Extraintestinal Manifestations of IBD

Hyun Kim, M.D.
San Diego Digestive Disease Disease Consultants
Associate Professor, UCSD School of Medicine
Why Other Organs Involved in IBD?
IBD - Extraintestinal Manifestations Related to Disease Activity

- Aphthous stomatitis
- Episcleritis and uveitis
- Vascular complication
  - E. nodosum
  - P. gangrenosum
- Arthritis
Organ Involvement

Bones, Joints

Eyes

Skin

Liver, Bile Ducts, Gallstones

Kidney

Pancreas
Peripheral Arthritis

- Seen in 25-40% of patients, more in CD
  - Knees, ankles, wrists, elbows commonly affected – warm, tender
  - Can be associated with arthralgia
  - Can be associated with erythema nodosum, uveitis
  - Rheumatoid factor negative; not erosive or deforming arthritis
  - Treatments: Treat the bowel disease – mesalamine (sulfasalazine), steroid, pain medication
Peripheral Arthritis

- Monoarticular
- Asymmetrical
- Large > small joint
- No synovial destruction
- No subcutaneous nodules
- Seronegative
Axial Arthritis

- Ankylosing spondylitis, Sacroiliitis – low back pain, pelvic bone pain

- HLA-B27 +

- Bone inflammation can lead to bone fusion and skeletal deformity

- Usually need aggressive treatment for IBD, including TNF Ab, pain management, steroid joint injection

- May not be associated with bowel inflammation
Sacroiliitis
Osteoporosis

**Major complications from:**
1. Prolonged steroid treatment - dose, duration
2. Extensive small bowel inflammation - malabsorption
3. Small bowel resection (short bowel syndrome) – malabroption of Ca$^{2+}$, Vit. D

- Important to get bone density scan every 1-2 years in active IBD
Site of Nutrient Absorption

- Stomach
- Small Bowel
- Colon

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Pipkin & Gadacz, p282, Nutrition Considerations in the ICU, 2002
Osteopenia Risk Factors

Baseline
- Ethnicity
- Family History
- Lifestyle and dietary habits
- Body habitus
- Reproductive history

Disease related
- Inflammation
  - Cytokines (CD > UC)
- IBD medication
  - Corticosteroids
Causes of Bone Mineral Loss

- Calcium and vitamin D malabsorption
- Coexisting conditions: menopause, inflammation
- Medications: steroids, cholestyramine
- Parenteral nutrition
Bone Health in IBD

Osteoporosis is associated with:

- Prior or current steroid use
- Family history of osteoporosis
- Tobacco & alcohol use
- Menstrual loss
- Extensive ileal disease or resection
- Inadequate calcium intake
- Prolonged active disease
- Liver disease
Treatment of Bone Loss

- Supplement Calcium, Vitamin D
- Exercise (weight bearing, walking)
- Treat underlying disease
- Don’t smoke, avoid excessive alcohol
- Eliminate offending medications
- Consider using estrogen, bisphosphonates
Crohn’s Disease

Treatment of Low Bone Mineral Density

Lumbar spine

Femoral neck

Mean % change in BMD

Month

Haderslev KV et al., Gastroenterology, 2000; 119:639
Eye

- Ocular inflammation seen in 1.9% - 13% IBD
- More common in Crohn’s disease > UC
- Can see anterior uveitis, scleritis, keratitis, retinal vasculitis
- Anterior Uveitis – pain, redness, photophobia
  - More common in HLA-B27 + pts
  - Not reflect IBD activity
- Scleritis – discomfort, episcleral inflammation
- Treatment: Steroid eye drop, Ophthalmology evaluation.
UC - IBD Systemic Complications
Episcleritis

Uveitis
Skin

• **Pyoderma gangrenosum** – painful ulceration with purple borders; induced by trauma
  - May not reflect that of bowel activity
• **Erythema nodosum** – painful nonulcerated nodules on lower extremity
  - Can also be seen in sarcoid, drugs, rheumatologic disease, streptococcal infection
  - Skin lesion reflect that of bowel activity
• **Sweet’s syndrome** – painful plaques on the head, neck, upper extremities, can be vesicles
• **Aphthous stomatitis** – painful oral ulcers; associated with active IBD
• **Vasculitis** – affect superficial blood vessels; may be palpable purpura on lower extremities; associated with active IBD
Erythema Nodosum
Pyoderma Grangrenosum - Ankle
Sweet’s Syndrome

Aphthous Stomatitis (oral ulcers)

Vasculitis
Skin Cancer

- Both non-melanoma skin cancer (NMSC) and melanoma can be seen in IBD patients
- NMSC risk: 1.46 for IBD vs non-IBD population
- NMSC risk higher in thiopurine treatment (6-mercaptopurine, azathiopurine) by increasing photosensitivity to ultraviolet A (UVA)
  - higher risk in longer treatment duration & combination treatment with anti-TNF
- Melanoma increased in anti-TNF therapy
- Prevention: Sunscreen lotion, avoid tanning salon, avoid smoking, get regular dermatology exam, careful self-exam for skin lesion
Basal Cell Skin Cancer

Squamous Cell Skin CA

Melanoma Skin CA
Primary Sclerosing Cholangitis (PSC)

- The most common bile duct injury seen in IBD – 2.5-7.5%
- Causes inflammation, fibrosis leading to stricture of the bile ducts
- Strong association with Ulcerative Colitis – 5-10%
- Fever, chills, abnormal LFT, RUQ abdominal pain, jaundice, dark urine, itching (pruritus)
- Slowly progressive, leading to cirrhosis, portal hypertension, liver transplantation
- May lead to cholangiocarcinoma (5-15% of PSC) & higher risk of colon cancer
PSC-Associated Colitis

- Mild or subclinical colitis
- Microscopic ileitis
- High risk of colonic neoplasia
- High risk of pouchitis
- Usually pANCA positive
UC - IBD Systemic Complications
Pancreas

Pancreatitis – Multifactorial:

1. **Drug Induced** – 6-Mercaptopurine, azathioprine, steroid, mesalamine, metronidazole
   - most common cause of acute pancreatitis
2. **Duodenal Crohn’s disease** – fistula from duodenum to pancreatic duct, ulcer into duct
3. **Biliary tract disease** – Gallstone, primary sclerosing cholangitis
4. **Autoimmune** – when no other cause is found, pancreatic auto-antibodies CD>UC
5. **TPN** - ↑ Triglycerctide during TPN use
Kidney stones seen up to 1-5% of IBD patients - CD > UC

Oxalate stones – most common in small bowel CD

Uric acid stones – most common in an ileostomy without colon; due to dehydration and acidic urine which precipitates uric acid crystals in kidney

Risks of kidney stones – dehydration, UTI, acidic urine, steroid use (more Ca^{2+} absorption), sodium loss due to diarrhea

Symptoms: dysuria, abdominal/flank pain, hematuria

Rx: Good hydration, dietary oxalate restriction, treat IBD, sodium bicarbonate, anti-diarrheal medicine
Oxalate Kidney Stone Formation

Foods to Avoid
- Vitamin C
- Sorrel
- Rhubarb
- Buckwheat
- Spinach/chard
- Nuts
- Chocolate
- Berries
- Beets
- Tea
- Cola
- Celery
- Carrot
<table>
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<td><strong>Response to Treatment?</strong></td>
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<tr>
<td>Ankylosing spondylitis, sacroilitis, axial arthritis</td>
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<td>Erythema nodosum</td>
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<td>Episcleritis</td>
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## Vitamin and Mineral Deficiencies

### Manifestations

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<tr>
<td>Vitamin $B_{12}$ / Folate / Iron</td>
<td>anemia, glossitis, cheilitis, angular stomatitis, diarrhea*, paresthesias*, ataxia*</td>
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<tr>
<td>*Vitamin $B_{12}$ only</td>
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<tr>
<td>Vitamin D / Calcium / magnesium</td>
<td>osteoporesis, osteomalacia, paresthesias, tetany</td>
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<tr>
<td>Zinc</td>
<td>anorexia, diarrhea, rash, alopecia</td>
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<tr>
<td>Vitamin A</td>
<td>night blindness, dry eyes, hyperkeratosis, diarrhea</td>
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<tr>
<td>Vitamin K</td>
<td>ecchymoses, bleeding</td>
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<tr>
<td>Vitamin E</td>
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