Diseases of the Colon

I have no relationship with any commercial firm having products related to topics I will discuss at this conference.
Inflammatory Bowel Disease

ULCERATIVE COLITIS
Mucosal Ulceration in Colon

CROHN’S DISEASE
Transmural Inflammation

Ileitis
Ileocolitis
Colitis
Inflammatory Bowel Disease
Epidemiology

- Approximately equal incidence among males and females
- 10%-25% of relatives affected
- Strong concordance in disease type among family members

- Ulcerative Colitis
- Crohn's Disease

Age of onset (years)
Number of patients
Inflammatory Bowel Disease

Etiology

- Smoking
  - Exacerbates Crohn’s disease
  - Protects against ulcerative colitis
    - Reasons are unknown
Inflammatory Bowel Disease
Distinguishing Features

<table>
<thead>
<tr>
<th></th>
<th>Ulcerative Colitis</th>
<th>Crohn’s Disease</th>
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<tbody>
<tr>
<td>Blood</td>
<td>++++</td>
<td>+</td>
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<tr>
<td>Tenesmus</td>
<td>++++</td>
<td>++</td>
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<tr>
<td>Abdominal Pain</td>
<td>+</td>
<td>+++</td>
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<tr>
<td>Fever</td>
<td>+</td>
<td>++</td>
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<tr>
<td>Weight Loss</td>
<td>+</td>
<td>++</td>
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<tr>
<td>Perineal Disease</td>
<td>0</td>
<td>+++</td>
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<tr>
<td>Fistulas</td>
<td>0</td>
<td>+++</td>
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</tbody>
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Inflammatory Bowel Disease

Distinguishing Features

**Ulcerative Colitis**
- **Anatomy**: Limited to colon
- **Endoscopy**: Continuous inflammation
- **Gross Pathology**: Mucosal involvement only
- **Biopsy**: Diffuse inflammation

**Crohn’s Disease**
- **Anatomy**: Any part of the GI Tract
- **Endoscopy**: Discontinuous, focal lesions
- **Gross Pathology**: Transmural involvement
- **Biopsy**: Focal inflammation, Granulomas

**Indeterminate Colitis**
Ulcerative Colitis
Diagnosis

- **Endoscopic Features**
  - Loss of vascular markings
  - Diffuse erythema
  - Exudate
  - Hemorrhage
ENDOSCOPIC SPECTRUM OF PROCTOCOLITIS

Mild

Moderate

Severe
Ulcerative Colitis
Clinical Features

- Rectal bleeding
- Mucus
- Tenesmus
- Diarrhea
- Abdominal cramps
Crohn’s Disease
Clinical Features

- Chronic abdominal pain
- Diarrhea
- Perineal disease
- Distension
- Weight loss
- Fever
- Rectal bleeding (variable)
- Growth failure
Crohn’s Disease
Clinical Features

- Obstruction
- Appendicitis-like presentation
- Fistulas
- Abscesses
- Gallstones
- Nephrolithiasis
- Steatorrhea
Inflammatory Bowel Disease
Clinical Features

- Toxic Megacolon
  - Edema of the bowel wall
Inflammatory Bowel Disease
Clinical Features

Toxic Megacolon
- Edema of the bowel wall
Extraintestinal Manifestations

- Skin
- Joints
- Eyes
- Liver
- Thromboembolic
Ulcerative Colitis
Systemic Complications in SKIN

Erythema Nodosum
Pyoderma Gangrenosum
Ulcerative Colitis
Colorectal Cancer

Distinguishing Features

- Multiple
- Arises from flat mucosa
- Infiltrates broadly
- Uniformly distributed
- Anaplastic
- Younger age
Ulcerative Colitis
Systemic Complications

Peripheral Arthritis

- Monoarticular
- Asymmetrical
- Large > small joint
- No synovial destruction
- No subcutaneous nodules
- Seronegative
Ulcerative Colitis
Indications for Surgery

- Exanguinating hemorrhage
- Toxicity and/or perforation
- Suspected cancer
- Significant dysplasia
- Growth retardation
- Systemic complications
- Intractability
Crohn’s Disease
Intestinal Complications

Fistula

- Mesenteric
- Entero-enteric
- Entero-vesical
- Retroperitoneal
- Entero-cutaneous
Crohn’s Disease
Endoscopic Appearances

- Aphthae
- Stellate Ulcer
- Longitudinal Ulcer
- Pseudopolyp
Crohn’s Disease
Endoscopic Appearances

- Aphthae
- Stellate Ulcer
- Longitudinal Ulcer
- Pseudopolyps
CROHN’S DISEASE

Ileitis

“String Sign”
Inflammatory Bowel Disease
Ethnic and Racial Incidence

Incidence per $10^5$ population

- Jews
- Non-Jewish Caucasians
- Blacks
Inflammatory Bowel Disease Management

- **Anti-inflammatories**
  - 5-ASA agents
    - Sulfasalazine
    - Mesalamine
    - Olsalazine
  - Corticosteroids

- **Immunosuppressives**
  - 6-Mercaptopurine
  - Azathioprine

- **Antibiotics**
  - Metronidazole
  - Quinolones

- **Antidiarreals**
  - Loperamide hydrochloride
  - Diphenoxylate with atropine
  - Cholestyramine

- **Biologics**
Inflammatory Bowel Disease Management

- **Proctitis**
  - Mesalazine suppositories/enemas
  - Steroid foams/enemas

- **Distal colitis**
  - Mesalazine enemas
  - Steroid enemas
  - Sulfasalazine
  - Oral mesalazine
Sulfasalazine

SULFAPYRIDINE

5-AMINOSALICYLATE
Crohn’s Disease
Management

Drug Therapy

Gastroduodenal
- Prednisone
- 6-Mercaptopurine (6-MP) /azathioprine
- Omeprazole

Ileal
- Budesonide
- Prednisone
- Sulfasalazine
- Mesalamine
- 6-MP/azathioprine

Colitis
- Distal
  - 5-ASA enemas
  - Steroid enemas
- > 60 cm
  - Sulfasalazine
  - Mesalamine
  - Metronidazole
  - Prednisone
- Severe
  - Prednisone
  - parenteral steroids
  - Antibiotics

Perineal
- Metronidazole
- Ciprofloxacin
- 6-MP

Remission
- 6-MP/azathioprine
- Oral Mesalamine
- Methotrexate

Biologics
When to Use AZA/6-MP in IBD:
Evidence-based indications

- Steroid-dependent disease
- Steroid-resistant disease
- Relapse prevention
- Perianal disease
- Fistulizing disease
- Post-operative recurrence prevention
- Prevention of Colectomy for UC After Induction with CsA

TNF

- An early, pivotal mediator of inflammation
- A pro-inflammatory molecule that activates the “master switch” nuclear factor KB which lends to further production of other pro-inflammatory cytokines
- Recruitment of inflammatory cells by up-regulation of adhesion molecules (cell trafficking)
Infliximab

- IgG1 MAB
- Binds to TNF both soluble and transmembrane
- Accent I - conducted to determine whether maintenance Infliximab provides better long-term efficacy than no further treatment in people with Crohn’s disease who responded to one dose
Infliximab
In Active Crohn’s Disease

Combined Infliximab-Treated Patients

Response (%)

100
90
80
70
60
50
40
30
20
10
0

P < 0.001

4 Weeks Clinical Response

Placebo (n = 25)

All infliximab (n = 83)
P = 0.005

65%
17%
4%

4 Weeks Clinical Remission

33%

Clinical response defined as at least a 70-point reduction in CDAI.
Clinical remission defined as a decline of the CDAI below 150.
Diarrhea is both a sign & symptom

- As a Symptom
  - ↑ Frequency
  - ↑ Volume
  - ↓ Consistency

- As a Sign
  - Stool weight > 150 to 200 g per 24 hr.
  - Stool water > 150 to 200 ml per 24 hr.
History is helpful in evaluating patients with diarrhea

- **History:**
  - Duration, travel history, medications, patient age, diet

- **Character:**
  - Frequency, volume, blood, consistency

- **Other manifestations:**
  - Fever, weight loss, anorexia, nausea, vomiting, dehydration
Features of diarrhea provide clues to the pathophysiological process

- **Features**
  - Blood, pus in stool
  - Large volume (>1 liter/day)
  - Effects of fasting:
    - Diarrhea persists
    - Decrease in diarrhea
  - Stool pH (<6)

- **Possible mechanism**
  - Colonic & rectal inflammation
  - Active secretion
  - Not a dietary factor
  - Non-absorbed dietary solute
  - Non-absorbed carbohydrate in children
Chronic and recurrent diarrhea should always be investigated

**History & physical exam**

- Stool exam:
  - Cultures, ova & parasites
  - Blood, leukocytes, microscopic fat
  - Quantitative volumes and fat studies as indicated

- Other studies:
  - Endoscopic examinations w/biopsy
  - Absorption studies
  - Special studies:
    - Imaging studies (CAT scans, ultrasound, etc.)
    - Barium studies
    - Stool and urine analyses for laxative & diuretics
Lower GI Bleeding
Yield of Urgent Colonoscopy

Massive Hematochezia

Colonoscopy

Endoscopic therapy

20-30% Controlled

60-70% continue bleeding

No lesion found or Failed therapy

Stop spontaneously

Surgery

Controlled with angiography
Lower GI Bleeding Options

- Diagnostic
  - Anoscopy
  - Sigmoidoscopy
  - Colonoscopy
  - Balloon Enteroscopy
  - Small Bowell x-ray
  - Scintigraphy
  - Angiography
  - Intra-operative Endoscopy

- Therapeutic
  - Endoscopic
    - Thermal
    - Injection
    - Polypectomey
    - Argon Plasma coag.
  - Angiographic
    - Vasopressin
  - Surgery
Lower GI Bleeding
Massive

- Resuscitation
- Upper endoscopy
  - Anoscopy
- Oral purge
- Urgent colonoscopy

Lesion found:
- Endoscopic hemostasis
- Continued bleeding
- Surgery

No Lesion found:
- Scintigraphy, angiography, enteroscopy
Diverticular Disease - Bleeding

Colonic lumen
Microscopic Colitis

- Collegenous and lymphocytic
- Chronic watery diarrhea
- Normal endoscopic appearance
- Female, 50-70 years old
- Collagen band/lymphocyte infiltration
- Treatment - bismuth subsalicylate
- Treatment - budesonide
Pneumatosis Coli (Pneumatosis Cystoides Intestinalis)

- Multiple gas filled cysts in the sub mucosa of the gut
- Distinguish from pneumatosis linearis
- Most cases occur in small bowel
- 6% occur in the colon - usually left side
- Associated conditions - appendicitis, IBD, diverticulosis, c. diff., colitis, ileus, AIDS, steroids, COPD
Colitis Cystica Profunda

- Mucin-filled cysts located in sub mucosa of bowel
- 3 patterns
  - Localized with polyloid lesion
  - Diffuse with multiple polyloid lesions
  - Diffuse with a confluent sheet of cysts
    - Etiology: unknown, associated with diseases that predispose to ulceration – IBD, infections, or cancer
    - Presents with bleeding, mucus, diarrhea or prolapsed rectum
    - Endoscopy – may look like cancer, polyps, lipoma
Endometrosis (of the intestines)

- Usually involves the rectosigmoid, appendix or ileum
- Most asymptomatic, can bleed, cause pain
- Differential - IBD, diverticulitis, TB, ischemia, neoplasia
Solitary Rectal Ulcer Syndrome (SRUS)

- Disorder of evacuation
- Causes rectal ulceration, erythema or mass associated with straining, rectal prolapse
- Found on anterior wall or rectum
- Symptoms - constipation, mucus, blood
- Diagnosis is by histology
- Treatment - improve bowel habits, biofeedback