OBJECTIVES: IMAGING OF COLITIS

- CT technique
- Types of colitis
- Imaging features of colitis
  - Nonspecific
  - Specific
- Differential diagnosis & conclusion
DIAGNOSIS IN SUSPECTED COLITIS

- Clinical presentation
- Laboratory tests
- Detection by imaging
- Clinical confirmation for specific type without or with colonoscopy
• **Contrast Materials:**
  - Oral contrast: 3 bottles of 450 ml of VoLumen or 2.2% Gastrografin (3 x 10 mL/450 of water)
  - IV contrast: 3-4 cc/sec for 150 ml
  - Rectal contrast: water

• **Important:**
  - for suspected perforation use positive contrast (40 cc of Conray 60% in 1000 mL normal saline: use 500-1000 mL)
ABD/PEL WITH MDCT FOR COLITIS

- **16 (64) - slice MDCT:**
  Detector configuration: 16 (64) x 0.625 mm, axial reconstruction thickness and interval: 5 mm

- **Scan delay:**
  (enteric phase: 40 +) portal-venous 80 sec (smart prep), diaphragm to ischial tuberosity

- **Important:**
  - Coronal and sagittal MPRs: use 0.625 mm slices, reconstruct at 3 mm and send to PACS
  - Delayed scans (5 min) optional: for possible perf.
TYPES OF COLITIS

- IBD: UC and Crohn’s
- Infectious colitis
- Ischemic colitis
- Diverticulitis (DDX: EA)
- Neutropenic colitis
- Drug-related colitis
FEATURES OF COLITIS

Nonspecific signs:

- Wall thickening
- Target sign
- Hyperemia (comb sign)
- Pericolonic stranding
- Ascites
COLITIS
FEATURES OF COLITIS

Specific signs:
- Distribution
- Lymph nodes
- Fistulae
- Sinus tracts
FEATURES OF COLITIS

Distribution:

- Right, left or diffuse
- Skip areas
- Rectum spared
- Focal only
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# ULCERATIVE COLITIS VS. CROHN’S

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<thead>
<tr>
<th>Feature</th>
<th>Crohn’s</th>
<th>UC</th>
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<tbody>
<tr>
<td>Location</td>
<td>Typ. right + T1</td>
<td>Typ. left or diffuse</td>
</tr>
<tr>
<td>Wall of T1</td>
<td>Thick</td>
<td>Relatively thin</td>
</tr>
<tr>
<td>Terminal ileum</td>
<td>String sign</td>
<td>Backwash ileitis</td>
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<tr>
<td>Ileocecal valve</td>
<td>Strictured</td>
<td>Gaping</td>
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<tr>
<td>Distribution</td>
<td>Skip areas</td>
<td>Continuous</td>
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<tr>
<td>Appearance</td>
<td>Asymmetrical</td>
<td>Symmetrical</td>
</tr>
<tr>
<td>Fistulae</td>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td>Rectum</td>
<td>Spared</td>
<td>Involved</td>
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<tr>
<td>Wall of colon</td>
<td>11 +/- 5.1 mm</td>
<td>7.8 +/- 1.9 mm</td>
</tr>
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<td>Peri-intestinal</td>
<td>Creeping fat, nodes</td>
<td>Perirectal fat↑</td>
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CROHN’S DISEASE: SMALL BOWEL
ULCERATIVE COLITIS

TI with hyperenhancing wall
# DISTRIBUTION: IBD & INFECTIOUS COLITIS

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COLITIS WITH SMALL BOWEL (TI)

- Crohn’s colitis
- Tb colitis
- Yersinia colitis
- Salmonellosis
- Typhlitis
- CMV colitis
- Campylobacteriosis
Hx: previous exposure, abd. pain, weight loss
THICKENED RIGHT COLON

PASSIVE CONGESTION IN CIRRHOSIS
**DISTRIBUTION: IBD & INFECTIOUS COLITIS**

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DRUG-INDUCED COLITIS

Drug hypersensitivity, antihypertensive drugs, NSAIDs
• Crohn’s disease
• Tuberculous (ileo)colitis
• Pseudomembranous colitis
• Amebiasis
• Caustic colitis (spasms)
• Shigellosis colitis (healing)
COLITIS WITH RECTUM SPARED

- Crohn’s disease (two age peaks)
- Ischemic colitis (≤ 3% involved)
- C. difficile colitis (PM), amebiasis
- UC treated with steroid enemas
INVOLVEMENT OF RECTUM

Crohn’s: TI + nl. rectum

UC: thickened rectum
ISCHEMIC COLITIS: ASSOCIATED FINDINGS

- Infarcts in liver, spleen, kidneys
- Occlusion of SMA or branches
- Thrombosis of mesenteric vessels
- Air in mesenteric vessels, hepatic portal veins
FOCAL COLITIS

- Crohn’s Colitis
- Typhlitis (neutropenic colitis)
- Diverticulitis (DDx: ca)
- Anisakiasis
- DDx: Epiploic Appendagitis
  (incidence: 8.8/million/year)
DIVERTICULITIS

LLQ or RLQ pain, fever, leukocytosis, diarrhea
EPIPLOIC APPENDAGITIS

LLQ or RLQ pain, no leukocytosis, no guarding
COLITIS WITH ADENOPATHY

- Crohn’s disease
- Tuberculosis
- Histoplasmosis
- Yersinia colitis

Exclude:
- HIV
- Tumor
• Crohn’s disease (right)
• Tuberculosis
• Diverticulitis (left)
• Actinomycosis
• Histoplasmosis
• Strongyloidiasis
• UC (anal sinus tracts)
TUBERCULOUS COLITIS
COLONOSCOPY FOR COLONIC THICKENING ON CT (N = 107)

- 8 (7.4%) with new Dx of colonic carcinoma
- 10 (9.3%) had a new Dx of IBD
- 16 (15%) had infectious colitis
- 39 (36.4%) had ischemic colitis
- 6 (5.6%) had miscellaneous (diverticulitis, proctitis, appendicitis)
- 28 (26.1%) no abnormality found

TAKE HOME MESSAGE

- Wall thickening nonspecific
- Ascites favors infectious or ischemic colitis
- UC + most infectious colitis: continuous, rectum involved
- Crohn’s: skip (Tb, PMC, Ameb, Shig.), asymmetry, rectum often spared
- Fistulae: • Crohn’s • Tb colitis • Actinomycosis • Strongyloidiasis
- Ischemia: vascular pattern + rectum spared