



Hemostasis for GI Bleed

Objectives



- Discuss characteristics of bleeding, location of bleeding and causes of bleeding.
- Identify common bleeding location and rate of its occurrence.
- Discuss what to treat and what not to treat.
- Identify different interventions to control GI bleeding.

Bleeding Site

Hematemesis: Clearly indicates upper GI source

Melena: 90% of black, tarry stool is due to upper GI source

Hematochezia: 3-13% are upper GI or small bowel bleed.

Red blood plus clots

10% from mouth, nose, small bowel, or right colon

Elevated BUN/ Cr ratio predictive of UGIB

GI Bleeding locations

Upper – Esophagus,
stomach, duodenum.

Mid – small bowel.

Lower – colon.

Causes of GI bleeding

Mid- AVMs, cancer

Lower – Diverticular bleed, colitis (ischemic colitis, ulcerative colitis/ Crohn's, Infectious colitis), Rectal ulcer, Colon cancer, advanced polyps, Hemorrhoids

Most Common GI Bleeding

Peptic ulcer disease is most common Type of upper GI bleed.

More than half million admissions for GI bleeding annually in the United States

PUD accounts for 31 – 67% of UGIB

What to treat?

Treat:

Spurting

Oozing

Non-bleeding visible vessel

Does not need to be treated:

Flat pigmented spot

Clean based ulcer

Reduces risk of further bleeding to ~15-20%

Interventions

Epinephrine

- Mechanism: tamponade and some vasoconstrictive effect
- Epinephrine alone is less effective
- Epi with a 2nd modality (clips or bipolar coag) is more effective than epi alone
- 1:10,000 dilution, inject in 0.5-2 mL aliquots in 4 quadrants around the ulcer.
- Watch out for tachycardia and very rare risk of necrosis (risk higher with higher volumes)
- Epi before clips/coag: helps with visualization and preventing bleeding with 2nd intervention, but may be harder to clip
- Epi after clips/coag: can help confirm the other modality worked

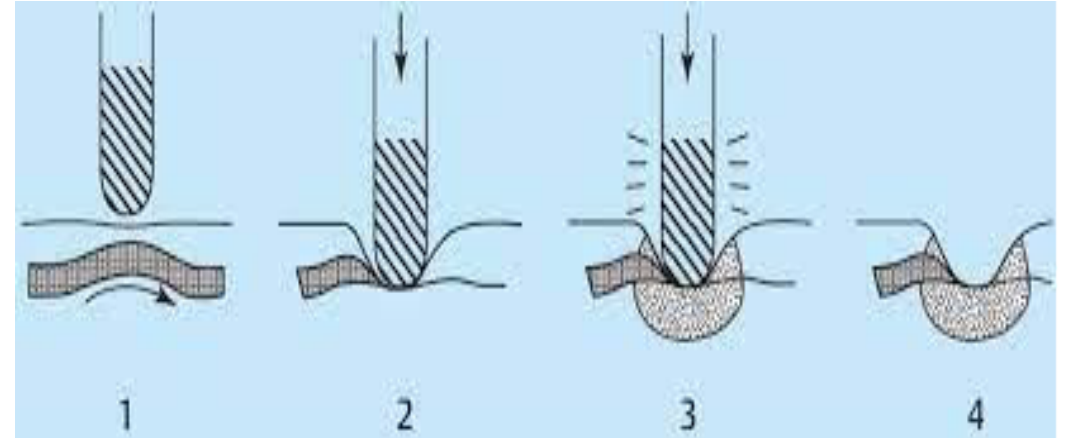
INTERVENTIONS- Electrocoagulation and clips

Bipolar electrocoagulation:

- 10 Fr probe preferred
- 15-20 W
- 8-10 seconds of firm pressure

Clips:

- 7 Fr diameter
- Place over the bleeding site and on either side to seal the vessel
- Usually fall off after 10-14 days
- No difference between bipolar electrocoagulation and clips



INTERVENTIONS- Mechanical devices



Clips, OTSC, bander, covered stents



Can be used regardless of platelets/coagulation status



Cautery – bipolar, APC, snare tip, coag graspers



Injection – epi, saline, sclerosant, glue



Hemostatic powder



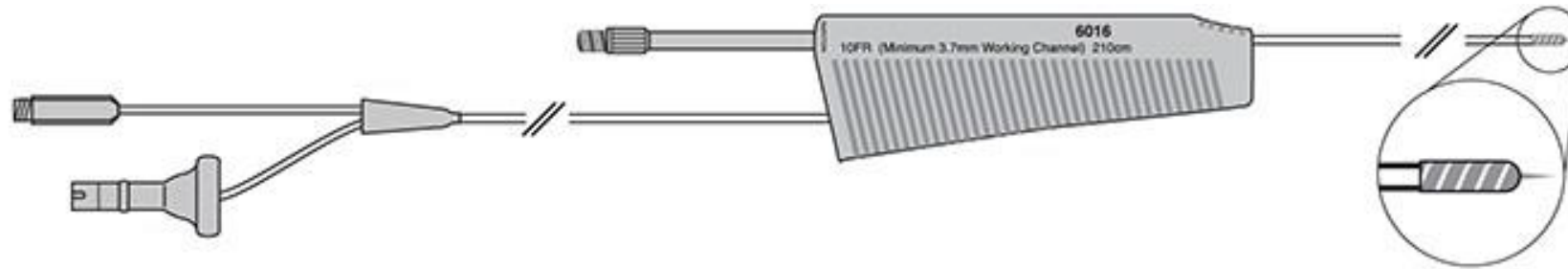
If someone has a significant upper GI bleed, they should be intubated for airway protection

INTERVENTIONS- CLIPS

- Mallory-Weiss tear (at GE junction, from vomiting/retching)
- Focal areas of bleeding – eg Dieulafoy
- Ulcers with high risk stigmata
- Can be +/- as can have a hard time grabbing the fibrotic base
- Post-polypectomy bleeding
- Closing defects after polypectomy/resection



- Generally want bigger clips, unless scope has to be retroflexed (eg fundus, distal rectum) – can be hard to pass a large clip in retroflexion
 - Usually will need to place 3 or more -- don't always know the path that the artery feeding it is coming from
 - Ideally should close the clip, observe to confirm bleeding has stopped, then deploy
-
- Open Open
 - Close Close
 - Deploy Deployed



INTERVENTION- INJECTION GOLD PROBE

- Bipolar cautery
- Gold probe allows for injection, irrigation, and electrocautery
- 7 Fr or 10 Fr
- Firm pressure, 15-20W, for 8-10 sec each time, then irrigate as pulling probe off

GOLD PROBE

- Bipolar cautery (ie, do not need to ground the patient)
- “Coaptive coagulation” = compress the walls of the artery and cauterize them together
- 7 Fr or 10 Fr – depends on preference
- Gold probe has an injection port – typically used for injecting epinephrine
- Use: Ulcer bleeds



EPINEPHRINE

- Not a primary modality for treatment, but rather an adjunctive agent
- Studies have shown similar efficacy with saline vs epi – ie, benefit is mostly from tamponade rather than vasoconstriction
- Use: Dual treatment of ulcer bleeds – combined with clips or cautery
- Improving visualization during a bleed case.





APC= Argon plasma Coagulation

- Creates a superficial burn– useful for superficial lesions
- Often need to suction out gas during the case
- Tip should not come into contact with mucosa. If it does, may need to scrape/clean the tip, and carries risk of submucosal air/pneumoperitoneum.
- This is monopolar cautery – ie, pt needs to be grounded
- Use: AVMs – small bowel, gastric.
- Ablation of residual polyp after resection



BANDERS

- Used in variceal ligation. 99.9% of the time will be in the esophagus and gastric varices.
- Suction a lesion/varix into the cap and deploy band around it
- Blood is traveling up the esophagus – begin banding at the bottom and work our way up
- Often recommend liquid diet the day of the procedure, then advance slowly to a soft diet
- Can be painful (chest pressure/tightness, odynophagia) -- may need viscous lidocaine prescription

Hemostatic Powder

- Can provide 24-48 hrs of hemostasis
- Need active bleeding for it to be effective
- Use: Cancer bleeding
- Diffuse oozing/bleeding
- Adjunctive agent in other therapies
- Some data in variceal bleeds



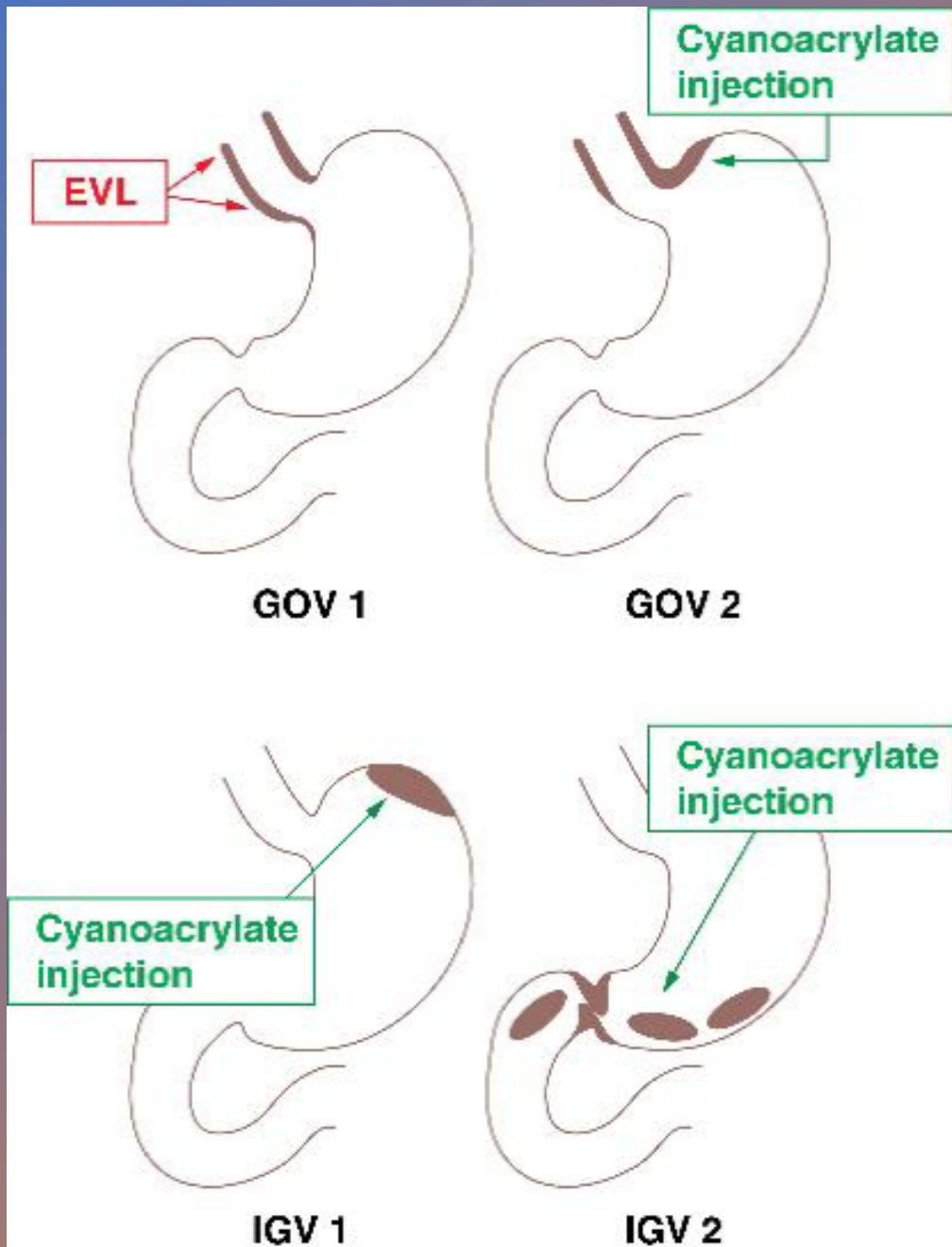
A close-up, shallow depth-of-field photograph of a metal component, possibly a part of a machine or engine. The component is dark and metallic, with some visible wear and a small, curved mark. The background is heavily blurred, showing other parts of the machinery in various shades of grey and blue. Overlaid on the image is the text "EQUIPMENT USED RARELY" in a white, sans-serif font, underlined.

EQUIPMENT USED RARELY

COAGGRASPER

- Monopolar (ie, need to pad the patient)
- Can grab a bleeding artery
- observe that bleeding stopped while it is grabbed
- +/- pull back slightly (tent)
- Cauterize





GLUE

- Can inject into gastric varices to stop their bleeding
- “Glue” is superglue – cyanoacrylate. As such, it can be difficult to draw up (can crystalize when exposed to air), and can clog/mess up the scope

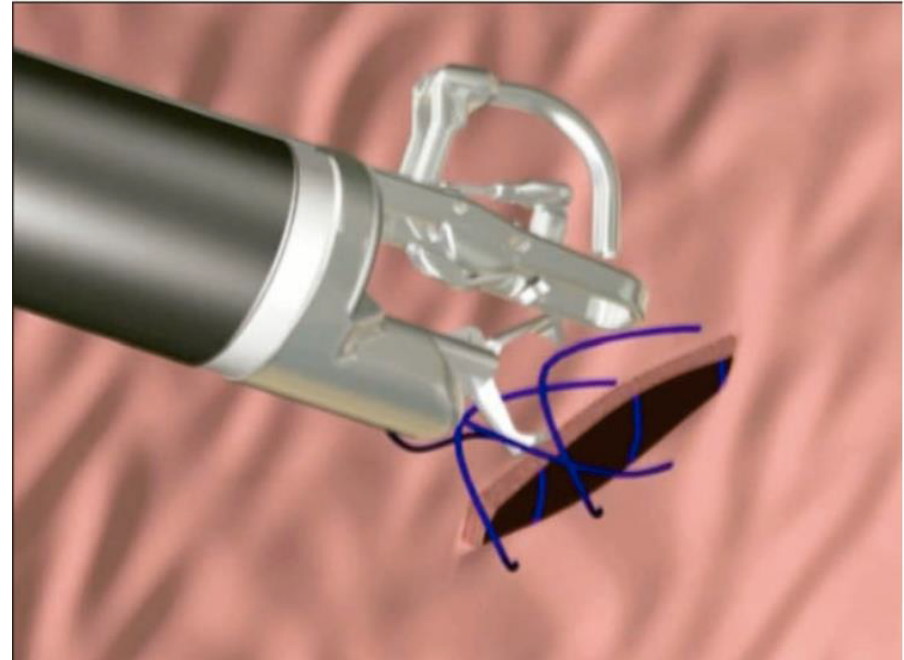


SCLEROSANTS

- Older agents that would be injected into bleeding varices or ulcers to scar them down
- Sodium morrhuate (sodium mixed with cod liver oil)
- Ethanolamine oleate
- Sodium tetradecyl sulfate
- Ethanol (99.5%)

ENDOSCOPIC SUTURES

- Typically used for non-bleeding purposes.
- Suture/secure stents (more commonly use StentFix now)
- Closing defects/perforations
- Endoscopic surgery – eg endoscopic sleeve gastroplasty



GELFOAM



- Sponge made out of gelatin (from pig skin) that has hemostatic properties
- When placed in the rectum, liquifies/ dissolves within 2-5 day
- Useful for hemorrhoidal/low rectal bleeding
- Roll it up tightly, coat it with lube, then insert into the rectum and ask the patient to try not to expel it

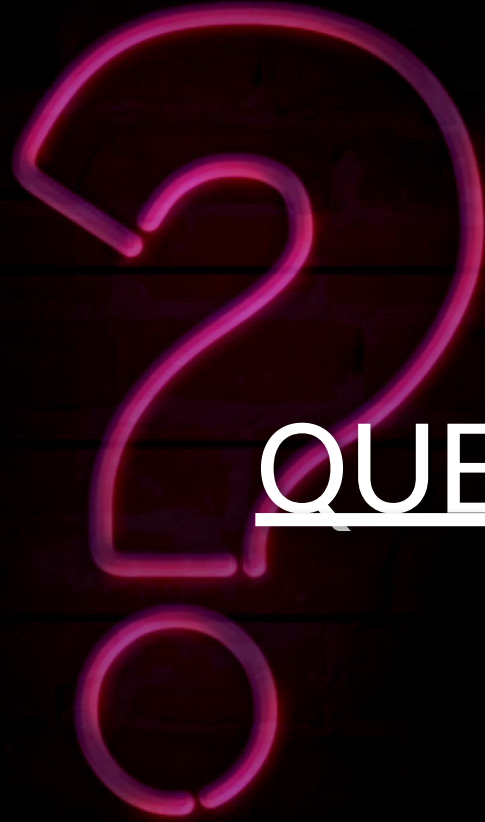
Treating bleeds by site/cause

<u>LOCATION</u>	<u>CAUSE OF BLEEDING</u>	<u>TREATMENT</u>
Anywhere	Cancer	Hemostatic powder
	AVMs	APC
Esophagus	Esophagitis	None (rarely Hemostatic powder)
	Varices	Bander (<i>rarely sclerosant, covered metal stent</i>)
	M-W tear	Clips
Colon	Diverticular bleed	None (<i>rarely clips, Gold probe, banding</i>)
	Hemorrhoids	None (<i>rarely bander, hemopowder, gelfoam</i>)
	Post polypectomy	Clips (<i>rarely epi</i>)
Ampulla	Post-sphincterotomy	Epi, covered metal stent
Stomach	Ulcer	Gold probe, Clips. Epi



References

- Yang, E., Chang, M. A., & Savides, T. J. (2019). New Techniques to Control Gastrointestinal Bleeding. *Gastroenterology & hepatology*, 15(9), 471–479.
- Kesar, V., Mir, A. S., Kanth, R., Kesar, V., Sageer, M., & Yeaton, P. (2020). S3179 Over-the-Scope Clip vs Standard Endoscopic Hemostatic Therapy in Upper GI Bleeding: Meta-Analysis of Randomised Control Trials. *The American Journal of Gastroenterology*, 115(1), S1669–S1669. <https://doi.org/10.14309/01.ajg.0000714764.24528.48>
- Azizi, S., Chaudhary, S., & Zhu, X. (2014). Successful Control of Upper GI Bleeding by Endoscopic Removal of Eroded Vertical Banded Gastroplasty: 921. *The American Journal of Gastroenterology*, 109, S271–S272. <https://doi.org/10.14309/00000434-201410002-00921>



QUESTIONS?