Endoscopic Management of Vascular Lesions of the GI tract

Lake Louise, June 2014

Sergio Zepeda-Gómez MD
Assistant Professor
Division of Gastroenterology
University of Alberta, Edmonton

Table 3. Causes of upper gastrointestinal bleeding (adapted from Ref. [7]).

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duodenal ulcer</td>
<td>24.3</td>
</tr>
<tr>
<td>Gastric erosions</td>
<td>23.4</td>
</tr>
<tr>
<td>Gastric ulcer</td>
<td>31.3</td>
</tr>
<tr>
<td>Varices</td>
<td>10.3</td>
</tr>
<tr>
<td>Mallory—Weiss tear</td>
<td>7.2</td>
</tr>
<tr>
<td>Esophagitis</td>
<td>6.3</td>
</tr>
<tr>
<td>Erosive duodenitis</td>
<td>5.8</td>
</tr>
<tr>
<td>Neoplasm</td>
<td>2.9</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>10.3</td>
</tr>
</tbody>
</table>

Best Practice & Research GI, 2008

Nomenclature

Angiodysplasia
Arterio-venous malformations
Teleangectasia
Phlebectasia
Hemangioma
Angiosarcomas
Gastric Antral Vascular Ectasia
Dieulafoy’s lesion
Vascular Lesions: Classification

Neoplastic Lesions  Non-Neoplastic malformations

1) **Endothelial cell tumors**
   (hemangiomas, phlebectasias, hemangioendotheliomas, angiosarcomas)

2) **Other vascular tumors**
   (Hemangiopericytomas, Kaposi Sarcoma)

1) **Inflammatory:** vasculitis
2) **Obstructive:** Ischemic
3) **Structural Malformations**
   (angiodysplasias)

*Best Pract Res Clin Gastroenterol 2001*
Categories of vascular malformations according to anatomy and pathophysiology

<table>
<thead>
<tr>
<th>Most affected vascular structure</th>
<th>Lesions, Syndromes, Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venous</td>
<td>Varices</td>
</tr>
<tr>
<td></td>
<td>Hemorrhoids</td>
</tr>
<tr>
<td>Capillary</td>
<td>Gastric Antral Vascular Ectasia (GAVE)</td>
</tr>
<tr>
<td></td>
<td>Portal gastropathy</td>
</tr>
<tr>
<td>Arterio-venous</td>
<td>Angiodysplasia/Teleangectasia</td>
</tr>
<tr>
<td>Arterial</td>
<td>Dieulafoy’s</td>
</tr>
</tbody>
</table>

Best Practice & Research GI, 2008

Angiodysplasia

Arterio-venous type of vascular lesion

- Small veins, capillaries and arteries: dilated, tortuous, thin-walled veins, thick-walled arteries. No inflammation or fibrosis.

- Common source of bleeding from SB in pts older than 50-60 yrs

- Up to 5-6% of cases of GI bleeding caused by angiodysplasia in upper or lower GI tract.

Almost Pharmacol Ther, 2014
Dieulafoy’s Lesion
Arterial type of vascular abnormality
- Submucosal end arteries are abnormally large (calibre-persistent artery) that protrude to mucosa
- More frequent location: cardias, fundus
- Bleeding: from tiny erosion on the surface, no inflammation at the edge of the mucosal defect.
- It may cause massive bleeding

Gastric Antral Vascular Ectasia (GAVE)
Capillary-type vascular lesion
- Pathology: dilated, tortuous mucosal capillaries often occluded by thrombus.
- Endoscopy: multiple red stripes that radiate to the pylorus or diffuse lesions with small, flat spots (autoimmune or connective tissue disorders, portal hypertension).
Endoscopic Classification of vascular lesions in small bowel

- Type 1a: Punctate erythema (less than 1 mm) with or without oozing
- Type 1b: Patchy erythema (a few mm) with or without oozing
- Type 2a: Punctulate lesions (less than 1 mm) with pulsatile bleeding
- Type 2b: Pulsatile red protrusion without surrounding venous dilatation
- Type 3: Pulsatile red protrusion with surrounding venous dilatation
- Type 4: Other lesions not classified into any of the above categories


Treatment of Vascular Lesions

**Endoscopic:**
- APC
- Electrocoagulation
- Hemoclips
- Band ligation
- Injection therapy

**Angiodysplasia**
- Dieulafoy

**Pharmacologic:**
- Hormonal therapy
- Octreotide
- Thalidomide

**GAVE**
- Cryotherapy
- RFA

**Surgery**
- Interventional Radiology
Medical and Endoscopic Therapies for Angiodysplasia and Gastric Antral Vascular Ectasia: A Systematic Review

Figure 1. Search strategy and results.

Clinical Gastroenterology and Hepatology 2014

Table 3. Evidence for Therapies

<table>
<thead>
<tr>
<th>Type of therapy</th>
<th>Angiodysplasia</th>
<th>GAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estrogen with progestosterone</td>
<td>–</td>
<td>1</td>
</tr>
<tr>
<td>Octreotide</td>
<td>+</td>
<td>X</td>
</tr>
<tr>
<td>Thalidomide</td>
<td>–</td>
<td>X</td>
</tr>
<tr>
<td>EBL</td>
<td>l</td>
<td>l</td>
</tr>
<tr>
<td>APC</td>
<td>l</td>
<td>–</td>
</tr>
<tr>
<td>Nd:YAG laser</td>
<td>l</td>
<td>–</td>
</tr>
<tr>
<td>Heater probe</td>
<td>l</td>
<td>l</td>
</tr>
<tr>
<td>Monopolar coagulation</td>
<td>l</td>
<td>l</td>
</tr>
<tr>
<td>Bipolar coagulation</td>
<td>l</td>
<td>X</td>
</tr>
<tr>
<td>Sclerotherapy</td>
<td>l</td>
<td>X</td>
</tr>
<tr>
<td>Cryotherapy</td>
<td>X</td>
<td>l</td>
</tr>
</tbody>
</table>

1. Evidence for use: +, evidence against use: -, insufficient data: X, no data.

Clinical Gastroenterology and Hepatology 2014
GAVE: endoscopic treatment

Treatment of gastric antral vascular ectasia (watermelon stomach) with endoscopic band ligation

Christopher D. Wells, MD, M. Robert Hardeman, MD, Navakant B. Gandhi, MD, Michael J. Gisvold, MD, Thomas J. Bower, MD, Giovanni DePietro, MD, Varinder K. Murthy, MD

TABLE 3: ANCOVA evaluating group differences between EBL and ETT after controlling for number of preprocedure transfusions and admissions, length of follow-up, and number of treatment sessions

<table>
<thead>
<tr>
<th>Outcome measures</th>
<th>EBL (n = 13) mean (SD)</th>
<th>ETT (n = 9) mean (SD)</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttreatment bleeding (%)</td>
<td>4.45 (4.37)</td>
<td>8.89 (20.3)</td>
<td>3.42</td>
<td>0.08</td>
</tr>
<tr>
<td>Posttreatment transfusions</td>
<td>1.18 (1.59)</td>
<td>0.11 (0.32)</td>
<td>7.60</td>
<td>0.01</td>
</tr>
</tbody>
</table>

*Degrees of Freedom for the F-test statistic.
Summary

- Vascular malformations are been recognized more frequently as a cause of bleeding in the GI tract.

- Endoscopic therapy include APC, thermal, injection, hemoclip and more recently band ligation.

- Well designed randomized controlled trials are needed to determine the efficacy and complications of endoscopic treatment for vascular lesions in the GI tract.
References

4) Fuccio L, et al. Diagnosis and management of gastric antral vascular ectasia. World J Gastrointest Endosc 2013
8) Sato T, et al. EBL vs APC for gastric antral vascular ectasia associated with liver diseases. Dig Endoscopy 2012