Inflammatory Bowel Disease

- Chronic inflammatory condition of the gastrointestinal tract of unclear cause

- Two types
  - Ulcerative Colitis (UC)
  - Crohn’s Disease (CD)

Loftus EV Jr., et al. Gastroenterology 1998;114:1161
Inflammatory Bowel Disease

- Disease usually starts - 2\textsuperscript{nd} to 3\textsuperscript{rd} decade of life

- Incidence
  - UC - 8 to 12 per 100,000
  - CD - 5 per 100,000

Loftus EV Jr., et al. Gastroenterology 1998;114:1161
IBD Symptoms

- Abdominal pain
- Bloody diarrhea
- Weight loss
Differential Diagnosis Of IBD

- Irritable bowel syndrome
- Infectious ileitis/colitis
  - Ileo-colonic TB
- Neoplasm
  - Lymphoma
  - Carcinoma
- Medication related
  - NSAID-related
- Ischemic colitis
- Appendicitis
- Diverticulitis
- Radiation enteritis/colitis
- Eosinophilic gastroenteritis
- Microscopic colitis
- Sarcoidosis
- Acute self-limited colitis

How Is IBD Diagnosed?

- Blood tests
- Stool test to rule out infection as a cause
- Radiology exams- X-Rays, CT scan
- Endoscopy with biopsies- gold standard

Colonoscopy

http://www.webmd.com/digestive-disorders/colonoscopy
www.gastrointestinalatlas.com
Colonoscopy Findings in UC

Colonoscopy Findings In CD

Aphthous ulcers

Serpiginous or linear ulcers

Deep ulcers with islands of normal colonic mucosa—Cobblestone appearance

Patterns Of UC

A proctitis
B left-sided colitis
C pancolitis

http://www.hopkins-gi.org
Stenosis 50%

Inflammation 30%

distended ileum
-cecum
-Fistula 20%
sigmoid colon

fistula
## Differences Between CD And UC

<table>
<thead>
<tr>
<th></th>
<th><strong>UC</strong></th>
<th><strong>CD</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowel involvement</td>
<td>Continuous involvement</td>
<td>Skip lesions</td>
</tr>
<tr>
<td>Depth of disease</td>
<td>Confined to surface</td>
<td>Extends deep through the wall</td>
</tr>
<tr>
<td>Rectum</td>
<td>Involved 95%</td>
<td>Spared</td>
</tr>
<tr>
<td>Terminal ileum</td>
<td>Spared</td>
<td>Involved 70%</td>
</tr>
<tr>
<td>Small bowel</td>
<td>Not affected</td>
<td>Affected 30%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fistula, perianal disease</td>
</tr>
<tr>
<td>Surgery/colectomy</td>
<td>Curative</td>
<td>Symptom relief</td>
</tr>
<tr>
<td>Prevalence in PSC</td>
<td>Common</td>
<td>Rare</td>
</tr>
</tbody>
</table>
Treatment of UC & CD

Goals Of Therapy

- Induce remission (disease control)
- Maintain remission
- Avoid treatment-related side effects
- Maintain adequate nutritional status
- Prevent/address long term disease-related complications
  - Cancer screening, osteoporosis
Available Medications For IBD

- 5-ASA preparations (Asacol, Mesalamine, Lialda, Pentasa etc)
- Immunomodulators (Azathioprine, 6-Mercaptopurine, Methotrexate)
- Steroids
- Cyclosporine
- Biologics (Remicade, Humira etc)
Choosing The Right Drug

Disease distribution
Distal Extensive

Severity of disease
Mild Moderate Severe

Medication choice

Prior therapy
Response Side effects Compliance

Common Reasons For Flare (Disease exacerbation)

- Medication non-compliance
- Smoking (esp. Crohn’s)
- NSAIDs (Ibuprofen, Aleve, Motrin etc)
- Infections (Upper respiratory, enteric)
- Natural disease progression
Surgery In IBD
Indications For Surgery In IBD

- Colon cancer
- Non response/inadequate response to maximal medical therapy
- Conditions that are unlikely to respond to medications – abscess (pus collection), fistula, stricture causing obstruction.
Types Of Surgeries In IBD

For UC

- Colon resection (proctocolectomy) with pouch creation (Ileal Pouch Anal Anastomosis or IPAA) is the preferred surgery

For CD- depends on the indication

- Abscess drainage
- Resection of a narrowed segment of bowel
- Resection of a fistula
Proctocolectomy With Ileal Pouch Anal Anastomosis (IPAA)
Colorectal Cancer Risk In IBD

- Risk is 5 - 15 fold higher than general population

- Cancers
  - Multiple at same time
  - Arise from flat mucosa

Figure 3: Cumulative risk of developing colorectal cancer

Prevention/Treatment Of Osteoporosis In IBD

- Oral calcium/vitamin D supplementation
  - May be sufficient with normal BMD (DEXA scan)

- Bisphosphonate therapy (Fosamax, Boniva etc) may be needed if
  - On steroid therapy
  - Personal/family history of fractures

Reproductive Issues In IBD

- Fertility is similar to general population in pre-surgical UC and CD patients
- Some surgeries may affect fertility
- Pelvic inflammation in CD may decrease fertility
- Reversible sperm abnormalities with sulfasalazine use in 60% patients
Pregnancy And IBD

**IBD in pregnancy**
- Disease unchanged in 1/3 patients
- Remission in 1/3
- Disease flare in 1/3
  - Non-adherence to medical therapy

**Pregnancy outcome**
- No difference in pregnancy outcomes if disease in remission
- With relapse, risk of
  - Low birth weight
  - Preterm delivery
## Will My Child Get IBD?

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Risk to child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother with UC</td>
<td>1.6%</td>
</tr>
<tr>
<td>Mother with CD</td>
<td>5.2%</td>
</tr>
<tr>
<td>Both parents with IBD</td>
<td>36%</td>
</tr>
</tbody>
</table>

Mahadevan U. Med Clin N Am 2010;94:53
IBD IN PSC
IBD In PSC

- 70-80% of PSC patients develop IBD
  - Only 2 to 7.5% IBD patients develop PSC

- PSC patients are more likely to have UC (85-90%) versus CD (5-15%)

- Either PSC or IBD may manifest first

Unique Features Of IBD In PSC

- Continuous colon involvement (like UC)
  - But rectum spared (unlike UC)
  - Terminal ileum involved (like CD)

- Runs a mild, sometimes asymptomatic course

- Higher risk of colonic dysplasia and cancer

IBD Treatment in PSC-IBD

- Not different from treatment of IBD without PSC

- Under treatment more likely due to quiescent nature of IBD in PSC
How Does Coexisting IBD Impact Course Of PSC?

- No differences seen w.r.t
  - Clinical features of PSC
  - Radiologic features of PSC
  - Biopsy (histopathology) features of PSC

MacCarty RL et al. Radiology 1985  
Broome U et al. Gut 1996  
Navaneethan U et al. Inflamm Bowel Disease 2009
Colorectal Cancer Risk In PSC-IBD

<table>
<thead>
<tr>
<th>UC Duration</th>
<th>At 10 years</th>
<th>At 20 years</th>
<th>At 25 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>UC only</td>
<td>2%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>UC + PSC</td>
<td>9%</td>
<td>31%</td>
<td>50%</td>
</tr>
</tbody>
</table>

More right sided cancers are seen for unclear reasons

Broome U et al. Hepatology 1995
Claessen MMH et al. Inflamm Bowel Dis 2009; 15:1331
### Does The Risk of Colon Cancer Decrease with Liver Transplant?

<table>
<thead>
<tr>
<th>Group</th>
<th>Colon Rectal Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC-IBD with Liver Transplant (43)</td>
<td>34%</td>
</tr>
<tr>
<td>PSC-IBD (30)</td>
<td>30%</td>
</tr>
<tr>
<td>Liver transplant for non-PSC indication (43)</td>
<td>0</td>
</tr>
</tbody>
</table>

Ursodiol did not prevent colorectal cancer

Hanoueneh, I et al. Inflamm Bowel Dis 2011
Are There Medications That Can Prevention Colon Cancer?

- Ursodiol use is not routinely recommended anymore
- Folic acid supplementation may help
- Role of 5-ASA drugs unclear at this time

Current Approach To Colorectal Cancer In IBD

- IBD alone (UC or Crohn’s colitis)
  - Surveillance colonoscopies every 1-2 years after 8-10 years of IBD

- IBD with PSC
  - Surveillance colonoscopies every year starting in the first year of diagnosis

Outcomes of Common Surgeries In PSC-IBD

- Proctocolectomy with IPAA for colorectal cancer
- Liver transplant (OLT) for advanced PSC
Impact Of PSC On IPAA Outcomes

- Compared to patients without PSC
  - Pouch function is not different
  - Quality of life is not different
  - There is more pouchitis (9-90% Vs. 7-47%)
  - Long-term mortality may be higher
    - But this is usually due to worsening PSC

Rahman M et al. Int J Colorectal Dis 2011;
Impact of IPAA On PSC

- Finnish study of 30 PSC-IBD pts followed for median 11 years after IPAA showed

<table>
<thead>
<tr>
<th>PSC activity on liver biopsy</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change</td>
<td>11 (37%)</td>
</tr>
<tr>
<td>Better/Decreased</td>
<td>15 (50%)</td>
</tr>
<tr>
<td>Worse/Increased</td>
<td>4 (13%)</td>
</tr>
<tr>
<td>Study</td>
<td>Outcome</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Jorgensen, KK et al. Norway, 2011</td>
<td>Less colitis in liver transplant group</td>
</tr>
<tr>
<td>Moncrief, KJ et al. Canada, 2010</td>
<td>In 67% colitis remained unchanged</td>
</tr>
<tr>
<td></td>
<td>In 6.1% colitis improved</td>
</tr>
<tr>
<td></td>
<td>In 26.5% colitis worsened</td>
</tr>
<tr>
<td>Dvordik, I et al. US, 2002</td>
<td>Accelerated IBD progression seen in the liver transplant group</td>
</tr>
<tr>
<td>De Vrie, W et al. Holland, 2002</td>
<td>No observed differences</td>
</tr>
</tbody>
</table>
Summary

- PSC-IBD may be a separate entity with several unique features
- IBD should actively be sought in patients with PSC even if they are asymptomatic, and aggressive colon cancer surveillance should be undertaken
- Further studies into the pathogenesis of PSC-IBD may help manage increased cancer risk better
On The Horizon

- Colonoscopy imaging technology aimed at earlier colon cancer diagnosis

- Blood tests to identify high-risk IBD patients (serology)

- Drug trials of chemoprevention for colon cancer - needed
Thank You!