Large polyps: EMR, ESD, TEM and segmental resection

Terry Phang

2017 SON fall update
Key Points: Large polyps

• No RCT re: Recurrence, complications
  – Piecemeal vs en bloc: EMR vs ESD
  – Partial vs full-thickness: ESD vs TEM

• Gestalt ... Less recurrence with en bloc vs full-thickness but more complications

• Multidisciplinary conference for difficult polyps ... Assess high risk features
ESD
Kawaguti et al
Surg Endosc
2014
## EMR vs ESD ... No RCT’s

Meta-analysis benign polyps

<table>
<thead>
<tr>
<th>8 Retrospective comparison studies</th>
<th>EMR n=949</th>
<th>ESD n=814</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benign polyps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tumour size</td>
<td>31 ± 17 mm</td>
<td>39 ± 20 mm</td>
</tr>
<tr>
<td>3-4 cm on average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedure time</td>
<td>29-30 min</td>
<td>65.9-108.0 min</td>
</tr>
<tr>
<td>0.5 hr vs 1-2 hrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>En bloc resection</td>
<td>46.7%</td>
<td>91.7%</td>
</tr>
<tr>
<td>47% vs 92%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fujiya M et al. Gastrointest Endosc 2015
En bloc resection ... less recurrence

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<th>8 Retrospective studies - benign</th>
<th>EMR $n=949$</th>
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<td>En bloc resection</td>
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<tr>
<td></td>
<td></td>
<td>$p&lt;0.001$</td>
</tr>
<tr>
<td>R0 resection</td>
<td>42.3%</td>
<td>80.3%</td>
</tr>
<tr>
<td>42% vs 80%</td>
<td></td>
<td>$p&lt;0.001$</td>
</tr>
<tr>
<td>Recurrence</td>
<td>12.2%</td>
<td>0.9%</td>
</tr>
<tr>
<td>12% vs 1%</td>
<td></td>
<td>$p&lt;0.001$</td>
</tr>
</tbody>
</table>

Fujiya M et al. Gastrointest Endosc 2015
MATILDA trial: recruiting

- Dutch multicentre
- RCT: EMR vs ESD
- Recurrence estimates: 12% EMR, 2% ESD
- Sample size n=198

Backes et al BMC Gastroenterol 2016
ESD
Kawaguti et al
Surg Endosc
2014
TEM
Kawaguti et al
Surg Endosc
2014
ESD vs TEM ... No RCT’s
Meta-analysis *rectal* benign and malignant lesions

- Case series: 11 ESD and 10 TEM
  - 2077 patients
- En bloc resection ... Better by full-thickness resection
  - 88% ESD, 99% TEM, p<0.001
- RO ... Better for full-thickness resection
  - 75% ESD, 89% TEM, p<0.001
- Complications equivalent
  - 8.5% ESD, 8.4% TEM, p=0.87

*Arezzo et al* Surg Endosc 2014
• Positive deep margin less for full-thickness resection
  – Further abdominal surgery more for partial thickness resection
  – 8.4% ESD, 1.8% TEM, p<0.001

• Recurrence more for full-thickness resection than subsequent segmental resection
  – 2.6% ESD, 5.2% TEM, p=0.06

Arezzo et al Surg Endosc 2014
TEM ENDO trial: recruiting
ClinicalTrials.gov Identifier: NCT01023984

- Multicentre, Italy (Arezzo)
- RCT: TEM vs ESD
- Recurrence estimates 6% TEM, 6% ESD
- Sample size, n=120
Rectal polyps ... What I do

• Assess for gross malignant features
  – Size > 1 cm
  – Depressed vs elevated or pedunculated
  – Ulcerated
  – Irregular pit pattern
  – Submucoal injection does not lift polyp
### Paris Classification

<table>
<thead>
<tr>
<th>Paris classification</th>
<th>Endoscopic appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Pedunculated</td>
</tr>
<tr>
<td>II</td>
<td>Subpedunculated</td>
</tr>
<tr>
<td>III</td>
<td>Sessile</td>
</tr>
<tr>
<td>IV</td>
<td>Slightly elevated</td>
</tr>
<tr>
<td>V</td>
<td>Completely flat</td>
</tr>
<tr>
<td>VI</td>
<td>Slightly depressed</td>
</tr>
<tr>
<td>VII</td>
<td>Excavated</td>
</tr>
</tbody>
</table>

### Kudo’s (pit pattern) Classification

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Round pit (normal pit)</td>
</tr>
<tr>
<td>II</td>
<td>Asteroid pit</td>
</tr>
<tr>
<td>IIIs</td>
<td>Tubular or round pit that is smaller than the normal pit (Type I)</td>
</tr>
<tr>
<td>IIIi</td>
<td>Tubular or round pit that is larger than the normal pit (Type I)</td>
</tr>
<tr>
<td>IV</td>
<td>Dendritic or gyrus-like pit</td>
</tr>
<tr>
<td>V1</td>
<td>Irregular arrangement and sizes of III, IIIs, IV type pit pattern</td>
</tr>
<tr>
<td>Vn</td>
<td>Loss or decrease of pits with an amorphous structure</td>
</tr>
</tbody>
</table>

*Tanaka, et al. Gastrointest Endosc 2006; 64: 604-13*
<table>
<thead>
<tr>
<th>Kudo's classification</th>
<th>Non-neoplastic pattern</th>
<th>Non-invasive pattern</th>
<th>Invasive pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I - II</td>
<td>III - III - IV</td>
<td>VI - VN</td>
</tr>
<tr>
<td>Endoscopic findings</td>
<td>I</td>
<td>III L - IV</td>
<td>VI - VN</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>III S</td>
<td></td>
</tr>
</tbody>
</table>

| Histology               | Normal Hyperplastic polip | Adenoma *m **sm-slight | ‡sm profundo |
| Treatment               | No treatment             | Endoscopic treatment (Polypectomy or EMR) | Surgical treatment |
Rectal polyps ... Possible malignancy

- IF UNCERTAIN ... BIOPSY RATHER THAN REMOVE

- RESIST temptation to resect before thoughtful assessment whether polyp may be malignant
Rectal polyps ... MARK LOCATION!

• Location greatly affects surgical strategy:
  – LAR vs APR vs TEM in compromised patient

• Note location in dictated note
  – Distance from anal verge / top of sphincter
    – *Which wall* (right, left, anterior, posterior)

• *Tatoo* distal to lesion
Benign polyps ... management

• Less recurrence for en bloc resection than piecemeal resection
  – En bloc ESD / TEM preferred over EMR
  – ESD not widely available
  – Equipment
  – Training

• Colon ... EMR vs Segmental resection (ESD)

• Rectum ... TEM (ESD) preferred over EMR
High risk malignant polyp ... assessment

• High risk histology for lymph node mets
  – Lymphovascular invasion
  – Poor differentiation
    – Tumour budding (not assessed on biopsy)
    – Depth of submucosal invasion: >1000um, sm3 (not assessed on bx)

• Imaging for LN / mets
  – CT, MR, ERUS
If high risk for nodal mets

...  

Recommend segmental resection
Lower risk malignant polyps

- Lower risk features
  - Moderate (vs poor) differentiation
  - Absent lymphovascular invasion
- ERUS indicates T1 not T2
  - MR does not distinguish T1 vs T2
- CT neg for LN mets
Pedunculated – Snare

Sessile: Raises completely with submucosal injection

- No RCT to date: ESD vs TEM
- Less positive deep margin with TEM
- TEM preferred over ESD
Difficult polyps

• Positive polypectomy margin (< 1 mm)
  – Colon ... segmental resection
  – Rectum ... LAR

• Discussion for compromised patient
  – TEM if no high risk histology or LN mets
  – Careful surveillance

• Multidisciplinary conference
Multidisciplinary Conference

- Pathologist, Radiologist, Radiation and Medical Oncologists, Surgeons
  - Review histology
  - Review imaging (CT, MR, ERUS)
  - Discuss management guidelines
  - Discuss co-morbidities
  - Discuss patient preference
  - Make recommendation
Key Points: Large polyps

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ESD vs TEM: early rectal cancer
Kawaguti et al. Surg Endosc 2014

- 24 ESD vs 13 TEM
  - Retrospective, single centre, Sao Paulo Brazil
- En bloc, R0
  - 82% ESD vs 85% TEM, p=0.40
- Tumor size
  - 65 mm ESD vs 44 mm TEM
- Local recurrence
  - 1 ESD, 2 TEM
- Procedure time
  - 133 min ESD, 150 TEM