Ulcerative Colitis and Colon Cancer

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SUNY DOWNSTATE
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67 year old male with a past medical history of HTN. The patient underwent a colonoscopy which demonstrated a lesion in the ascending colon and biopsy showed adenocarcinoma. The patient was referred for resection.

Medical history: HTN, Ulcerative Colitis? (questionable history given by patient of being diagnosed 20 years ago, however no documentation)
Medications: Valsartan
Allergies: NKDA
Surgeries: none
Social: no history of smoking, occasional glass of wine

Pre-op labs:
CBC 11.3/14.9/43/297
BMP 142/4.2/101/19/.79/119
Case Presentation

- The patient underwent a laparoscopic right hemicolecction.

- Post operative course uneventful. Patient discharged on POD#3.

- Pathology: Invasive adenocarcinoma (5.5 cm), invading the muscularis propria, well-differentiated, 24 negative lymph nodes. T2N0.
Introduction
Review of Ulcerative Colitis
Screening and Surveillance for cancer
Surgical options
Summary
Question
Ulcerative Colitis is an inflammatory bowel disease affecting the mucosa of the colon and rectum.

- Etiology is unknown
- Male predominance
- Typically begins in the teenage years or early adulthood with a second peak in the 40-60 age range.
Introduction

- Regional differences: highest incidence in Northern Europe, United Kingdom, and North America

- It has been shown to cluster in families. Studies have shown that 5-10% of people with UC have a family history.

- Smoking may confer a protective benefit against UC.
Diagnosis of Ulcerative Colitis

- Presenting Symptoms: bloody diarrhea, abdominal pain, fever

- Patients with proctitis present with: urgency, frequency, and tenesmus

- Patients with total colitis present with: anemia, fatigue, anorexia, and weight loss

- 80% of patients present with a mild attack of distal disease

- 10-20% present with an initial attack that will progress to fulminant colitis.
Endoscopic Features

A. Loss of normal vascular pattern
B. Contact bleeding
C. Granularity
D. Ulceration and friability
E. Colonic stricture
Pathological Features

- UC is limited to the mucosa and submucosa of the colon and rectum.

- The rectum is always involved and the disease presents in a continuous fashion from the rectum proximally.
Pathological Features

- **Gross Appearance**
  - Hyperemic mucosa
  - Friable mucosa
  - Mucosal ulcerations
  - Pseudopolyps
  - Loss of mucosal folds and haustra
**Histological features**

- **Early**
  - Neutrophils fill and expand the crypts of Lieberkuhn causing Crypt Abscesses

- **Late**
  - Crypt abscesses coalesce, superficial desquamation of epithelium leads to ulcers
Radiologic Features

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Ulcerative Colitis and Cancer Risk

- **Disease duration**
  - 2% risk of cancer after 2 years, 8% after 20 years, 18% after 30 years

- **Extent of the disease**
  - 1.7 fold increased risk of cancer in proctitis, 2.8 left-sided, 14.8 pancolitis

- **Primary Sclerosing Cholangitis**

- **Young age at onset**

- **Family History**
A screening colonoscopy should be performed in UC patients to rule out neoplasia (dysplasia/cancer) 8-10 years following onset of UC symptoms.

Risk of CRC becomes greater than that of general population 8-10 years after onset of symptoms.

In patients with primary sclerosing cholangitis (PSC) and UC, screening should begin at the time of PSC onset.
Patients are classified based on anatomic extent of the disease.

Extensive: UC proximal to the splenic flexure

Left Sided: UC in the descending colon up to the splenic flexure

Proctosigmoiditis: disease limited to the rectum
Extensive Colitis and Left-sided Colitis:

<table>
<thead>
<tr>
<th>If:</th>
<th>Frequency of surveillance:</th>
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<tbody>
<tr>
<td>Negative screening colonoscopy</td>
<td>Begin surveillance colonoscopies within 1-2 years</td>
</tr>
<tr>
<td>Negative surveillance colonoscopy</td>
<td>Perform subsequent surveillance colonoscopies every 1-2 years</td>
</tr>
<tr>
<td>Two negative surveillance colonoscopies</td>
<td>Perform subsequent surveillance colonoscopies every 1-3 years</td>
</tr>
<tr>
<td>Duration of UC &gt; 20 years</td>
<td>Perform surveillance every 1-2 years</td>
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Surveillance for Colorectal Cancer

Proctosigmoiditis:
- Should be screened based on general CRC prevention measures
- If biopsies are positive proximal to 35 cm (even though macroscopic disease is limited to the rectum), patients should follow UC type surveillance.

Primary Sclerosing Cholangitis:
- Patients should undergo yearly surveillance.
Surveillance for Colorectal Cancer

- **Random Biopsies**
  - Extensive disease: 4 quadrant biopsies every 10 cm through the colon.
  - Less extensive disease: 4 quadrant biopsies from proximal extent to every 10 cm distally

- **Chromoendoscopy**
  - **Targeted biopsies** with methylene blue or indigo carmine
  - Done by appropriately trained endoscopists
  - Shown to be superior to random biopsies in detection rate of neoplastic lesions
Surveillance for Colorectal Cancer

- Abnormal findings on Colonoscopy
  - Indefinite for dysplasia
  - Low grade dysplasia (LGD)
  - High grade dysplasia (HGD)
  - Adenocarcinoma

- Additional considerations
  - Polyps
  - Dysplasia associated lesion or mass (DALM): lesion that does not resemble typical adenoma with dysplasia in the surrounding mucosa
## Surveillance for Colorectal Cancer

<table>
<thead>
<tr>
<th>Finding:</th>
<th>Management:</th>
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</thead>
<tbody>
<tr>
<td>Indefinite for dysplasia</td>
<td>Follow up surveillance examination in 3-6 months</td>
</tr>
<tr>
<td>Low grade dysplasia</td>
<td>Repeat examination in 3 months or Proctocolectomy</td>
</tr>
<tr>
<td></td>
<td>* multifocal or repetitive LGD → proctocolectomy*</td>
</tr>
<tr>
<td>High grade dysplasia</td>
<td>Proctocolectomy</td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>Proctocolectomy</td>
</tr>
<tr>
<td>Polyps with dysplasia</td>
<td>Polypectomy + 4 negative adjacent biopsies + no dysplasia anywhere in the colon → 6 month follow up</td>
</tr>
<tr>
<td>Dysplasia associated lesion or mass</td>
<td>Proctocolectomy</td>
</tr>
</tbody>
</table>
Surgical Management

- Surgical options
  - Total proctocolectomy + ileostomy
  - Total proctocolectomy + Kock Pouch
  - Total abdominal colectomy + ileorectal anastomosis
  - Total proctocolectomy + ileal pouch anal anastomosis
Definitions:

Total Proctocolectomy: Colon and Rectum are removed entirely

Total Abdominal Colectomy: Rectum is preserved
Total Proctocolectomy + Ileostomy

- Historically was the gold standard, because the entire colon and rectum are removed with a low rate of complications

- The disadvantages are having a permanent ileostomy, and the potential for nerve injury during the perineal dissection

- Best for:
  - Elderly patients
  - Patients with distal rectal cancer
  - Pre-operative poor anal sphincter function
Total Proctocolectomy + Ileostomy

- **Operation**
  - Excision of the entire colon, rectum, and anus
  - Anal opening is sutured closed
  - Creation of Brooke Ileostomy
Total Proctocolectomy and KOCK Pouch

- Introduced by Nils Kock in the late 1960s, but has recently been falling out of favor.

- It is a “continent ileostomy” that allows the patient to intubate the ostomy and empty it’s contents. This leads to improved quality of life and body image.

- Disadvantages: high rate of complications and reoperations (35%) due to nipple valve failure

- Best for:
  - Patients who have already undergone total proctocolectomy and ileostomy, or those who have failed IPAA.
Total Proctocolectomy and KOCK Pouch

Operation:
- Excision of the entire colon, rectum, and anus
- Anus sutured closed
- Creation of continent ileostomy
Total Abdominal Colectomy and Ileorectal Anastomosis

- Non-definitive operation for selected patients with chronic ulcerative colitis

- Less extensive operation, full continence maintained, no need for stoma, pelvic nerves not disturbed (less risk of impotence/bladder dysfunction).

- Disadvantages: the remaining rectum can develop persistent inflammation leading to an increased risk of malignancy

- Best for:
  - Young patients who want to return to work or preserve their fertility
Total Abdominal Colectomy and Ileorectal Anastomosis

**Operation**
- The colon is mobilized starting with the right colon
- The ileum is divided
- The rectum is divided at the sacral promontory
- Ileorectal anastomosis performed: hand-sewn/stapled
Total Proctocolectomy and Ileal-Pouch Anal Anastamosis

• The most common surgical treatment of patients with Ulcerative Colitis

• Originally described in the 1940s but not used widely due to many post-operative issues.

• It continued to evolve into the 1980s and improved due to a better understanding of the anatomy of the anal sphincter complex.

• Creation of an ileal-reservoir pouch further improved the technique.
Pre-operative planning includes extensive patient counseling and anal manometry.

Restores gastrointestinal continuity and patients are able to maintain continence, provides a good quality of life.

Disadvantages: Two stage operation, post operative pouchitis, cuffitis.
Total Proctocolectomy and Ileal-Pouch Anal Anastamosis

- **Operation**
  - Removal of the Colon and Rectum
  - Sparing of the pelvic nerves and anal sphincter complex
  - **Construction of an ileal reservoir**
  - Ileal reservoir anal anastomosis
    * double stapled technique
    * hand sewn technique with mucosectomy
  - **Protective Ileostomy**
Total Proctocoletomy and Ileal-Pouch Anal Anastamosis

- Creation of an Ileal Reservoir
Total Proctocolectomy and Ileal-Pouch Anal Anastomosis

Double- Stapled IPAA to the Anal Transition zone
Total Proctocolectomy and Ileal-Pouch Anal Anastamosis

Mucosal Proctectomy and Hand–Sewn IPAA
Double Stapled Anastamosis vs. Mucosal Proctectomy

- Mucosal proctectomy is more difficult and requires more experience

- Without mucosal proctectomy, there is still a risk of developing cancer in the anal transitional zone, and post operative surveillance is required.
Diverting Ileostomy:
- Preferred because of the large number of suture and staple lines involved in the anastomosis

- Closure performed 3 months after the initial operation

- Before closure, the integrity of the anastomosis is checked with pouch endoscopy and gastrograffin enema
Ulcerative colitis is a disease that affects the mucosa of the colon and rectum.

Cancer risk is influenced by the extent of disease and disease duration.

Screening and surveillance is important.

Once dysplasia or cancer has been diagnosed, surgical resection is the treatment of choice.

No role for limited resections in Ulcerative Colitis associated Colorectal cancer.


With regards to ulcerative colitis which of the following statements is true?

A. In at least one half of the patients, the entire colon is involved with skip areas.

B. The characteristic histologic finding of crypt abscesses is only seen in ulcerative colitis and not other inflammatory conditions.

C. The disease is most commonly a chronic relapsing one with a fulminant course seen in only 10-20% of patients.

D. Histologic demonstration of granulomas confirms diagnosis.

Answer: C