Endoscopic Mucosal Resection: Approach and Risk Management

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Disclosures

- Consultant for Boston Scientific and Olympus Corporation
- Some techniques may involve off-label use
Goals

• Focus on colon polyp EMR
• Indications
• Technique
• Follow-up
• Complications
• Cool videos
Risk Management

• Do the job successfully and safely to the benefit of the patient
• Select appropriate lesions (and patients) for endoscopic resection
• Effective techniques of resection
• Management of immediate complications
• Ensuring eradication and minimizing recurrence
Don’t….

• Attack it if you don’t plan on removing it completely!
• Biopsy too much or deeply (especially flat lesions)!
• Snare part of it for sampling purposes!
• Tattoo under it!
• Attempt ablation (rather than resection) as first line!
Indications for EMR

• Removal of precancerous or early cancerous lesions of the GI tract
• Esophagus, stomach, small bowel, **colorectum**
• Prevention of progression to cancer
• Usually asymptomatic
PREVENTION OF COLORECTAL CANCER BY COLONOSCOPIC POLYPECTOMY

Sidney J. Winawer, M.D., Ann G. Zauber, Ph.D., May Nah Ho, M.S., Michael J. O’Brien, M.D., Leonard S. Gottlieb, M.D., Stephen S. Sternberg, M.D., Jerome D. Waye, M.D., Melvin Schapiro, M.D., John H. Bond, M.D., Joel F. Panish, M.D., Frederick Ackroyd, M.D., Moshe Shiike, M.D., Robert C. Kurtz, M.D., Lynn Hornsby-Lewis, M.D., Hans Gerdes, M.D., Edward T. Stewart, M.D., and the National Polyp Study Workgroup*
National Polyp Study

- N=1418 (70% male)
- One or more adenomas removed
- Followed for average of ~6 years, 1980-1990
- Compared to three historical reference groups
- Reduced expected incidence of colon cancer by 76-90%
Contraindications

- Irreversible coagulopathy
- Severe comorbidity
- Limited life expectancy
- Unable to tolerate preparation (colon) or sedation
- Suspicion of invasive cancer
Progression of neoplasia

- Oncologic resection (with lymph node bed)
- Chemotherapy

Local

Loco-regional

Systemic

- Chemotherapy
- Palliative procedures

Excision
Which is likely to have lymph node metastasis?
Risk of lymph node metastasis

- Locoregional resection is not curable if there is spread
  - EMR/ESD
  - Wedge resection
  - Enucleation
- Endoscopic resection is only appropriate if risk of lymph node or remote metastasis is negligible
  - Precancerous lesions
  - Early cancers within strict criteria
T staging

- **T1**: No deeper than submucosa
- **T2**: Not through bowel wall
- **T3**: Through bowel wall
- **T4**: Through the wall involving serosa or adjacent structure
- **N1**: Regional lymph node metastases 1 to 3 nodes
- **M1**: Distant metastases
  - lung
  - liver
  - bone
  - and/or positive peritoneal cytology
  - and/or positive nonregional lymph nodes
How can we predetermine depth of invasion?
Assess the Polyp

Polyp extension

Retroflexion in the right colon

Polyp morphology

Paris classification

Granular vs. non-granular

Holt BA and Bourke MJ. Clin Gastroenterol and Hepatol. 2012.
• Buskens CJ et al GIE 2004, staging LN mets
Criteria for ESD
LN metastasis risk based on SM

• Depth of invasion directly predicts lymph node metastasis

• Criteria is different for different organs
Visual assessment as predictors of invasion

- Morphology
- Pit and capillary pattern
- Chromoendoscopy
- Magnification endoscopy
EMR principles

- Inspect and assess
- Short scope
- Position patient (gravity)
- Well sedated
- Submucosal injection
- Snare resection
Cold snare
Pedunculated polyp
Piecemeal EMR
Complications

- **Bleeding**
  - Immediate
  - Delayed

- **Perforation**
  - Immediate
  - Delayed

- Recurrent or residual adenoma after piecemeal EMR
Prophylactic post EMR clipping

- Some evidence of reduced delayed bleeding
- Routine use controversial
- Consider prophylactic clipping in high risk
  - Anti-coag/plt Rx
  - R sided
  - Large polyps
  - Visible vessels
  - Need for anticoagulation
  - Older patients

- Visible vessels
- Defect closure
Surveillance

- Recurrence/residual risk of piecemeal EMR of large colon adenomas up to 20-25%
- Manage with close surveillance and aggressive detection and eradication of recurrent/residual adenoma at EMR site
- ~4-6 month and 18 month post EMR
- Look for scar
  - Assess entire scar under white light and NBI
  - Biopsy for microscopic dysplasia
Clean scar
Residual/recurrent adenoma
Clip related hyperplastic tissue
Retroflexion in the right colon
Perforation management

• Hemodynamics stable?
• IV abx
• Management of pneumoperitoneum
• Keep defect clean of bowel contents (gravity)

• Closure
  • Hemoclips
  • Over-the-scope clips
  • Endoscopic suturing