Endoscopic Treatment of Gastrointestinal Bleeding

Dr Simon Smale
Overview

Before Endoscopy…?
- Indications
- Thermal Coagulation
- Injection Therapy
- Combination Therapy
- Fibrin Sealant
- Endoclips
- Argon Plasma Coagulation
- Lysine - Haemmostop
- Variceal Banding
- Histoacryl Glue
- Approach to specific Problems
Before Endoscopy

• Correct what you can
  – Anaemia
  – Coagulopathy
  – Co-morbidity

• If you come to endoscopy in a poor state of repair you are likely to leave endoscopy in a poor state of repair
Indications for endoscopic Haemostasis

- Endoscopic stigmata indicating high risk of rebleeding
- Use it when Stigmata are present
# Endoscopic predictors of recurrent ulcer hemorrhage

<table>
<thead>
<tr>
<th>Endoscopic stigmata of recent hemorrhage</th>
<th>Prevalence, percent</th>
<th>Risk of rebleeding on medical management, percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active arterial bleeding</td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>Non-bleeding visible vessel</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Adherent clot</td>
<td>10</td>
<td>25 to 30</td>
</tr>
<tr>
<td>Oozing without visible vessel</td>
<td>10</td>
<td>10 to 20</td>
</tr>
<tr>
<td>Flat spot</td>
<td>10</td>
<td>7 to 10</td>
</tr>
<tr>
<td>Clean ulcer base</td>
<td>35</td>
<td>3 to 5</td>
</tr>
</tbody>
</table>

In General – for Severe GI Bleeds

- Dual Channel Scope
- Large 3.7+mm Suction channel
- Have the kit ready before you start
Injection

- Epinephrine 1:10,000 or 100,000
- Achieves Acute Haemostasis
- Cheap
- Re-bleed rates are high (18%)
Thermal Coagulation

- Achieves acute haemostasis
- Prevents re bleeding
- Does so by Thermal coagulation of artery in Ulcer base
- Multiprobe (Olympus), Goldprobe (Microvasive), Bicap (Circon)
- Similar efficacy to injection alone
Gold Probe
Multi Probe

- Achieves haemostasis by heating the contacted tissue with electricity that passes between the alternating arrays of positive and the negative electrodes located at the tip of the probe.
- Coagulation occurs when the tissue temperature becomes higher than 60 degrees C.
- Deeper coagulation is limited by desiccation of superficial tissues and hence increasing resistance to coagulation.
The heater probe has a thermocouple at the tip of the probe that can heat up almost instantaneously and achieve tissue coagulation. (Ceramic tip)

- It can coagulate deeper tissues
- It can cause perforation of thin walled viscuses (deep ulcers)
Combination Therapy

- Small RCTs
- Suggest epinephrine injection followed by thermal coagulation or haemoclip confer a decrease in rebleeding rates greater than either method alone.
Fibrin sealant (fibrin adhesive; fibrin glue; Beriplast P1) is a haemostatic and wound support product consisting of the blood coagulation factors fibrinogen, factor XIII and thrombin, the antifibrinolytic agent aprotinin and calcium chloride.

- Endoscopically injected fibrin sealant is applied to induce haemostasis
- Allows two components of the sealant to be injected via a endoscopically introduced cannula
Fibrin sealant
Endoclips

- Achieve haemostasis in manner similar to surgical ligation
- Available data limited
- Suggests safe
- May be useful in marking bleeding vessels even if bleeding persists post endoscopy (to allow radiological identification)
Endoclips

- Passed Via the Scope
- Then opened
- Positioned
- Closed
- Locked
- Deployed in ulcer base
Clips
Argon Plasma Coagulation

- At least 2 controlled trials suggest it is safe and effective
- Does not cause tamponade
APC

- Can cover relatively wide area
- Multiple points
Acid Suppression

• At least as important as endoscopic therapy (6% vs 23% rebleeding)
• Meta analysis of 21 RCTs suggests an Odds ratio of 0.49 for PPIs.
ACTIVE ARTERIAL BLEEDING – 90%

- Inject 1:10,000/100,000 adrenaline
- 4 quadrants
- 1-2ml aliquots
- Ideally within 2-4mm of bleeding point to obtain vasoconstriction
- Wash and clean to visualise
- Then consider Thermal Coagulation
  - Apply tamponade with probe
  - Then thermal coagulation
  - 7-10 seconds at 10-12 watts for multiprobe
  - Or 5 pulses at 30 joules with Heater probe
  - 15-20% rebleed compared to 25-40% with adrenaline alone
- OR Endoclip (8-15% re-bleed)
NON–BLEEDING VISIBLE VESSELS – 20%

- Consider Adrenaline, particularly if bleeding occurs
- Apply firm tamponade using probe
  - Then thermal coagulation
  - 7-10 seconds at 10-12 watts for multiprobe
  - Or 5 pulses at 30 joules with Heater probe
- Alternatively use Haemoclips
  - Use adrenaline if bleeding occurs during application
  - Use two clips to ensure haemostasis
- Both methods result in significant reduction in re-bleeding rates (15% compared to ~20+% for adrenaline alone)
NON-BLEEDING ADHERENT CLOTS

- Target irrigation to wash off parts of the clot
- Inject around the clot in 4 quadrants with Adrenaline.
- Then use a cold (No current) rotatable snare to shave off the clot
- Coagulate with heater probe using the same parameters as for Non bleeding visible vessel.
- Outcomes from monotherapy either injection or heater probe are no better than medical therapy alone
- Rebleeding rates with combination therapy 0-9% vs 25-37% with Medical therapy or endoscopic monotherapy
Monotherapy alone is sufficient
Combination Therapy does not significantly change outcomes
Medical therapy is important in preventing re-bleeding
Variceal bleeding

- Oesophagus – Use band ligation
Gastric varices

• Histoacryl glue
  – Potential risks
    • To patient
    • To endoscope
Other variceal options

- Sengstaken Blakemore tube - brutal
Variceal Options

- Sclerotherapy – scarring and stricturing
- Non Endoscopic
  - TIPS – Trans jugular intrahepatic porto systemic shunt
  - Transplantation
New treatments

- Haemostatic sprays (Haemospray) (N=20)
- Removable stents for variceal tamponade
- Ultrasound guided angiotherapy
- Better clips/ sutures
Conclusion

- Treatment should be individual
- Tailored to endoscopic findings
  - Use combination therapy in High Risk Bleeds
  - No therapy unless indicated
- In context of the patients co-morbidity