IBD 101

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Objectives

• Identify factors involved in the development of inflammatory bowel disease (IBD)

• Discuss the clinical presentation of Crohn’s disease and ulcerative colitis

• Review common diagnostic testing and monitoring
What is IBD?

• IBD is a persistent/long-lasting (chronic) inflammation of the gastrointestinal tract
  – Driven by cells of the immune system
  – Periods of more active and less active inflammation

• Crohn’s disease and ulcerative colitis are types of inflammatory bowel disease (IBD)
  – More likely a spectrum of disease
  – The “type” of IBD is often unclear in children
How Common is IBD?

• IBD occurs more often in Western countries
  – 1.6 million Americans with IBD
  – 80,000 children

• IBD rates are increasing worldwide
  – Highest increases are being seen among children
    • In particular very young children

• Peak incidence between the ages of 15-35

CCFA. “The Facts about Inflammatory Bowel Diseases.” 2014
Why does IBD occur?

- Genetic Predisposition
- Environmental Triggers (Luminal Bacteria, Infection)
- Mucosal Immune System (Adaptive/Innate)
# IBD Presentation

<table>
<thead>
<tr>
<th>Symptoms/Signs</th>
<th>CD</th>
<th>UC</th>
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</thead>
<tbody>
<tr>
<td>Rectal bleeding</td>
<td>++</td>
<td>++++</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>++</td>
<td>++++</td>
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<tr>
<td>Weight loss</td>
<td>++++</td>
<td>++</td>
</tr>
<tr>
<td>Growth failure</td>
<td>++++</td>
<td>+</td>
</tr>
<tr>
<td>Perianal disease</td>
<td>++</td>
<td>-</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>++++</td>
<td>+++</td>
</tr>
<tr>
<td>Anemia</td>
<td>+++</td>
<td>+++</td>
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<tr>
<td>Mouth ulcers</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>Fevers/Arthritis</td>
<td>++</td>
<td>+</td>
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</table>
Common Laboratory Testing

- **CBC (complete blood count)**
  - Hemoglobin (low: anemia)
  - WBC (high: infection, inflammation)
  - Platelets (high: inflammation, bleeding, anemia)

- **CMP (complete metabolic panel)**
  - Assess electrolytes, liver, kidney function
  - Albumin (low with intestinal inflammation)

- **ESR/CRP**
  - Markers of inflammation

- **Vitamin D**
Common Stool Testing

- Rule out enteric infections
  - Culture for bacteria
  - C. diff
  - Viral stool studies
  - Parasites

- Calprotectin
  - Sensitive marker of gut inflammation
Normal Digestive Tract Anatomy

GI Tract

Colon (Large Intestine)
Normal Endoscopic Appearance

Colon

Terminal Ileum
Ulcerative Colitis

A proctitis

B left-sided colitis

C pancolitis

Colitis with Transition Zone

Pancolitis
Crohn Disease: Endoscopy

- Patchy Colitis, linear ulceration
- Crohn’s ileitis
- Small erosions (aphtae) in the colon
- Aphthous Ulcerations
Extraintestinal Manifestations of IBD
IBD – HEENT exam

Aphthous ulcers

Photo courtesy of CDC - Sol Silverman, Jr., DDS
IBD – Ophthalmologic Findings

Episcleritis

Uveitis
IBD – Dermatologic Manifestations

Pyoderma gangrenosum

Erythema nodosum
Growth Failure in Pediatric IBD

- Increased needs
- Malabsorption
- Suboptimal intake
- Increased GI losses

MALNUTRITION

GROWTH FAILURE

- Pubertal Delay
- Corticosteroids
- Inflammation
Multidisciplinary Assessments

• Since IBD has effects within and outside the gastrointestinal tract the CHOP IBD Center uses a multidisciplinary approach to its management
  – Nutrition
  – Behavioral Psychology
  – Social Work
  – Immunology, rheumatology, dermatology, ophthalmology as needed
Radiological Testing in IBD
Traditional Modalities
• Upper GI with Small Bowel Follow-Through
• Barium Enema
• CT scan

Recent trends
• MRI enterography (pelvis/abdomen)
• High resolution ultrasound/contrast enhanced ultrasound
• CT enterography
Crohn’s disease -- Stricturing

Colonic Stricture

Ileal Stricture
Crohn’s disease – Fistulizing
UGISBFT Compared to MR Enterography

Abnormal TI on SBFT with correlation on MRI before and after contrast
Ultrasound of the Bowel

Sag Terminal Ileum

NORMAL TI

ABNORMAL TI
Capsule Endoscopy

• Relatively easy to swallow
  – Endoscopically placed in younger patients

• Can visualize entire small bowel

• **MUST** rule out intestinal stricture prior to placement
Bone Monitoring

• Decreased bone density recognized in pediatric IBD

• DXA scan
  – Performed at diagnosis and repeated when clinically indicated

• Vitamin D

• Calcium

• Increased physical activity
Thank you!