Endoscopic Mucosal Resection of Colon Polyps

Derek Hubbard, M.D.
University of Wisconsin-Madison

American Academy of Primary Care Endoscopy Conference
11/3/12
San Francisco, CA
Endoscopic Mucosal Resection (EMR)

• Cap assisted or band ligation system (if available)

• Useful technique when dealing with large, flat polyps

• Preferred if sessile and base over 1.5 cm

• Use if low suspicion of malignancy (not friable, indurated, or ulcerated.

• Soft and mobile against bowel wall
Defiant Polyps

**Definition**: eye of beholder,
    if you think it is large it is
    vs larger than 2 cm
    vs any flat polyp that requires EMR

**Prevalence**: 5 to 10% flat serrated adenomas, so “unacceptable” to not be able to attempt removal

**Residual rates**: 17-27%
    edges- remove if visible, use APC for edges
    not visible (if trained and available)
1. Incomplete resection at first EMR increases risk of long term failure

2. EMR scars should undergo biopsy at next colonoscopy

3. APC ablation is ineffective for eradicating visible residual polyp

4. Further study of best type of electrocautery current for EMR is needed (pure coag may increase bleeding risk (10% in Buchner study))
ASGE Core Curriculum

• At least 1 faculty experienced in EMR and ablation
• Facilities- enough volume, and have HD, NBI texts, DVD’s, online learning
• Endoscopic experience:
  • EMR- should be able to perform 1 or more ablative (cap or band), and lifting
  • RFA, photodynamic therapy, and APC

Training process: hands on, didactic, annual mtgs, seminars, QI, research

Assessment:
• Patient care communication skills
• Medical knowledge professionalism
• Practice based learning system based practice
Argon Plasma Coagulator

• Argon Plasma Effective in reducing recurrence
• *Avoid coagulating large areas* –
  - to avoid perforation, tissue necrosis,
  - limits histology
  - snare difficult in future
• Dr. Waye- “recurrence 100% without APC”
  but UpToDate states equal rates with or without APC

• Refer to Dr. Torrie’s lecture at AAPCE Nov/12
Submucosal injection

- Rotate scope to place polyp at 6 o’clock
- Saline vs saline/epi vs saline/epi/dye (methylene blue or indigo carmine)
- Inject proximally to push polyp toward scope
- Inject 1-5 cc per injection to lift polyp. Injecting below and in polyp vs around polyp for a tattoo
- Failure to elevate suggests malignancy
- May need to re-inject base for further elevation, hemostasis, and tissue marking (methylene blue)
Endoscopic Mucosal Resection (EMR)

• Start on elevated edge. May need to use biopsy forceps to roughen edges before using snare
• pure coagulation or blend (preferred) current applied in bursts
• Each time using snare to lift from wall to prevent deep thermal injury
• May alternate cold and hot snare during removal to decrease overall thermal risks
• Stiff snare- avoids slipping off and over the lesion
Endoscopic Mucosal Resection (EMR)

• If on fold must work on both sides (consider retroflex)
• Keep tip of snare anchored, stiff snare preferred
• Avoid suction when closing snare (tenting), different if using EMR kit
• Avoid leaving islets of tissue that can be difficult to snare later, must be removed with forceps
• UptoDate states to tattoo 2 weeks later, unsure if this is feasible but may be safer
Complications

- **Bleeding**: usually minor, can occur up to 1-2 weeks later
  
  Epinephrine or clips prophylactically may help, but data has similar rates of bleeding

- **Perforation**: decrease risk by being careful, risks (0-10%) with EMR
  
  Avoid snaring deeper layers, avoid deeper current. Clips can be placed for small perforation and close observation for up to 1 week
Follow up

• Recurrences up to 50%, may also be residual tissue,

• Follow at 3 to 6 month intervals until resolution with clean scar

• 6 to 17% ended up being colon cancer

• Consider patients age and health for repeat exams vs surgery referral
Colon Cancer Prevention
Flat Lesion and Endoscopic Mucosal Resection

G.S. Raju, MD, Liben Mahometano, BSECE,
Asif Rashid, MD PhD, Patrick Lynch, MD
The University of Texas
MD Anderson Cancer Center, Houston, Texas
Paris-Japanese classification of polyp morphology

<table>
<thead>
<tr>
<th>Polyp Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protruding</td>
<td></td>
</tr>
<tr>
<td>Ip</td>
<td>Pedunculated</td>
</tr>
<tr>
<td>Isp</td>
<td>Semi-pedunculated</td>
</tr>
<tr>
<td>Is</td>
<td>Sessile</td>
</tr>
<tr>
<td>Superficial</td>
<td></td>
</tr>
<tr>
<td>IIa</td>
<td>Flat, elevation</td>
</tr>
<tr>
<td>IIa + Ilc</td>
<td>Flat, elevation + depression</td>
</tr>
<tr>
<td>Depressed</td>
<td></td>
</tr>
<tr>
<td>IIc</td>
<td>Mucosal depression</td>
</tr>
<tr>
<td>IIc + II a</td>
<td>Depression + elevated edges</td>
</tr>
</tbody>
</table>
Table 3.1. Relative frequency of macroscopic types of early adenomas

<table>
<thead>
<tr>
<th>Macroscopic type</th>
<th>Proportion of all colonic adenomas</th>
<th>Proportion of lesions invading into the submucosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ip, Isp and Is</td>
<td>57%</td>
<td>2%</td>
</tr>
<tr>
<td>IIa</td>
<td>39%</td>
<td>1%</td>
</tr>
<tr>
<td>IIa+IIc</td>
<td>2%</td>
<td>16%</td>
</tr>
<tr>
<td>IIc</td>
<td>2%</td>
<td>16%</td>
</tr>
</tbody>
</table>
Case 1  5/14/09  sessile cecal
Case 1  5/14/09  sessile cecal
Case 1 follow up 1 year
Case 1 follow up 1 year
Case 1  follow up 1 year
3 months after EMR
3 months after EMR
1 Year since last scope
1 Year since last scope
1 Year since last scope, cecal EMR cold snare
6 months post last EMR
6 months post last EMR
6 months post last EMR with hot snare 3/12
6 months post last EMR with hot snare 3/12
Case 2  November 09
EMR with heat in transverse
Case 2  4 month follow up
Case 2  4 month f/u
18 months since last surveillance
Case 3  Sept 2009
Case 3  2 ½ yrs later
Case 3 2 ½ yrs later
Case 3  2 ½ yrs later
Case 3  2 ½ yrs later
Case 3  2 ½ yrs later
Case 3  2 ½ yrs later
Case 3  2 yrs 9 mos,  3 months since EMR
Case 3  2 yrs 9 months
Case 3  2 yrs 9 months
Case 3   2 yrs 9 months
Case 4  High Grade Dysplasia 1 month later after surgery routed patient to GI
Case 4  GI 3 months after APC
Case 5 Multiple Flat Polyps
High Grade Dysplasia – Only Tubular adenoma found after surgery
Case 7  Wide, Flat, Cecal
Case 7 post 4 Months GI after surgery consult
Case 9  flat lesion on fold
Case 9  6 month follow up
Summary of Key Points

1. EMR is a tool that can be used to remove sessile, flat polyps
2. Close follow up at 3 – 6 months due to recurrence rates up to 27% - 50 %
3. EMR scars should undergo biopsy at next colonoscopy
4. Perform your own QI on technique to improve, correlating pathology to use the guidelines to the patient’s best interest
Colon Cancer Prevention
EMR of Flat Lesion - SSA

G.S. Raju, MD, Liben Mahometano, BSECE,
Asif Rashid, MD PhD, Patrick Lynch, MD
The University of Texas
MD Anderson Cancer Center, Houston, Texas
The End