Indications for Surgical Resection Post-Polypectomy

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2/27/2014
67 y.o. M was admitted to surgery department at 1/16/2014 with Hx of HTN, HLD, A. fib, DM, Personality disorder

PSH: None

Meds: Coumadin, Psych medications

Allergies: NKDA
On colonoscopy: sessile polyp 3.5 cm, 15 cm from the anal verge, with moderately differentiated adenocarcinoma with invasion into distal third of submucosa.

1/21/14 patient undertwent proctoscopy, exploratory laparotomy.

1/29/14 segmental colectomy with primary anastomosis was performed.
Pathology: Upper rectum, lower sigmoid (16 cm). Entire prior biopsy site 3.5 cm, no residual tumor seen. Margins are negative for tumor. Ten reactive lymph nodes, no tumor seen.

Post operative period without complications.

2/03/2014 patient was discharged home.
Indications for Surgical Resection Post-Polypectomy
A colorectal polyp is a macroscopically visible lesion or mass that results from pathologic epithelial elevation of the colonic mucosa.

Colorectal polyps:
- Hyperplastic Polyps
- Serrated Adenomas
- Hamartomas
- Adenomas
Colon Cancer Cases Arising in Various Family Risk Settings

- Sporadic Cases
- Cases with Familial Risk 10% to 30%
- Lynch Syndrome (Hereditary Nonpolyposis Colorectal Cancer) 2% to 3%
- Hamartomatous Polyposis Syndromes <0.1%
- Familial Adenomatous Polyposis <1%
Hyperplastic Polyp

- contain an increased number of glandular cells
- result of normal epithelial cells accumulating on the mucosal surface
- appear pale and sessile
- increased risk of malignant disease:
  - large size (>1 cm diameter)
  - right colon hyperplastic lesions
  - mixed adenoma/hyperplastic histology
  - More than 20 hyperplastic colonic polyps
  - familial hyperplastic polyposis
  - family history of colorectal cancer
Serrated adenomas

- less common (0.5% to 4% of colorectal polyps)
- tend to be larger
- have a right-sided location
- increased incidence in females
- separate oncogenic pathway
Hamartomas

- outgrowth composed of normal mature cells that originate from below the mucosa
- when sporadic, hamartomas are frequently called juvenile polyps

Autosomal dominant familial syndromes:
- Peutz-Jeghers syndrome
- Juvenile polyposis
- Cowden’s syndrome
Adenomas

- The most common neoplastic polyp, representing 50% to 65% of all colonic polyps
- Adenomas have cellular atypia
- Advanced adenomas: greater than 1 cm or have villous architecture, severe dysplasia, or carcinoma
Supporting data:

1. almost all colon cancers arise within an adenoma
2. the incidence rate of synchronous adenoma in colon cancer resection specimens is approximately 30%
3. the risk of colon cancer increases with larger and increasing numbers of adenomatous polyps
4. the incidence of colorectal cancer in patients with familial adenomatous polyposis is high
5. the risk of cancer in unresected polyps is 4% after 5 years and 14% after 10 years
The adenoma-carcinoma sequence

1. Normal mucosa
2. APC inactivation
3. Aberrant crypt foci
4. Early adenoma
5. K-ras activation
6. Intermediate adenoma
7. DCC inactivation
8. Advanced adenoma
9. P53 inactivation
10. Carcinoma
11. Metastasis
Sonja Hrašovec and Damjan Glavač
Front. Genet., 19 October 2012
Modified from Søreide et al., 2006 (Br J Surg)
Epidemiology of Adenomas

<table>
<thead>
<tr>
<th>Type</th>
<th>Prevalence</th>
<th>% Malignant</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 Adenoma</td>
<td>10%</td>
<td>40%</td>
</tr>
<tr>
<td>Weighted Chance</td>
<td>100%</td>
<td>10.5%</td>
</tr>
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Size and % of Ca

<table>
<thead>
<tr>
<th>Type</th>
<th>&lt;1 cm</th>
<th>1-2 cm</th>
<th>&gt;2 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubular Adenoma</td>
<td>1%</td>
<td>10%</td>
<td>34%</td>
</tr>
<tr>
<td>Tubulo-Villous</td>
<td>4%</td>
<td>9%</td>
<td>45%</td>
</tr>
<tr>
<td>Villous Adenoma</td>
<td>10%</td>
<td>10%</td>
<td>54%</td>
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Current guidelines for colorectal cancer screening after polypectomy

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Recommended colonoscopy interval</th>
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<tr>
<td>1-2 Small tubular adenomas</td>
<td>5-10 years</td>
</tr>
<tr>
<td>3-10 Small adenomas or 1 Adenoma &gt;1 cm or A polyp with villous or High-grade dysplasia</td>
<td>3 years</td>
</tr>
<tr>
<td>&gt;10 Adenomas</td>
<td>&lt;3 years</td>
</tr>
<tr>
<td>Sessile adenomas removed piecemeal</td>
<td>3-6 months</td>
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</table>
Complications related to colonoscopic polypectomy

- The risk of death is 1 in 14,000.
- Bleeding occurs in 4.8 in 1000 patients
- Colonic perforation after polypectomy occurs in 0.1% of patients
- Postpolypectomy syndrome has been reported to occur in up to 0.3% of patients after polypectomy
Surgical treatment options for lower colon polyps:

- Transanal excision
- Transanal endoscopic microsurgery (TEM)
- Transanal minimally invasive surgery (TAMIS)
- Anterior resection is indicated in a patient with reasonable surgical risk
The Management of Colorectal Polyps

Algorithm for outcomes with screening colonoscopy. LVI, Lymphovascular invasion.
Haggitt classification
Summary of malignant colorectal polyps that should have an oncologic bowel resection

<table>
<thead>
<tr>
<th>A. Lesions in Colon</th>
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</thead>
<tbody>
<tr>
<td>a. Pedunculated Haggitt level 4 with invasion into distal third of submucosa, or pedunculated lesions with lymphovascular invasion</td>
</tr>
<tr>
<td>b. Lesions removed with margin &lt;2 mm</td>
</tr>
<tr>
<td>c. Sessile lesions removed piecemeal</td>
</tr>
<tr>
<td>d. Sessile lesions with depth of invasion into distal third of submucosa (Sm3)</td>
</tr>
<tr>
<td>e. Sessile lesions with lymphovascular invasion</td>
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</table>

<table>
<thead>
<tr>
<th>B. Lesions in Middle Third and Upper Third Rectum</th>
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<tr>
<td>Same as lesions in colon</td>
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<table>
<thead>
<tr>
<th>C. Lesions in Distal Third Rectum</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Pedunculated Haggitt level 4 with invasion into distal third of submucosa, or pedunculated lesions with lymphovascular invasion</td>
</tr>
<tr>
<td>b. All sessile lesions</td>
</tr>
</tbody>
</table>

An alternative may be a per anal full-thickness excision plus chemoradiation.

Pathologic features of malignant polyps

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>Haggitt level</td>
<td>Submucosal invasion in polyp head (1), neck (2), stalk (3), and base (4) or submucosal invasion in a sessile polyp (4)</td>
</tr>
<tr>
<td>Submucosal invasion</td>
<td>Invasion in upper third of submucosa (Sm1), middle third (Sm2), or deep third (Sm3)</td>
</tr>
<tr>
<td>Tumor grade</td>
<td>Well, moderately, or poorly differentiated</td>
</tr>
<tr>
<td>Tumor budding</td>
<td>Absence or presence of clusters of malignant cells in the submucosa remote from the main site of submucosal invasion</td>
</tr>
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Listed in order of escalating risk of lymph node metastasis.
Transanal endoscopic microsurgery (TEMS) has limited application in which of the following?

- A) Lesions less than 10 cm from the anal verge
- B) Lesions occupying less than 30% of the circumference
- C) Lesions less than 5 cm in diameter
- D) Mucosal lesions
- E) Lesions located above the anal canal
A 50-year-old man has a single 1-cm right colon polyp discovered on screening colonoscopy. Complete polypectomy is performed, and biopsy demonstrates a serrated adenoma. These lesions:

- A) Have no malignant potential
- B) Have histologic features of adenomatous tissue only
- C) Are precursor lesion to high microsatellite instability colon cancer
- D) Should be treated with colectomy
- E) Are equivalent to hyperplastic polyps
All of the following are appropriate recommendations about postpolypectomy surveillance with colonoscopy EXCEPT:

- A) 5 to 10 years for a 0.9-cm tubular adenoma with low-grade dysplasia
- B) 3 years for a completely excised 1.5-cm villous adenoma with high-grade dysplasia
- C) 3 month for a sessile adenoma with low-grade dysplasia removed in pieces
- D) 5 years for 3 small rectal hyperplastic polyps
- E) 3 years or less for 15 adenomas with low-grade dysplasia
Diagram of the two pathways to serrated adenocarcinoma. The blue area of the diagram depicts the morphologic (light shade) and molecular (dark shade) steps of the sessile serrated pathway. The green area depicts the features of the traditional serrated pathway. The yellow highlighting indicates the area of the colon most commonly affected in each pathway. Abbreviations: MSI-H, high-level microsatellite instability; MSI-L, low-level microsatellite instability; MSS, microsatellite stability.