Managing Difficult Colorectal Polypectomies

Haleh Pazwash, MD, FACG
Safety in Small Polypectomy

• Most complications related to too much cautery
  – Small polyps = small blood vessels, thus coagulation generally unnecessary
    • Options for ≤5mm polyps: Cold forceps, cold snaring, hot forceps, hot snares
    • Snares = lower rate of residual polyp at follow-up than forceps
    • Forceps = generally for piecemeal removal of flat polyps 1-3mm
Large Colon Polyps

- Definition varies
  - $\geq 2$cm in greatest dimension
- Increased risk of harboring invasive carcinoma
- Endoscopic vs surgical resection
  - Unusually large polyps not contraindication to endoscopic polypectomy
  - Benefits / risks should be discussed with the patient
Types of Large Polyps

Sessile
• Polyps without a stalk
• Look out for malignant features
  – I.e. friability, induration, ulceration, firm consistency/adherence, smooth surfaces, etc

Pedunculated
• Polyps with a stalk
• Generally removed endoscopically
Assessing for Malignancy

• High frequency miniprobes
  – Inserted through biopsy channel of colonoscope

• Endoscopic ultrasound
  – Assesses features suggesting malignancy
  – Only examine distal colon
Endoscopic Polypectomy Patient Preparation

- Same as for routine colonoscopy
  - Dietary changes
  - Consumption of bowel preparation
- High-risk procedure with regard to bleeding
  - Discontinue patient usage of anticoagulants/antiplatelet agents
Colonic Polypectomy Goals

1. Complete removal of all neoplastic tissue
2. Provide tissue sample for histological evaluation
   - Biopsies alone inadequate for excluding/establishing malignancy
   - Complete excision of polyp permits accurate diagnosis
Techniques: Snare Polypectomy

- Large pedunculated polyps and/or sessile polyps
- Transection of the polyp stalk with electrocautery
Tattooing

• Marking of large polypectomy sites
  – If concern of residual polyp tissue / multiple sessions required for safe removal
• At least 2 submucosal injections of dye on contralateral sides of bowel near lesion
  – A few centimeters distal to lesion
Effect of Prior Polyp Manipulation

• Manipulation of colon lesions prior to endoscopic resection
  – Lowers complete resection rates
  – Increases recurrence rates

• If need for endoscopic resection is indicated, manipulation of lesion should be avoided
Bleeding Prevention

• Epinephrine injections
• Placement of nylon loop around stalk of pedunculated polyp
• Hemoclip placement across polypectomy stalk

• Hemoclips to close mucosal defect following polypectomy
Bleeding Prevention

Pedunculated
- Injection of stalk with epinephrine / placement of nylon loop prior to resection
- Seal resection site with hemoclips

Sessile
- Epinephrine injection prior to resection
- Hemoclips following resection
Complications

- 2 major complications:
  - Bleeding
    - Managed endoscopically
    - EMR bleeding rate (2-11%)
    - ESD bleeding rate (<2%)
  - Perforation
    - Commonly prevented by adherence to careful technique
    - Surgery indicated
    - EMR perforation rate (0-1%)
    - ESD perforation rate (~10%)
Safety in Electrocautery

• Types of electrocautery
  – Currently no consensus

Pure, Low-Power Coagulation Current
- Used by most experts
- Very low risk immediate bleeding
- Persistent risk of delayed bleeding

Blending/Cutting Current
- Greater risk of immediate bleeding
- Reduced risk of delayed bleeding
Treatment of Delayed Bleeding

• If patient is actively passing bright red blood, generally perform colonoscopy without bowel preparation
  – Bleeding site is invariably in the polypectomy cautery burn site
  – Treat with epinephrine injection with multipolar cautery or by placement of clips
Risk of Perforation

- Pedunculated polyps – extremely small risk
- Sessile polyps – perforation possible
- Small polyps – risk associated with use of electrocautery
- Large polyps – may reduce risk by using submucosal saline injection (not yet proven)
  - Particularly in the cecum and right colon
  - Normal saline with methylene blue
OTSC - Over the scope clipping system
The OTSC® System – FDA approved in December 2010

The OTSC® System is indicated for endoscopic treatment of gastrointestinal hemorrhage and closure of acute and chronic wall lesions.

OTSC Clip:
- Device - nitinol memory alloy
- Delivery - cap mounted on end of endoscope
- Function - dynamic tissue compression
OTSC Product Specification

OTSC® Product Specifications

OTSC® Clips and Teeth: 3 Types – a, t, and gc

- **type a:** blunt teeth
- **type t:** teeth with small spikes
- **type gc:** elongated teeth with spikes
  gc: gastric closure only available in size 12 mm cap only

Product Label Legend

- 1st number refers to the maximum diameter of scopes on which the OTSC cap can be used: 11, 12, 14
- 2nd number refers to the depth of the OTSC cap: 3, 6
- Letters referring to the teeth configuration: a, t, gc

OTSC® Caps: 3 sizes – compatibility with existing endoscopes

<table>
<thead>
<tr>
<th>OTSC® cap</th>
<th>Inner diameters</th>
<th>Maximum OD of cap</th>
<th>Endoscope channel of applicator cap compatible with endoscope diameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>9.82 mm</td>
<td>16.5 mm</td>
<td>8.5 – 11 mm</td>
</tr>
<tr>
<td>12</td>
<td>10.78 mm</td>
<td>17.5 mm</td>
<td>10.5 – 12 mm</td>
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<tr>
<td>14</td>
<td>13.19 mm</td>
<td>21 mm</td>
<td>11.5 – 14 mm</td>
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</table>

OTSC® System Anatomical Reference Chart

<table>
<thead>
<tr>
<th>OTSC® (Thread Length)</th>
<th>General Scope Compatibility*</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/6a (165 cm)</td>
<td>Diagnostic EGD</td>
<td>Upper GI bleeding</td>
</tr>
<tr>
<td>11/6t (165 cm)</td>
<td>Diagnostic EGD</td>
<td>Upper GI bleeding, fistula</td>
</tr>
<tr>
<td>12/6a (165 cm)</td>
<td>1T/2T EGD</td>
<td>Upper GI bleeding, perforation</td>
</tr>
<tr>
<td>12/6t (165 cm)</td>
<td>1T/2T EGD</td>
<td>Upper GI bleeding, perforation, fistula</td>
</tr>
<tr>
<td>12/6gc (165 cm)</td>
<td>Peds colonoscope/1T EGD</td>
<td>Upper/lower GI bleeding, perforation, fistula</td>
</tr>
<tr>
<td>12/6g (165 cm)</td>
<td>1T/2T EGD</td>
<td>Gastric bleeding, perforation, fistula</td>
</tr>
<tr>
<td>14/6t (220 cm)</td>
<td>Colonoscope</td>
<td>Lower GI bleeding, perforation, fistula</td>
</tr>
<tr>
<td>14/6a (220 cm)</td>
<td>Colonoscope</td>
<td>Lower GI bleeding, perforation</td>
</tr>
</tbody>
</table>

*This information is provided as general guidance for endoscope compatibility only. Refer to the FDA approved indications for use and the OTSC IFU for contraindications for use of this device. Additionally, confirm the actual outer diameter of your institutions endoscopes prior to use of the OTSC Clipping System to ensure compatibility with the OTSC cap.
The OTSC® System

OTSC® clip: 3 types – a, t, and gc

OTSC® a: blunt teeth, compression

OTSC® t: teeth with small spikes, compression and closure effect

OTSC® gc: elongated teeth with spikes, gc: gastric closure only
ES Dissect product line

Traction Polypectomy Snare

Monofil snare with 5 teeth
Grasps 30% more tissue compared to conventional snares*
Facilitates the resection also of flat lesions
Repositioning is possible at any time through easy re-opening
Larger specimens
Better histopathological examination

*Proßt, R.L, Baur, F.E., A new serrated snare for improved tissue capture during endoscopic snare resection. Minim Invasive Ther Allied Technol. 2010;19(2):100-4
SnareMaster™ Spiral Snare

Braided design for exceptional mucosal grasp
SnareMaster™ Spiral Snare

Features and Benefits

- **Braided design**
  Spiral rings designed to grasp flat tissue with minimal slippage, allowing an improved coagulation effect.

- **Wide opening oval shape**
  Snare’s oval shape opens broadly to capture the maximum resectable area.

- **Unique handle**
  The handle shaft is color-coded to indicate channel compatibility and marked in 5 mm increments to show the snare’s throw opening.

- **Sheath design**
  As with all Olympus devices, the snare’s sheath is designed to be atraumatic to scope channels, helping to protect expensive equipment.
## BioCOAG™ Hemostasis Probe

Optimized tissue-to-electrode contact for effective and efficient hemostasis

<table>
<thead>
<tr>
<th>Model</th>
<th>Packed Quantity</th>
<th>Maximum Probe Tip Outer Diameter</th>
<th>Connector Type</th>
<th>Flushing Port</th>
<th>Working Length</th>
<th>Compatible Channel Inner Diameter</th>
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<tbody>
<tr>
<td>CD-B610LA</td>
<td>1 piece/box</td>
<td>10 Fr</td>
<td>Coaxial</td>
<td>Available</td>
<td>3500 mm</td>
<td>3.7 mm</td>
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<tr>
<td>CD-B612LA</td>
<td></td>
<td>10 Fr</td>
<td>Fixed Pin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD-B620LA</td>
<td></td>
<td>7 Fr</td>
<td>Coaxial</td>
<td>Available</td>
<td>3500 mm</td>
<td>2.8 mm</td>
</tr>
<tr>
<td>CD-B622LA</td>
<td></td>
<td>7 Fr</td>
<td>Fixed Pin</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Electro Surgical Generator / Peristaltic Pump**

**ESG-100 / AFU-100**

Compact and easy-to-use, the ESG-100 features a variety of monopolar and bipolar modes for cutting and coagulation, and is designed to work together with the peristaltic pump AFU-100.

![ESG-100 and AFU-100](image)
BioCOAG™ Hemostasis Probe

**Bipolar Spiral Tip**
- Coagulation at virtually any angle

**Probe Side View**
- Ceramic
- Noble Metal
- Twin Electrodes: Spiral Design

**Probe End View**
- Flushing Port
- Trace 1
- Trace 2

**Optimal Tubing Stiffness**
- Reduces kinking
- Transmits pressure to bleeding site
- Passes easily through the endoscope channel

**Flushing Port**
- Central lumen for irrigation

**Choice of Connectors**
- Coaxial Connector
- Fixed Pin Connector

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New York Society for Gastrointestinal Endoscopy
39th Annual New York Course
Endoscopic ligating devices are widely regarded as safe and effective in the prevention of bleeding during and after polypectomy procedures.
Now Olympus takes endoscopic ligating devices a step further.

**Introducing the Single Use PolyLoop.**
The new PolyLoop is a pre-assembled, ready-to-use device for safe, simple and effective endoscopic ligation.
Polyloop™

Features

- **PolyLoop minimizes post-polypectomy bleeding**
  PolyLoop snares and securely ligates polyps with its nylon loop. This technique minimizes the risk of sudden bleeding during polypectomy procedures and helps eliminate the risk of delayed bleeding after the procedure. Proprietary loop design allows even the ligation of large polyps.

- **Convenient pre-assembled, single use design**
  The nylon loop is pre-mounted on the sheath, so there is no need to insert the loop into the tip of the sheath.

- **Easy, unassisted operation**
  With the PolyLoop, polyp ligation is easy - just retract the handle at the endoscope’s instrument channel port.

- **Minimize damage to tissue**
  Since hemostasis is achieved by simple ligation with the nylon loop, damage to tissue is kept to a minimum. The nylon loop remains in place for a period of time, eventually passing out of the gastrointestinal tract naturally.
PolyLoop™
3 Step Ligating Procedure

1. Pull the yellow cylinder proximally until it spots to extend the loop from the tube sheath.

2. Position the loop over the target tissue. Then pull the slider proximally to ligate the tissue.

3. Push the slider distally until it stops to extend the hook from the coil sheath; then detach the loop from the hook.
PolyLoop™

Preparation before using PolyLoop Ligating Device:

1. Remove the plastic retainer from the PolyLoop and extend the plastic sheath until the PolyLoop is fully covered. Insert the PolyLoop through the working channel of the endoscope.

Instructions for using PolyLoop Ligating Device:

2. Once in place, pull the yellow cylinder proximally until it stops to extend the PolyLoop from the plastic sheath. Remove fingers from the yellow cylinder.

3. Position the PolyLoop over the polyp at the base of the stalk, approximately 1-2 mm above the mucosa. Pull the slider towards the thumb ring to ligate the tissue. Look at the screen and feel the resistance in your hand to ensure you do not transect the polyp stalk. Caution: Do not apply unnecessary force to the loop when ligating tissue during the procedure.
PolyLoop™

Instructions for using PolyLoop Ligating Device:

4
With the yellow cylinder still touching the handle, push the slider to release the PolyLoop.

NOTE
If the PolyLoop gets stuck in the tube/coil sheath, use the Loop Cutter FS-5L/Q/U-1 to cut the PolyLoop and to detach it from the device.

Refer to instructions on the reverse side for more details.
Apollo Endosuturing Device
Snare Polypectomy of a Large Pedunculated Polyp at the Recto-Sigmoid Junction

https://www.youtube.com/watch?v=PIV0QnrwGVw