Gi Bleeding: Diagnosis & Endoscopic Management
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Objectives
- To define gastrointestinal bleeding and identify major causes
- To describe endoscopic treatments for gastrointestinal bleeding
- To discuss the nursing role in caring for patients with GI bleeding
On arrival in the endoscopy unit the patient may have:

- **Hematemesis**: vomiting blood
  - May be red or "coffee grounds"
- **Melena**: black tarry odorous stool
- **Hematochezia**: rectal bleeding, ranging in colour from bright red to dark maroon
- **Pre-syncope, syncope**
  - (and other symptoms of ↓ Hb)
- **Occult**: no symptoms

But the bleeding could be from anywhere...

![Image](wikimedia.org)

**UGIB vs. LGIB**

- **UPPER GI Bleeding**: proximal to ligament of Treitz (esophagus, stomach, duodenum, rarely biliary/pancreatic): presents as **hematemesis, melena** or **hematochezia IF BRISK**

- **LOWER GI Bleeding**: distal to ligament of Treitz (jejunum, ileum, colon) presents as **hematochezia**
Why endoscopy?

- to establish the cause of bleed and, using endoscopic therapy, control the bleeding or reduce the risk of further bleeding

Causes of UGIB

- Peptic ulcer disease

Causes of UGIB

- Esophageal varices
- Gastric varices
Causes of UGIB

- Esophagitis
- Mallory-Weiss tear

Causes of UGIB

- Gastric antral vascular ectasia
- Gastric AVM

Causes of UGIB

- Dieulafoy lesion
- Gastritis (NSAID induced)
Causes of UGIB

Sleisenger & Fordtran. 2010, ch. 19, pg 293

Presentation of UGIB

Sleisenger & Fordtran. 2010, ch. 19, pg 293
Upper GI bleeding: what we know

- Mortality remains high between 5-10%
- Shift to predominantly the elderly
- up to 80% of cases stop spontaneously
- 15-25% rebleed after endoscopic treatment


Mortality in ulcer bleeding

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Age</th>
<th>Death (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jones</td>
<td>687</td>
<td>33</td>
<td>2</td>
</tr>
<tr>
<td>Schiller</td>
<td>2149</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>Johnston</td>
<td>817</td>
<td>49</td>
<td>9</td>
</tr>
<tr>
<td>Mayberry</td>
<td>563</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Katchinski</td>
<td>1017</td>
<td>63</td>
<td>18</td>
</tr>
<tr>
<td>Rockall</td>
<td>4185</td>
<td>68</td>
<td>27</td>
</tr>
</tbody>
</table>

Risk of re-bleeding by Forrest grade

![Risk of re-bleeding by Forrest grade](image)

**Who to treat?**

- ACTIVE BLEEDING
- NON BLEEDING VISIBLE VESSEL
- ADHERENT CLOT?

**Management**

- Clinical status - A B C

- Early endoscopy to localize and treat bleeding
  - Achieve hemostasis
    - Refer to surgery or interventional radiology if bleeding cannot be controlled by the above measure

**Clear the field**

BioVac® direct suction lavage

Irrigation systems
Endoscopic treatments

Thermal
- Bipolar probe
- Argon plasma coagulation
- Heater probe

Mechanical
- Hemoclips
- Band ligation

Medications
- Injection sclerotherapy

Combination
- Injection + thermal + clip

Other

Duodenal Ulcer

Hemoclips
- Mechanical compression of vessel
- Immediate and complete hemostasis (if vessel properly clamped)
- Minimum tissue injury
Varices – what we know

• 60% of patients with cirrhosis develop varices
• 1/3 of patients with varices bleed from them
• rebleeding: 15 - 50% in 6 wks (most occur within the 1st 10 days)
• mortality: 15 - 40% (1 yr) & 60 - 80% (4 yrs)
• Liver transplantation can improve survival in selected patients

Which endoscopic therapy?

• SCLEROTHERAPY or LIGATION
Esophageal Variceal Ligation (EVL): a Success Story

- Bleeding controlled in 90%
- Rebleeding rate 10-30%

Get the nipple first
Cyanoacrilate obliteration of gastric varices:
Patient selection

- Glue injection recommended for gastric varices that are:
  - Actively bleeding
  - Have a stigmata of recent bleeding (e.g., fibrin plug, clot)
- Not recommended for Primary prophylaxis

Cyanoacrylate obliteration of gastric varices

Histoacryl® (n-butyl-2-cyanoacrylate)

Prime the injection catheter with sterile water (note volume required to see liquid at the tip)

Mix Histoacryl® 0.5 ml + Lipiodol® 0.5 ml gently shake syringe to ensure mixed

Getting ready

Cyanoacrylate obliteration of gastric varices

**Priming**
- Attach CYA syringe and inject 0.5 ml of solution into primed injection catheter
- The endoscopist places catheter down biopsy channel of gastroscope

**Injectio**
- Inject remaining CYA into catheter and attach a 10ml syringe with sterile water
- The endoscopist will thrust the needle into the varix and ask the nurse to inject water equal to dead space of injection catheter (usually about 2 mls)

**Retention**
- The endoscopist will remove needle from varix and ask the nurse to inject 1-2 mls of water into the stomach to ensure catheter is patent
- Keep needle at least 2 cm beyond tip of endoscope to prevent cyanoacrylate contamination of endoscope

**Repeat**
- Repeat the process until desired injections have occurred
Gastric varix

Follow up

- Repeat EGD in 1-4 wks Glue injection of residual GV

- Glue cast May remain visible for months

- Once GV obliterated, EGD every 3-6 months to monitor for recurrence
What are the risks?

Bleeding gastric varices

<table>
<thead>
<tr>
<th>Modality</th>
<th>Initial hemostasis (%)</th>
<th>Re-bleeding (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sclerotherapy</td>
<td>40-60</td>
<td>20-90</td>
</tr>
<tr>
<td>Banding</td>
<td>45-100</td>
<td>0-50</td>
</tr>
<tr>
<td>Glue injection</td>
<td>90-100</td>
<td>5-30</td>
</tr>
<tr>
<td>TIPS</td>
<td>90-100</td>
<td>10-30</td>
</tr>
</tbody>
</table>

Adapted from Ryan BM et al. Gastroenterology 2004;126:1175
**Other causes?**

During/post therapeutic intervention

- EMR
- ESD
- EBS
- Etc……

**Nursing implications**

- Nursing history to augment the physician’s
- Be prepared for emergencies
- Intra procedural care
  - Supportive measures
- Assess patient post procedure and facilitate assessments in the event of a complication
- Communication
The ultimate device?

Novel endoscopic hemostatic treatments
Thermal
- Cryotherapy
- RFA

Mechanical
- Coagulating forceps (perhaps bipolar)
- Sewing devices?

Medications/other
- Hemospray
- Polymers?
- Surgical fibrin?

Cryotherapy
- Compressed CO₂ as cryogen (-78° C; 8 L/min)
- Catheter-based cryospray
- Necessitates gastric length overtube or dedicated evac tube for Venting of CO₂ gas
Or RFA?

Hemospray

- Hemospray is a mineral blend powder developed for endoscopic hemostasis.
- It has no known allergens.
- Hemospray is metabolically inert and deemed nontoxic
- Over the years, similar materials have been used by the military for topical battlefield hemostasis applications.

How does Hemospray work?

When Hemospray comes in contact with blood, the powder absorbs water, then acts both cohesively and adhesively, forming a mechanical barrier over the bleeding site.
Hemospray

Conclusion

• UGI bleeding is a medical emergency

• Patients require care from an experienced team

• Nurses shine as part of the team

Selected references


• ASGE Technology Committee. Endoscopic hemostatic devices GIE : 2009; 69 (6) 987-994

Thank you

• Questions?