Inflammatory Bowel Disease
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Lecture objectives

- Understand the symptoms and workup of microscopic colitis
- To understand symptoms and salient clinical features of ulcerative colitis and Crohn’s disease
- To understand the workup of IBD
- To understand treatment approaches and complications related to IBD

Question 1

A 75 year old female presents with complaints of diarrhea for 3 months. She is having 6-8 watery bowel movements a day with no blood or mucus. The diarrhea is not associated with meals and has recently been waking her up at night. She denies weight loss. Her PMH is notable for HTN and arthritis. She is on lisinopril and daily ibuprofen. Her labs are notable for a hemoglobin of 13.5 g/dL. Her potassium is 2.5 mEq/L and creatinine is 0.9 mg/dL. Her CRP is 1.2 mg/dL. Her stool studies are negative for fecal leukocytes, *Clostridium difficile*, and other infections. Her colonoscopy three years showed sigmoid diverticulosis. Which of the following would be the next appropriate step in management?

A. Upper endoscopy with small bowel biopsies
B. Chromogranin A level
C. Vasoactive intestinal peptide level
D. Colonoscopy with random biopsies
E. Cross sectional imaging

Question 2

A 71 year old male with a three year history of left sided ulcerative colitis presents with worsening bloody diarrhea for 3 weeks. He notes a decreased appetite and a weight loss of ten pounds over this time period. His disease has been well managed with 2.4 gm of daily mesalamine for the past three years. His labs show a hemoglobin of 8.5 g/dL with a ferritin of <10 ng/mL. His CRP is 23.6 mg/dL. His albumin is 2.5 g/dL. Which of the following is the next appropriate step in management.

A. Perform an EGD with small bowel biopsies
B. Place him on methylprednisolone 60 mg IV TID
C. Obtain *Clostridium difficile* stool studies
D. Obtain a CMV PCR
E. Start him on infliximab
**Question 2**

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**Ulcerative Colitis Flares**

- **Stool studies**
  - Culture/O&P  
  - C. difficile  
  - Stool Giardia antigen
- **Labs:** CBC, comprehensive metabolic panel, ESR, CRP  
- **Flexible sigmoidoscopy**
  - Evaluate severity of disease  
  - Evaluate for superimposed CMV colitis  
  - Full colonoscopy during severe flare increases risk of perforation/can precipitate toxic megacolon

Up to 25% of UC patients presenting with flare will be C.difficile positive

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**UC - Extent of Disease**

- Extensive
- Left-sided
- Pancolitis 40%
- 30%
- Proctitis 30%
- Normal colon
- Ulcerative colitis

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**Question 3**

A 35 yo male presents to the clinic with fatigue. His labs show an elevated alkaline phosphatase of 256 U/L with a total bilirubin of 3.5 mg/dL. His AST is 56 U/L and ALT is 65 U/L. His MRI shows dilation of the intrahepatic ducts and no cirrhosis. A diagnosis of primary sclerosing cholangitis is made. He denies abdominal pain, diarrhea, or rectal bleeding. His hemoglobin is 15.6 g/dL and ferritin is normal. The next most appropriate test is:

A. Obtain a alpha feta protein level  
B. Perform an upper endoscopy  
C. Perform a colonoscopy  
D. Obtain a liver biopsy

**Ulcerative Colitis**

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C. Perform a colonoscopy  
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### Extraintestinal Manifestations & Relation to IBD Activity

<table>
<thead>
<tr>
<th>Related</th>
<th>May be related</th>
<th>Unrelated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aphthous ulcer</td>
<td>Anterior uveitis</td>
<td>Sacroileitis (HLA-B27)</td>
</tr>
<tr>
<td>Erythema nodosum</td>
<td>Pyoderma gangrenosum</td>
<td>Ankylosing spondylitis (HLA-B27)</td>
</tr>
<tr>
<td>Episcleritis</td>
<td></td>
<td>Primary Sclerosing Cholangitis</td>
</tr>
<tr>
<td>Peripheral arthritis (IBD arthropathy)</td>
<td></td>
<td></td>
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</tbody>
</table>

### UC complications: Colon cancer

- **Risk factors:**
  - *PSC*
  - Age of onset
  - Extent/severity
  - Family history
  - Colonic stricture

- IBD colon cancer may not arise from typical colon polyps, they may arise from fiat/invisible dysplastic lesions or visible polyloid or nonpolyloid lesions

- **Screening (NOT proctitis):** q1-2 years beginning 8 yrs after diagnosis; *start as soon as diagnosis of UC in PSC patients q1-2 years

### Bone-Related Diseases

50% of patients with IBD have osteopenia

### Question 4

29 year old female with a history of ulcerative colitis initially managed on mesalamine presents with increased bloody diarrhea for 4 months. Her stool studies were negative and she was started on steroids. She initially did well but as the steroids were tapered down to prednisone 15 mg daily she had a relapse of her symptoms. Her labs are notable for a hemoglobin of 10.5 g/dL and CRP of 12.8 mg/dL. Her albumin is 3.1 g/dL. The next best course of action is to:

- A. Place her on oral vancomycin for presumed *Clostridium difficile*
- B. Keep her on maintenance prednisone 20 mg daily
- C. Start her on azathioprine if her thiopurine methyltransferase level is normal
- D. Begin natalizumab.

### UC Meds

<table>
<thead>
<tr>
<th>UC Meds</th>
<th>Induce Remission</th>
<th>Maintain Mild-moderate</th>
<th>Moderate-Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mesalamine/sulfasalazine</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Steroids</td>
<td>+</td>
<td>--</td>
<td>+</td>
</tr>
<tr>
<td>6-mercaptopurine/azathioprine*</td>
<td>--</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Infliximab*</td>
<td>+</td>
<td>+</td>
<td>--/+</td>
</tr>
<tr>
<td>Adalimumab*</td>
<td>+</td>
<td>+</td>
<td>--/+</td>
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<tr>
<td>Golimumab*</td>
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<tr>
<td>Cyclosporine</td>
<td>+</td>
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<td>--</td>
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<tr>
<td>Vedolizumab*</td>
<td>+</td>
<td>+</td>
<td>--/+</td>
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* Steroid sparing agents
UC Meds | Mechanism of Action | Side Effects
--- | --- | ---
mesalamine/ sulfasalazine (5-ASA) | Unknown, topical, (-) cyclooxygenase/lipo- Oxygenase, 5 PGEs in colon | Interstitial nephritis (M), Diarrhea (M), Leukopenia, hepatotoxicity (S)
Steroids | Anti-inflammatory, topical or systemic | Acne, DM, obesity, HTN, infections, cataracts, bone loss, osteonecrosis of hip
6-mercaptopurine/ azathioprine | Thioguanine nucleotide metabolites modify immune response by (-) DNA synthesis | Pancreatitis, fever, leukopenia, hepatotoxicity, lymphoma, NMSC
Infliximab | Tumor necrosis factor-alpha (TNF-α) inhibitor | Check thiopurine methyltransferase prior to starting
Adalimumab | IL-2 production, blocks T-and B-cell | HTN, nephrotoxic, neurotoxic, infection (Pneumocystis)
Golimumab | Alpha4beta7integrin | Infection, ‘PML

**Hepatosplenic T-Cell Lymphoma**

- RARE reports in young patients on combination 6-MP/azathioprine and infliximab
- 100% fatal
- Seen more commonly in young (<30) male patients

**Ulcerative colitis: Surgery**

- Indications:
  - Medically refractory disease
  - Hemorrhage
  - Toxic megacolon
  - Colon cancer/dysplasia
  - Patient desire

**Question 5**

A 28 year old AAM with Crohn’s disease is admitted to the hospital with complaints of worsening abdominal pain associated with nausea and vomiting and loose stools over the past 6 months. He also has been diagnosed with several urinary tract infections during this time period. He has lost about 30 pounds. He smokes one pack per day. His MR enterography shows evidence of a terminal ileal stricture measuring 15 cm with diffuse dilation of the small bowel proximal to this area. In addition, he is found to have a colovesicular fistula. He currently is on azathioprine 75 mg for his Crohn’s disease. The next best step in management is:

A. Surgery
B. Steroid taper
C. Add infliximab
D. Increase the dose of azathioprine

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Fistulas

Enterocutaneous fistula

Perianal fistula

Rectovaginal fistula

Colovesical fistula

Consider this diagnosis in patient with Crohn’s disease presenting with a limp, RLQ pain, and fever.

Crohn’s Disease

Freq. of involvement
most least
Small bowel alone 33%
Ileocecal 45%
Colon alone 20%

Crohn’s Disease: Diagnosis

Non-caseating granuloma

Crohn’s: Diagnostic Imaging

- Small bowel imaging
  - Barium films
  - CT Enterography
  - MR Enterography
- Capsule endoscopy
  - Higher diagnostic yield than SBFT
  - Highly sensitive -> risk of false positives
  - Risk of causing obstruction -> offer Patency capsule

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<td>+/-</td>
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<tr>
<td>Ciprofloxacin/Metronidazole</td>
<td>+</td>
<td>+/-</td>
<td>+</td>
<td>-</td>
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<tr>
<td>Steroids/budesonide</td>
<td>+</td>
<td>--</td>
<td>+ (Budesonide only multi-drug treated)</td>
<td>+</td>
</tr>
<tr>
<td>6MP/Azathioprine*</td>
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* Steroid sparing agents
**Question 6**

28 yo female with Crohn’s disease presents with diarrhea x 2 months. She describes it as foul smelling, greasy appearance, and bulky. She has undergone multiple small bowel resections with a loss of approximately 125 cm of ileum. All of the following are appropriate in management EXCEPT

A. Check a vitamin B12  
B. Check a vitamin D level  
C. Place her on cholestyramine  
D. Put her on a low fat diet

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**Crohn’s and Diarrhea**

<table>
<thead>
<tr>
<th>Cause</th>
<th>Mechanism</th>
<th>Treatment</th>
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<tbody>
<tr>
<td>Inflammation</td>
<td>Immune activation, secretory/inflammatory diarrhea</td>
<td>Immunosuppressives</td>
</tr>
<tr>
<td>Terminal ileal resection &gt;60 cm</td>
<td>Bile salt EXCESS resulting in secretory choleric diarrhea</td>
<td>Bile acid binding agents</td>
</tr>
<tr>
<td>TI resection &gt;100 cm</td>
<td>Bile salt DEPLETION - steatorrhea</td>
<td>Low fat diet</td>
</tr>
<tr>
<td>Small bowel bacterial overgrowth</td>
<td>Strictures, small bowel surgery, steatorrhea</td>
<td>Antibiotics</td>
</tr>
<tr>
<td>Irritable bowel syndrome</td>
<td>Psychological, stress, secretory</td>
<td>Anti-depressants, counselling</td>
</tr>
</tbody>
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**Answer Key For Questions**

- 1. D  
- 2. C  
- 3. C  
- 4. C  
- 5. A  
- 6. C