Case Presentation

- xx F s/p admission to surgical service on MM/DD/YYYY for a right hemicolectomy

- PMHx:
  - CAD s/p stents, hyperlipidemia, COPD, HTN, hypothyroidism

- PSHx:
  - s/p cardiac cath with stents, open cholecystectomy, open appendectomy, b/l cataract surgery, tonsillectomy

- Social: ex-smoker, 30 pk/years
Case Presentation

• Colonoscopy on 10/15/14 for asymptomatic anemia
  • 6cm tubulovillous adenoma in cecum, incompletely resected

• Laparoscopic right hemicolecotomy on 10/27/14

• Post-op course uneventful

• d/c home on POD 4

• Final Path: tubulovillous adenoma with high grade dysplasia, lymph nodes: 0/12 positive
Overview

- Colon cancer screening
- Classification of colonic polyps
- Indications for surgical resection
- Classification and work-up for colon cancer
- Article
- Questions
Colon Cancer screening

Average risk - 5-6% lifetime risk
- 50 y/o
- C-scope q10 years

Moderate risk patients:
- Personal risk factors c-scope q 3 years
  - 3-10 adenomas
  - 1 adenoma > 1cm
  - High grade dysplasia
- Family history c-scope q 5 years
  - C-scope at 40 y/o OR 10 years before youngest family member at diagnosis of cancer
Colon Cancer screening

- High Risk patients
  - FAP - start at 10-12 y/o
  - HNPCC - start at 20-25 y/o OR 10 years before youngest 1st degree relative with cancer
  - IBD - q 1-2 years
    - Start 8 years after pancolitis
    - Start 12-15 years after left sided colitis
- Colon lesion found after symptoms
  - 6-8% chance of synchronous lesions
Colon Cancer screening

Other screening modalities

- Annual FOBT + flexible sigmoidoscopy q5 years
- CT/virtual colonoscopy q unknown years
  - Detects >1cm lesions
- Barium Enema q 5 years
- Colonoscopy q10 years
Classification of Colonic Polyps

- Hyperplastic polyps
- Serrated adenomas
- Hamartomas
- adenomas
Hyperplastic polyps

Non-neoplastic

- Increased risk for malignancy
  - >1 cm
  - Right colon lesions
  - Mixed adenoma/hyperplastic histology
  - >20 hyperplastic polyps
  - Familial hyperplastic polyposis, family hx of CRC
Serrated adenomas

- Comprises of 0.5-4% of polyps
- Larger
- Right sided lesions
- Females > Males
- Involves BRAF genetic mutations and DNA methylation
Classification of colonic polyps

- Hamartomas
  - Peutz-Jeghers 2-13% risk of GI cancer after age >30
  - Cowden’s - neoplasms of skin, mucosa, GI tract, bones, CNS, eyes, GU tract, thyroid/endometrial/breast ca
- Juvenile polyposis >10 polyps
  - 50% affected by colon ca
Classification of adenomatous polyps

<table>
<thead>
<tr>
<th>Type</th>
<th>Prevalence</th>
<th>% Malignancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubular adenoma</td>
<td>75%</td>
<td>5%</td>
</tr>
<tr>
<td>Tubulovillous</td>
<td>15%</td>
<td>22%</td>
</tr>
<tr>
<td>Villous</td>
<td>10%</td>
<td>40%</td>
</tr>
</tbody>
</table>

Unresected adenomas

- 5 year risk of cancer - 4%
- 10 year risk of cancer - 14%
Adenoma to carcinoma sequence

- Almost all cancers originate from adenomas
- 30% of incidence of synchronous adenomas in colon cancer resection specimens
- The larger the size and number of polyps, greater risk of cancer
- Pts with FAP have high incidence of cancer
Methods for colonoscopic excision

- Biopsy forceps
- Snare polypectomy
- Piecemeal excisional technique (3-6 months surveillance)
- Submucosal lift
- Endomucosal resection
Sessile rectal polyps

Villous sessile adenomas in rectum:

- Transanal excision
- Transanal endoscopic microsurgery
- Transanal minimally invasive surgery
- Anterior resection
Indications for surgical resection

- **Large polyp**
  - Complete excision / benign
    - Colonoscopy 1 year
  - Incomplete excision
    - Segmental colectomy
- **Cancer**
  - Invasive cancer / <2 mm margin no LVI
    - Segmental colectomy
  - Invasive cancer / positive margin or LVI
    - Segmental colectomy

*Note: screening colonoscopy / LVI: Lymphovascular invasion*
BOX 1: Summary of malignant colorectal polyps that should have an oncologic bowel resection

A. Lesions in Colon
   a. Pedunculated Haggitt level 4 with invasion into distal third of submucosa, or pedunculated lesions with lymphovascular invasion
   b. Lesions removed with margin <2 mm
   c. Sessile lesions removed piecemeal
   d. Sessile lesions with depth of invasion into distal third of submucosa (Sm3)
   e. Sessile lesions with lymphovascular invasion

B. Lesions in Middle Third and Upper Third Rectum
   Same as lesions in colon

C. Lesions in Distal Third Rectum
   a. Pedunculated Haggitt level 4 with invasion into distal third of submucosa, or pedunculated lesions with lymphovascular invasion
   b. All sessile lesions
T staging of colon cancer
Colon Cancer

- Work-up (liver/lung/peritoneum) 20% present with mets
- CT A/P - mets
- CXR
- CEA/CBC/CMP
- Nutritional optimization
Surgical resection

- 12 LN + R 0 resection + vascular pedicle + tension free anastamosis
- En bloc resection with 2-5 cm margins
- Transverse colon tumors
  - Transverse colectomy + greater omentum
  - mobilize both hepatic and splenic flexure
- Splenic flexure tumors
  - Left hemicolecetomy OR subtotal colectomy
- Synchronous lesions
  - Total abdominal colectomy
Resection margins for colon cancer
A large-scale multicenter study of long-term outcomes after endoscopic resection for submucosal invasive colorectal cancer

Aim: To prove that endoscopic resection for low risk SM-CRC is sufficient and high risk SM-CRC should undergo further surgical resection

Study:

- retrospective review
- 6 institutions 1/2000-12/2007

**Inclusion criteria:** underwent endoscopic resection alone for SM-CRC

**Exclusion criteria:** FAP/HNPCC/IBD, presence of synchronous lesions or distant mets, age >85 y/o, f/up <1 year
• Methods:

• Colonscopy performed on all patients
  • If lesions extended deep into submucosa, pt was offered surgery
  • If pt refused surgery or was unable to undergo surgery secondary to comorbidities, underwent endoscopic resection alone

• Follow up
  • Q6 months x 3 years, then yearly: CXR, CT A/P, CEA
  • Yearly colonscopy
## Defining two arms

<table>
<thead>
<tr>
<th>Low risk lesions</th>
<th>High risk lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Negative vertical margins</td>
<td>• Positive vertical margins (all received surgery)</td>
</tr>
<tr>
<td>• Well to mod. Differentiated adenoca</td>
<td>• Poorly differentiated adenoca</td>
</tr>
<tr>
<td>• No lymphovascular invasion</td>
<td>• Lymphovascular invasion</td>
</tr>
<tr>
<td>• Invasion depth &lt;1000 um</td>
<td>• Incomplete resection</td>
</tr>
</tbody>
</table>
Low Risk (29.4%) (n=126)
- 95% (n=120)
- 5% (n=6)

High Risk (70.5%) (n=302)
- 35% (n=106)
- 65% (n=196)

Recurrence rate
- 0.01% (n=1)
- No LN mets

5 year RFS
- 98%
- 100%
- 89%
- 97%
Discussion

- Unknown if endoscopic resection leads to increased risk of lymph node mets
- If true, would need to perform magnifying chromoendoscopy or narrow band imaging (NBI)

Limitations

- Retrospective study
- Did not evaluate tumor budding as a criteria for high grade lesions
- 71 patients were lost to follow up after 3 years
Questions

A pedunculated 1.5 cm tubular adenoma is removed endoscopically from the sigmoid colon and found to contain well-differentiated adenocarcinoma extending to but not beyond the muscularis mucosa. The resection margin is negative. What is the best therapeutic option?

a. Observation only

b. Endoscopic fulguration of the polypectomy site

c. Operative colotomy and excision of the polypectomy site

d. Sigmoid colectomy

e. Laparoscopic segmental colectomy