Hemostasis in Upper GI Bleeding

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McMaster University, Hamilton
Accreditation

This event has been approved as an accredited (Section1) group learning activity as defined by the Maintenance of Certification program of the RCPSC. It has been produced under RCPSC guidelines for the development of co-developed educational activities between CAG and Olympus.
Name: Dr. Rob Enns

## Financial Interest Disclosure

(over the past 24 months)

<table>
<thead>
<tr>
<th>Commercial Interest</th>
<th>Relationship</th>
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</thead>
<tbody>
<tr>
<td>Cook Canada</td>
<td>advisory board, consultant, investigator,</td>
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<tr>
<td>Olympus</td>
<td>Research support</td>
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<tr>
<td>Boston Scientific</td>
<td>Research support</td>
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</tbody>
</table>

No slides were prepared by an industry partner.
Name: Dr. Grigoris Leontiadis

Financial Interest Disclosure
(over the past 24 months)

No relevant financial relationships with any commercial interests

No slides were prepared by an industry partner
Learning Objectives

At the end of this session, participants will be able to:

- appropriately use newer hemostatic modalities (medical and mechanical)
- recognize the limitations of the literature in regards to these treatments
CDDW/CASL Meeting Session: *Hemostasis in Upper GI Bleeding*

CanMEDS Roles Covered in this Session:

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
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<tr>
<td>Medical Expert</td>
<td>(as <em>Medical Experts</em>, physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centered care. <em>Medical Expert</em> is the central physician Role in the CanMEDS framework.)</td>
</tr>
<tr>
<td>Communicator</td>
<td>(as Communicators, physicians effectively facilitate the doctor-patient relationship and the dynamic exchanges that occur before, during, and after the medical encounter.)</td>
</tr>
<tr>
<td>Collaborator</td>
<td>(as <em>Collaborators</em>, physicians effectively work within a healthcare team to achieve optimal patient care.)</td>
</tr>
<tr>
<td>Manager</td>
<td>(as <em>Managers</em>, physicians are integral participants in healthcare organizations, organizing sustainable practices, making decisions about allocating resources, and contributing to the effectiveness of the healthcare system.)</td>
</tr>
<tr>
<td>Health Advocate</td>
<td>(as <em>Health Advocates</em>, physicians responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations.)</td>
</tr>
<tr>
<td>Scholar</td>
<td>(as <em>Scholars</em>, physicians demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application and translation of medical knowledge.)</td>
</tr>
<tr>
<td>Professional</td>
<td>(as <em>Professionals</em>, physicians are committed to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour.)</td>
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Outline

- Case presentation
- **What is the evidence**: endoscopic hemostasis, esp. clips
- Demo: clips
- **What is the evidence**: emerging techniques, esp. Hemospray
- Demo: hemospray, endoloop
Outline

- Case presentation – discussion
- **What is the evidence:** endoscopic hemostasis, esp. clips – discussion
- Demo: clips – discussion
- **What is the evidence:** emerging techniques, esp. Hemospray – discussion
- Demo: hemospray, endoloop – discussion
Case

- Mr. S.L., 70 year-old male
- Background of non-small-cell lung carcinoma, brain metastases (surgery, radiotherapy, crizotinib)
- Also on ibuprofen prn
- Dec 8, 2014, AM: attended the ER with melena, weakness for 3 days
- Stable hemodynamically
- Hb: 55 g/L

Management?
Case

Endoscopy: Dec 8, 2014
Case

Endoscopy: Dec 8, 2014

- Clip application: unsuccessful; spurting bleeding
Case

*Endoscopy: Dec 8, 2014*

- Epinephrine injection
Case

Endoscopy: Dec 8, 2014

- Bipolar electocautery
- 2 clips
- Fall in $O_2$ saturation - procedure abandoned
Case

Endoscopy: 3 days later

- Clinical suspicion of re-bleeding
What is the evidence?

Recent CPGs that assessed the evidence:

- **International Consensus** (Barkun et al. Ann Intern Med 2010)
- **ACG** (Laine & McQuaid. AJG 2012)
- **NICE** (http://guidance.nice.org.uk 2102)
- **ASGE** (Hwang et al. GIE 2012)
Endoscopic hemostasis: **Whom?**

- Spurting or oozing bleeding; NBVV: **YES** (strong recommendation)
- Adherent clot: **MAYBE** (weak recommendation)
- Flat spot; clean base: **NO** (strong recommendation)
Endoscopic hemostasis: How?

Endoscopic hemostatic treatment modalities

- **Injection**
  - Tamponading/pharmacological agents (dilute epinephrine, normal saline)
  - Sealants (cyanoacrylate glue, fibrin, thrombin)
  - Sclerosants (ethanol, ethanolamine, polidocanol)

- **Cautery**
  - Contact modalities
    - Heater probes
    - Electrocautery probes (bipolar/multipolar, monopolar)
  - Non contact modalities
    - APC
    - Lasers

- **Mechanical therapy**
  - **Endoscopic clips**
  - Band ligation
  - Detachable loop ligation

- **Spray**
  - Hemospray
Endoscopic hemostasis: How?
2012 ACG CPG

Epinephrine injection should not be used alone. If used, it should be combined with a second modality. **Quality of Evidence: High**  **Recommendation: Strong**

Thermal therapy (bipolar electrocoagulation or heater probe) or sclerosant injection (e.g., absolute alcohol) are recommended because they decrease further bleeding, need for surgery, and mortality. **Quality of Evidence: High**  **Recommendation: Strong**

Based on SR&MAs of RCTs
- Barkun et al. *GIE* 2009
- Laine et al. *CGH* 2009
- Analyses reported in NICE 2012 CPG
Endoscopic hemostasis: How?
Dual vs monotherapy

- Thermal + Epi vs. Epi: 3 RCTs (376 patients) - Rebleeding Risk Ratio (95% CI) 0.49
- Clips + Epi vs. Epi: 5 RCTs (415 patients) - Rebleeding Risk Ratio (95% CI) 0.31
- Thermal + Epi vs. Thermal: 4 RCTs (573 patients) - Rebleeding Risk Ratio (95% CI) 0.79
- Clips + Epi vs. clips: 2 RCTs (167 patients) - Rebleeding Risk Ratio (95% CI) 1.30

Favors dual therapy: 0.2 0.5 1 2 5
Favors monotherapy: 0.2 0.5 1 2 5

Barkun et al. GIE 2009
Vergara et al. Cochrane Datab Syst Rev 2014
Endoscopic hemostasis: How?
2012 ACG CPG

Clips are recommended because they appear to decrease further bleeding and need for surgery. However, comparisons of clips vs. other therapies yield variable results and currently used clips have not been well studied.

**Quality of Evidence:** Low-to-Moderate  
**Recommendation:** Conditional

Clips vs. Epi  
2 RCTs (187 patients)

Clips vs. other standard Rx  
4 RCTs (355 patients)

Laine et al. CGH 2009

Rebleeding

Risk Ratio (95% CI)

- **Clips vs. Epi:** 0.22 (0.13, 0.35)
- **Clips vs. other standard Rx:** 1.30 (1.05, 1.60)

Favors clips  
Favors other therapy
For the subset of patients with **actively bleeding ulcers**, **thermal therapy** or epinephrine plus a second modality may be preferred over clips or sclerosant alone to achieve initial hemostasis.

**Quality of Evidence:** Low-to-Moderate  
**Recommendation:** Conditional

- Newer clips in current use are easier to apply
- Theoretical benefit of not inducing tissue injury: may be preferred for patients on antithrombotics and for retreatment for rebleeding

**Clips vs. other standard Rx**  
3 RCTs

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**Initial hemostasis**

**Risk Ratio (95% CI)**

- **Worse for clips:** 0.78
- **Worse for other therapy:**

Laine et al. *CGH 2009*
New RCTs on clips

Published after the literature searches for the 2012 ACG and 2012 NICE guidelines:

2 small RCTs (results compatible with previous MA&SRs):

• Clips = Clips plus epinephrine
  Grgov et al. Vojnosanit Pregl 2013

• Clips > epinephrine small volume = epinephrine large volume
  Ljubicic et al. World J Gastroenterol 2012
## Ongoing clinical trials on clips

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<tr>
<td>Recruiting</td>
<td>Resolution Endoclips Vs Epinephrine Injection and Heater Probe</td>
<td>Single</td>
<td>Canada, Hong Kong, Europe</td>
</tr>
<tr>
<td>Recruiting</td>
<td>Endoscopic Treatment of Recurrent Upper GI Bleeding: OTSC [Over the Scope Clip] Versus Standard Therapy</td>
<td>RCT</td>
<td>Germany</td>
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Demo: clips
Emerging hemostatic techniques

1. Hemospray

2. EUS-guided angiotherapy

3. Combined use of clips and endo-loop (”tulip-bundle”)
Hemospray: what is the evidence?

- No RCTs as yet
- Several case series
    - N=19 (“high-risk patients”)
    - Initial hemostasis: 93%
    - Rebleeding: 39%
    - “Hemospray appears to allow safe control of acute bleeding and may be used in high-risk cases as a temporary measure or a bridge toward more definitive therapy”
- Results consistent with the other case series
# Ongoing clinical trials on Hemospray

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<td>Recruiting</td>
<td>Hemospray Versus the Combined Conventional Technique for Endoscopic Hemostasis of Bleeding Peptic Ulcers: A Pilot Study</td>
<td>RCT</td>
<td>Singapore</td>
</tr>
<tr>
<td>Recruiting</td>
<td>TC-325 (Hemospray™) vs. current standard of care in managing malignant gastrointestinal bleeding: a pilot study to inform a randomized controlled trial</td>
<td>RCT</td>
<td>McGill University, Quebec</td>
</tr>
<tr>
<td>Recruiting</td>
<td>Hemostasis of Active Gastrointestinal Luminal Tract Bleeding</td>
<td>Single group</td>
<td>Canada, Hong Kong, Europe</td>
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</table>
Demo: Hemospray; PolyLoop
Please visit the CAG website at http://www.cag-acg.org/ to complete the session evaluation and to print your certificate of attendance.

Thank you!