fistulas common?

Transmural inflammation:

- Extends through bowel wall
  - Creates abnormal connections
- 

### Gross Appearance

Feature	Description
Cobblestone mucosa	Deep ulcers + edema

Creeping fat	Fat wrapping bowel
Strictures	Fibrosis/narrowing
String sign	Narrow lumen on imaging

---


### String Sign Formation

Chronic transmural inflammation → Fibrosis → Luminal narrowing → Thin “string-like” appearance

---

### Complications

Complication	Mechanism
Malabsorption	Small bowel disease

Nutritional deficiency	Poor absorption
Calcium oxalate stones 	Fat malabsorption
Fistulas	Transmural inflammation
Carcinoma	Chronic colonic disease

---

### Concept Insight

Why kidney stones occur?

Fat malabsorption:

- Calcium binds fatty acids instead of oxalate
- Free oxalate absorbed more

→ Calcium oxalate nephrolithiasis

---

## ☀️ Extraintestinal Manifestations of IBD

Manifestation	Example
Joint disease 🦴	Ankylosing spondylitis
Eye disease 👁️	Uveitis
Skin lesions	Erythema nodosum
Liver disease	Primary sclerosing cholangitis

---

## 💧 Important Skin Findings

### Erythema Nodosum

- Tender red nodules on shins

## Pyoderma Gangrenosum

- Painful ulcerative skin lesions
- 

## Smoking Effects

Disease	Smoking Effect
Ulcerative colitis	Protective
Crohn disease	Increases risk

---

## Ulcerative Colitis vs Crohn Disease

Feature	Ulcerative Colitis	Crohn Disease
---------	--------------------	---------------

Distribution	Colon only	Mouth → anus
Pattern	Continuous	Skip lesions
Depth	Mucosa/submucosa	Transmural
Rectal involvement	Common	Rare
Diarrhea	Bloody	Usually nonbloody
Granulomas	Absent	Present
Gross appearance	Lead pipe	Cobblestone
Fistulas	Rare	Common
Smoking	Protective	Harmful

## Exam Pearls

- Crypt abscesses → UC
  - Granulomas → Crohn disease
  - Lead pipe colon → UC
  - Cobblestone mucosa → Crohn
  - Toxic megacolon → UC complication
  - Fistulas and strictures → Crohn disease
  - Smoking worsens Crohn but protects UC
- 

## Revision Summary

- Appendicitis pain migrates from periumbilical → RLQ
- UC = continuous mucosal disease of colon
- Crohn = transmural skip lesions anywhere in GI tract
- UC → crypt abscesses + lead pipe colon

- Crohn → granulomas + cobblestone mucosa
  - Toxic megacolon is a UC emergency
  - Fistulas are classic for Crohn disease
- 

-> The End <-