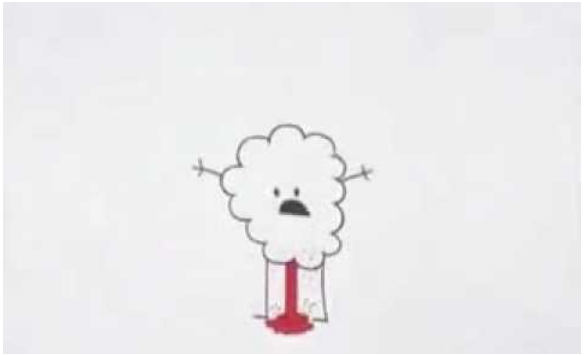


Non-Variceal GI Bleeding

By Magdalena Espinoza, PGY6
Gastroenterology and Hepatology Fellow
Banner University Medical Center Phoenix
Carl T. Hayden VA Medical Center

Why is Non-Variceal GI Bleeding Important?

Because people can die!

While everything in this lecture is golden, look for high yield bits in this color!

Guiding principals for UGIB

- Restore or maintain hemodynamic stability
- Blood products
- Nasogastric lavage
- Anti-secretory medications
- Endoscopy with hemostasis if indicated
- Angiography
- Surgery

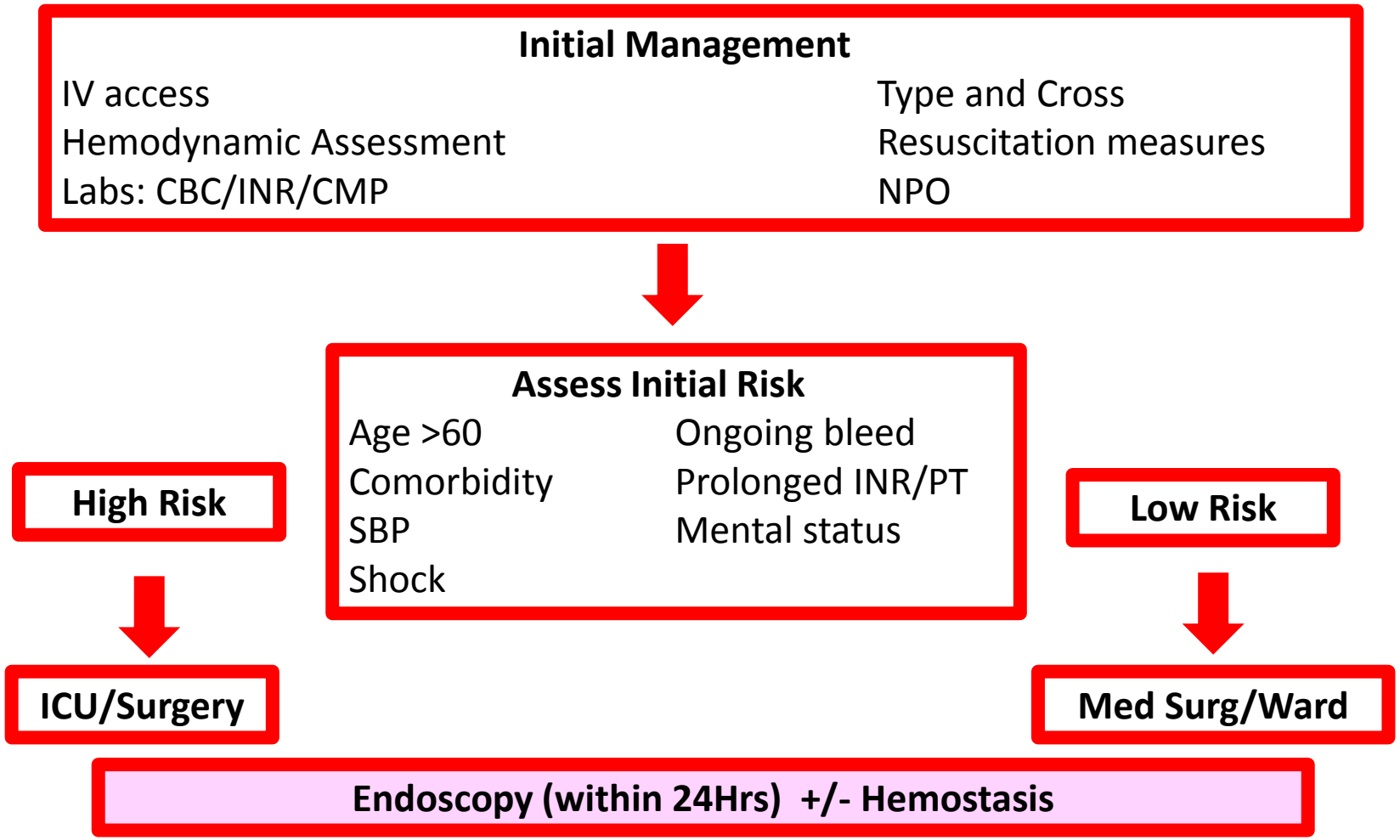
Prognostic factors in UGIB

- Age >60
- Transfusion reqs > 6U PRBCs
- Shock
- Comorbidities:
  - Hepatic, renal, pulmonary disease, CHF, cancer
- Ongoing bleeding
- Low systolic blood pressure
- Elevated PT
- Encephalopathy
- Major stigmata of recent hemorrhage

Rockall Score (MD Calc)

Blatchford score

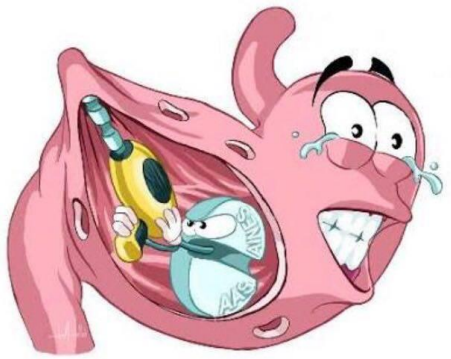
Management of Acute UGIB



Causes of UGIB?

Dallal HJ et al. Upper gastrointestinal hemorrhage: the abcs of the upper gastrointestinal tract. BMJ. 2001 Nov 10; 323(7321): 1115–1117.

Peptic ulcer disease



- Peptic Ulcer → 40%
- Esophagitis → 10%
- Erosive disease → 6%
- Other → 6%
- Mallory Weiss → 5%
- Varices → 5%
- Neoplasm → 4%
- No cause identified → **24%**

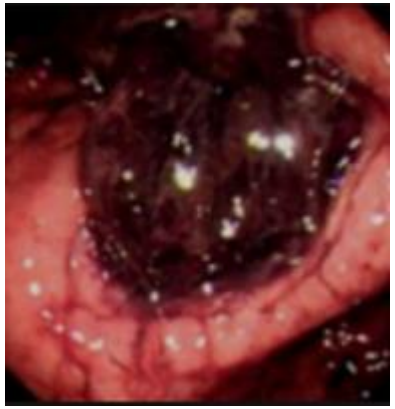
Bleeding peptic ulcers

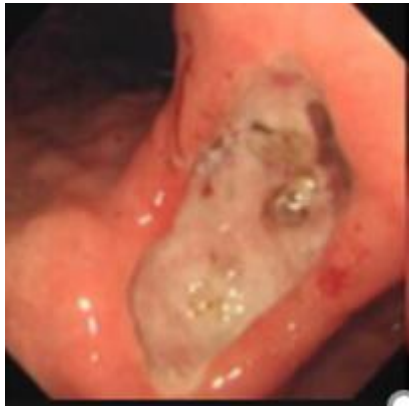
- Account for 300,000 admissions/year
- $2.5 Billion in cost
- Rebleeding after hemostasis is 20%
- Mortality 5-14% (older, sicker, on NSAIDs)

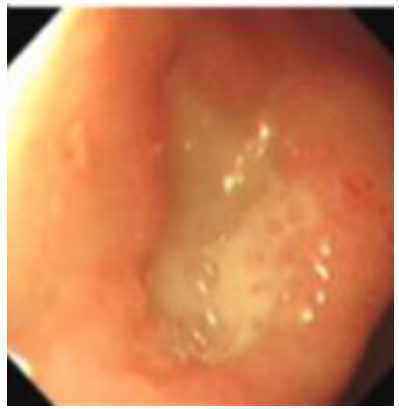
Question

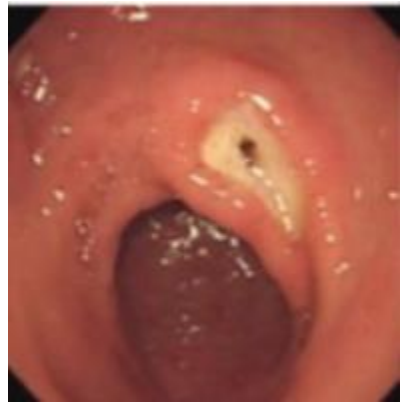
83yo woman presents with several episodes of hematemesis. Initial evaluation reveals a BP of 95/60 with orthostatic changes and maroon colored stools. There are no stigmata of chronic liver disease. Following resuscitation and admission to ICU, she undergoes urgent upper endoscopy.

Which of the following endoscopic findings requires endoscopic intervention and IV PPI?

A. 

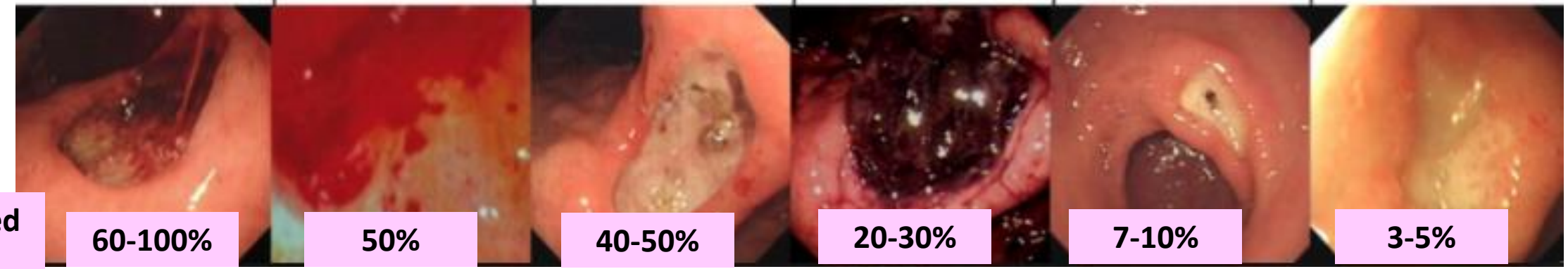
B. 

C. 

D. 

Forrest Classification

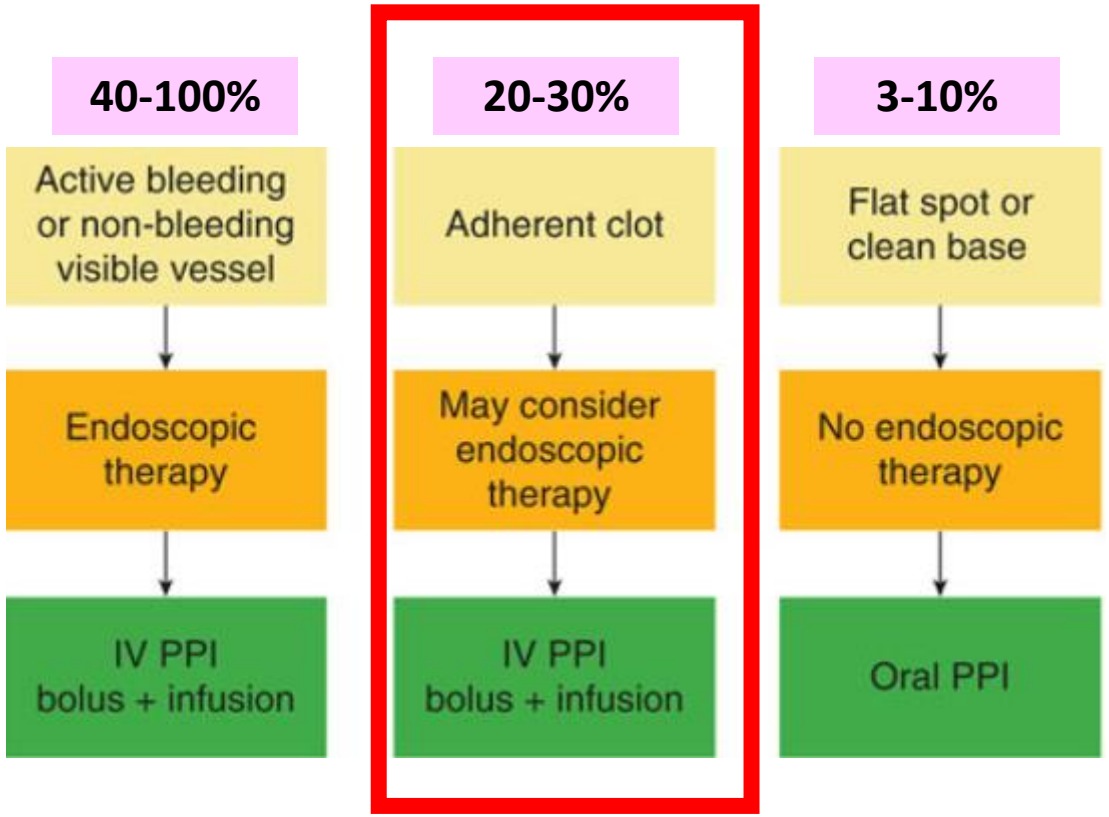
Ia	Ib	IIa	IIb	IIc	III
Spurting bleed	Oozing bleed	Non-bleeding visible vessel	Adherent clot	Flat spot in ulcer crater	Clean base ulcer



Re-bleed Risk	**60-100%**	**50%**	**40-50%**	**20-30%**	**7-10%**	**3-5%**
Mortality Risk	**11%**	**11%**	**7-11%**	**7%**	**3%**	**2%**

Forrest, JA.; Finlayson, ND.; Shearman, DJ. (Aug 1974). Endoscopy in gastrointestinal bleeding. Lancet. 2(7877): 394-7.

ACG guidelines for endoscopic therapy of ulcers



Am J Gastroenterol 2012; 107:345–360; doi: 10.1038/ajg.2011.480; published online 7 February 2012.

Adherent clot management

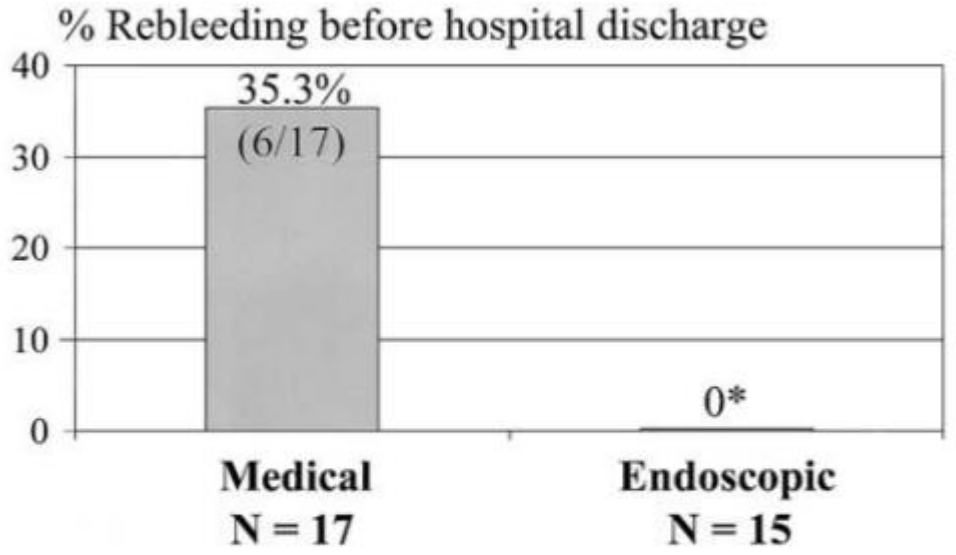


Figure 1. The recurrence of ulcer hemorrhage following randomization to medical vs. endoscopic therapy, up to the time of hospital discharge for patients with nonbleeding adherent clots. *Indicates a significant difference ($P = 0.011$).

Jensen D , Kovacs T , Jutabha R et al. Randomized trial of medical or endoscopic therapy to prevent recurrent ulcer hemorrhage in patients with adherent clots . Gastroenterology 2002 ; 123 : 407 – 13 .

Endoscopic hemostasis: efficacy in non-variceal UGIB

- 30 Randomized Controlled Trials
- All patients with bleeding ulcers
- Thermal, ~~laser~~, and epinephrine therapy all decreased:
  - Rebleeding (OR 0.38)
  - Surgery (OR 0.36)
  - Mortality (OR 0.55)
  - **In pts with visible vessel or active bleeding, NOT adherent clot or flat spot

Cook DJ et al. Endoscopic therapy for acute non-variceal upper gastrointestinal hemorrhage: a metanalysis. Gastroenterology. 1992; 102:139-148.

Endoscopic hemostasis: technique in bleeding ulcers

- Epinephrine
- Epinephrine
  - Superior t
  - Not super
- Repeat end
  reduces the
- No benefit

s in RCTs

stasis

ations

le

Second look Endoscopy as outpatient 2-3 months later if:

- **Symptoms are ongoing**
- **Evaluate for malignancy if gastric ulcer (not needed in duodenal ulcers)**
- **Incomplete visualization**
- **Could not take biopsies on original endoscopy**

Marmo R et al. Dual therapy versus monotherapy in the endoscopic treatment of high-risk bleeding ulcers: a meta-analysis of controlled trials. American Journal of Gastroenterology. 2007 Feb;102(2):279-89; quiz 469.

Hemostatic clips for ulcer bleeding

- Randomized 124 pts with bleeding ulcers (active bleeding, clots, or visible vessel)
- Patients:
  - 41 hemo-clips alone
  - 41 epinephrine injection
  - 42 combination therapy
- Hemo-clips superior than epinephrine injection monotherapy
- Combined therapy no better than clips alone

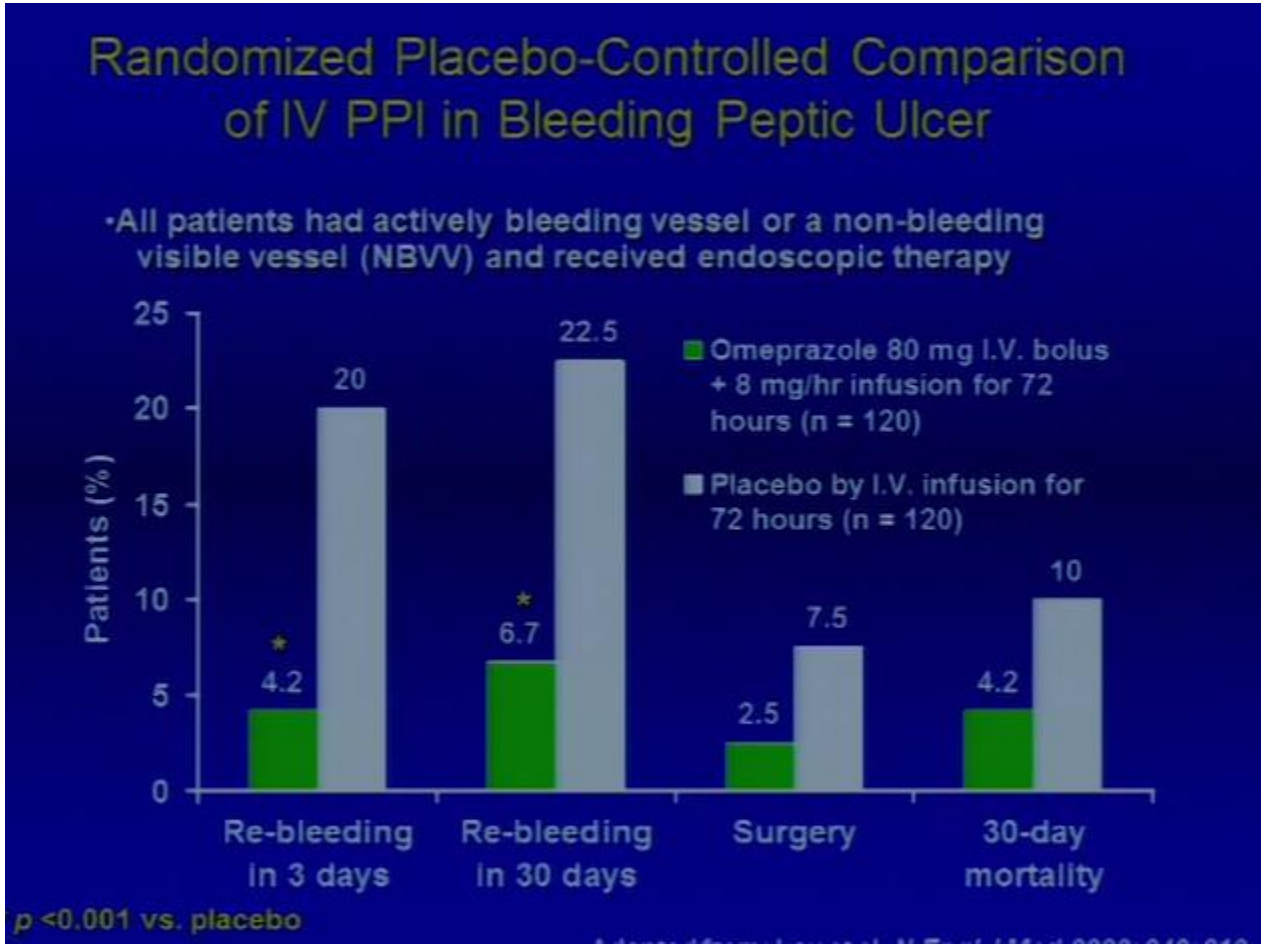
Chung IK et al. Comparison of the hemostatic efficacy of the endoscopic hemoclip method with hypertonic saline-epinephrine injection and a combination of the two for the management of bleeding peptic ulcers. Gastrointest Endosc. 1999 Jan; 49(1):13-8.

Medical therapy for non-variceal UGIB

- Proton pump inhibitors
  - Best evidence
- Histamine 2 receptor antagonists
  - Minimal benefit
- Somatostatin or its analogue, octreotide
  - If cirrhotic

Randomized placebo controlled comparison of IV PPI of bleeding peptic ulcer

IV PPI BID x72Hrs

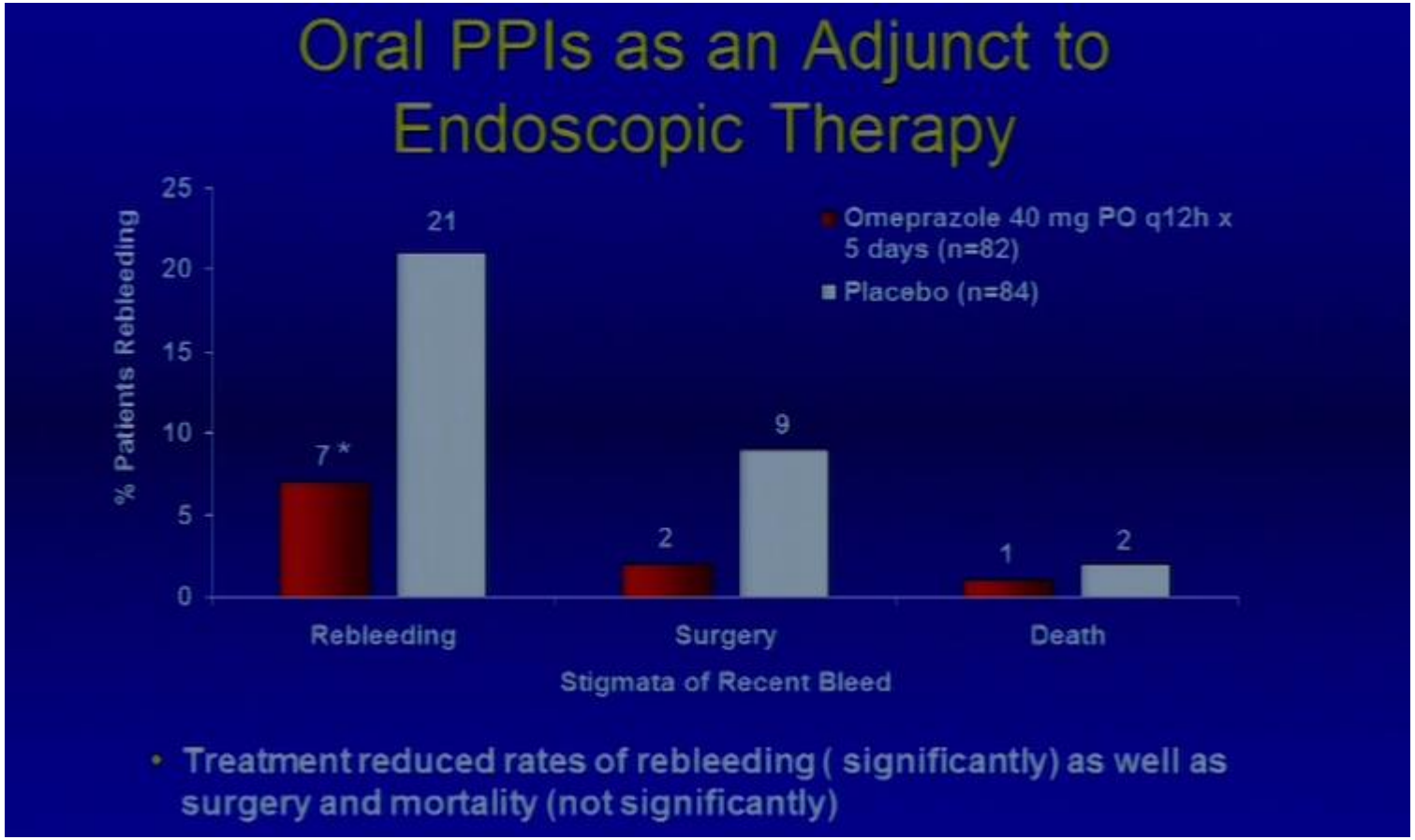


Lau JY et al. Effect of intravenous omeprazole on recurrent bleeding after endoscopic treatment of bleeding peptic ulcers. New England Journal of Medicine. 2000 Aug 3;343(5):310-6.

Can I get away with IV PPI therapy alone?

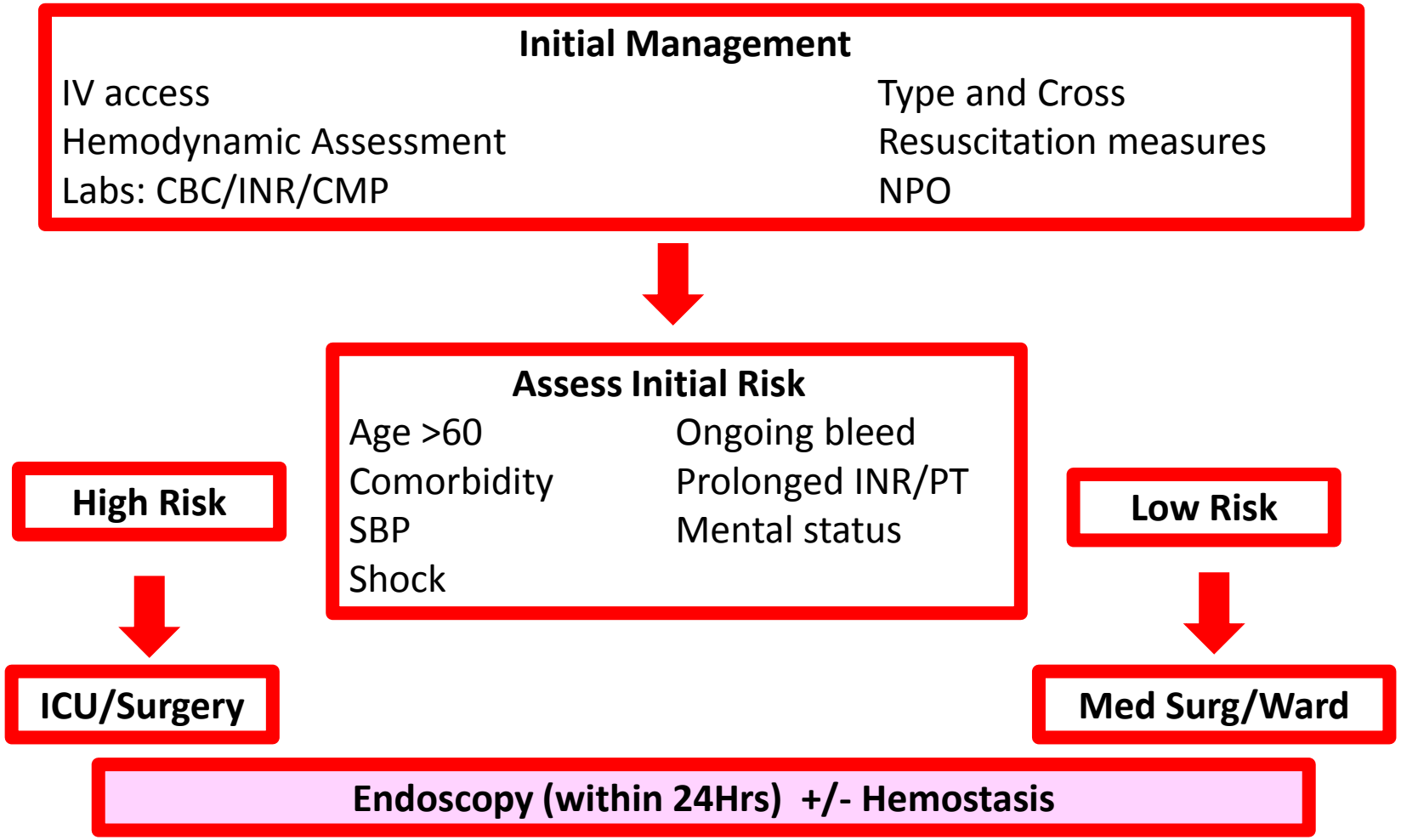
Sung et al. IV Omeprazole vs IV Omeprazole and endoscopic therapy for bleeding ulcer. Annals of Internal Medicine. 2003. 139;237.

Do you really need IV PPI? Can't I order PO?

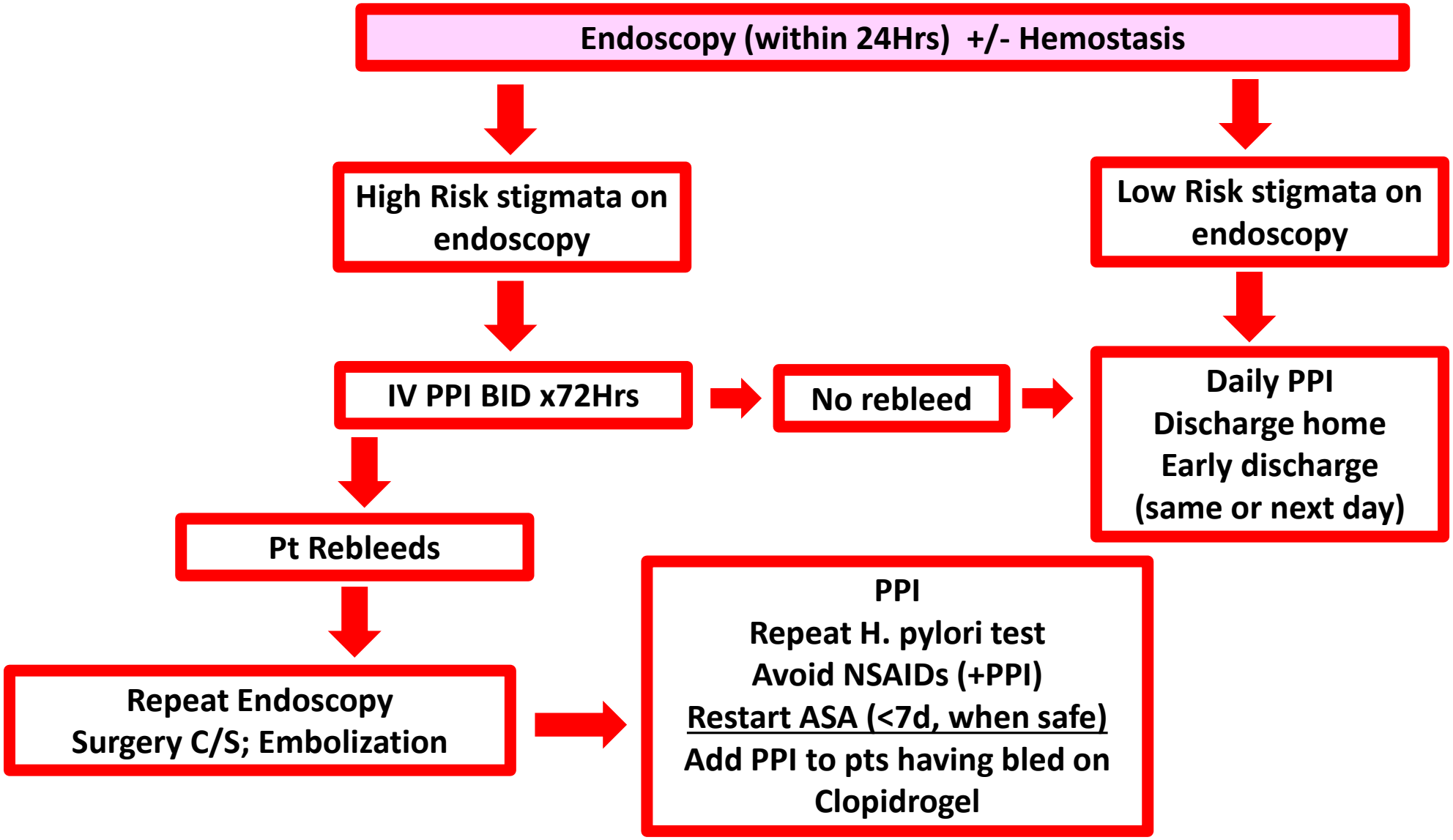


Jarvid G. et al. Omeprazole as adjuvant therapy to endoscopic combination injection sclerotherapy for treating bleeding peptic ulcer. American Journal of Medicine. September 2001. Volume 111, Issue 4, Pages 280–284.

Management of Acute GIB



Management of Acute GIB



ACG Practice Guidelines: management of patients with ulcer bleeding

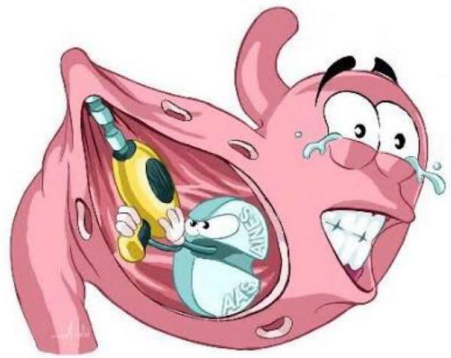
Condition	Intervention
NSAID	Stop NSAIDs If Required, use Coxib + PPI daily
Low Dose Aspirin	1. Primary CV Prevention → Do not resume ASA in most patients 2. Secondary CV Prevention → Resume ASA soon after hemostasis (1-7days) in most pts and start PPI
Idiopathic	Maintenance PPI
H. Pylori	H. Pylori therapy Document cure Stop PPI

ASA reduces mortality rates by 10 fold in cardiovascular disease over 30 days.

ASA increases bleeding risk by 2 fold.

***Most people on low dose ASA, don't actually need it

Causes of UGIB?



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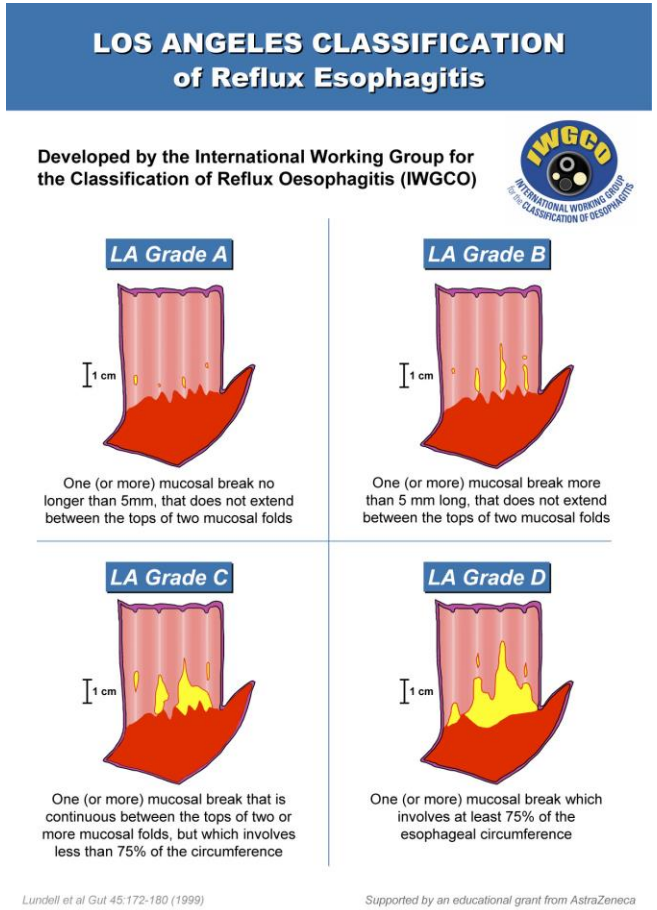
- No cause identified → **24%**

Esophagitis



- May causes:
  - GERD
  - Medication
  - Eosinophilic
  - Infectious: Candida, CMV, Herpes, HIV
- Usually treat with PPI BID
- Reassess endoscopically in 1-2 months

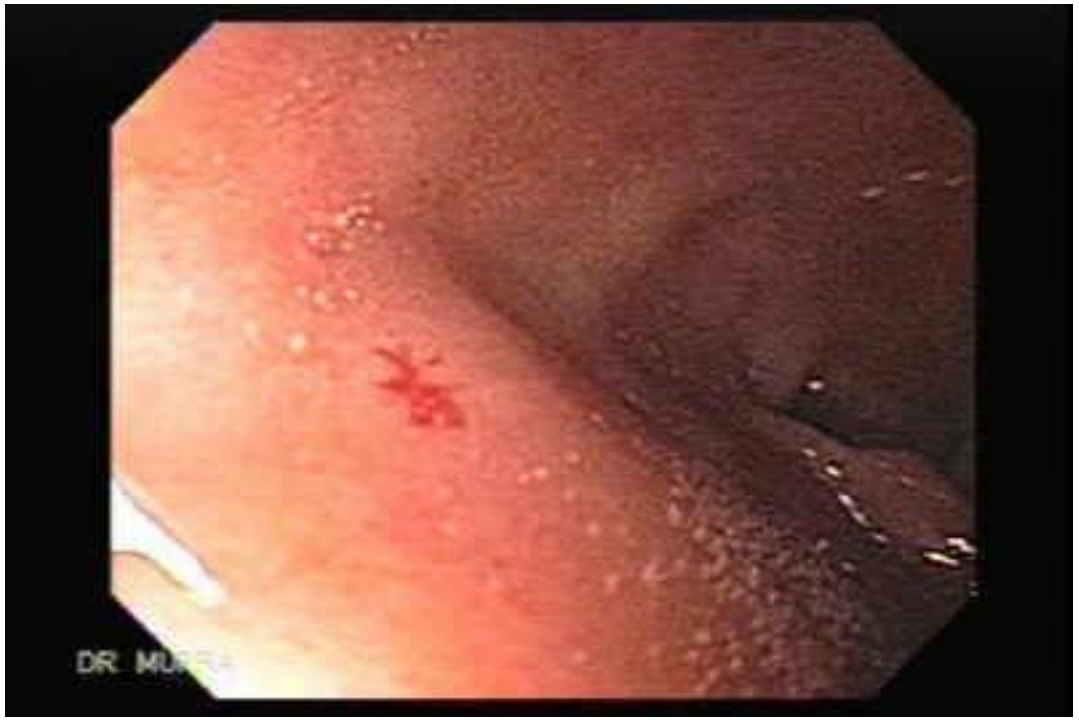
Causes of UGIB?

Dallal HJ et al. Upper gastrointestinal hemorrhage: the abcs of the upper gastrointestinal tract. BMJ. 2001 Nov 10; 323(7321): 1115–1117.

Vascular lesions

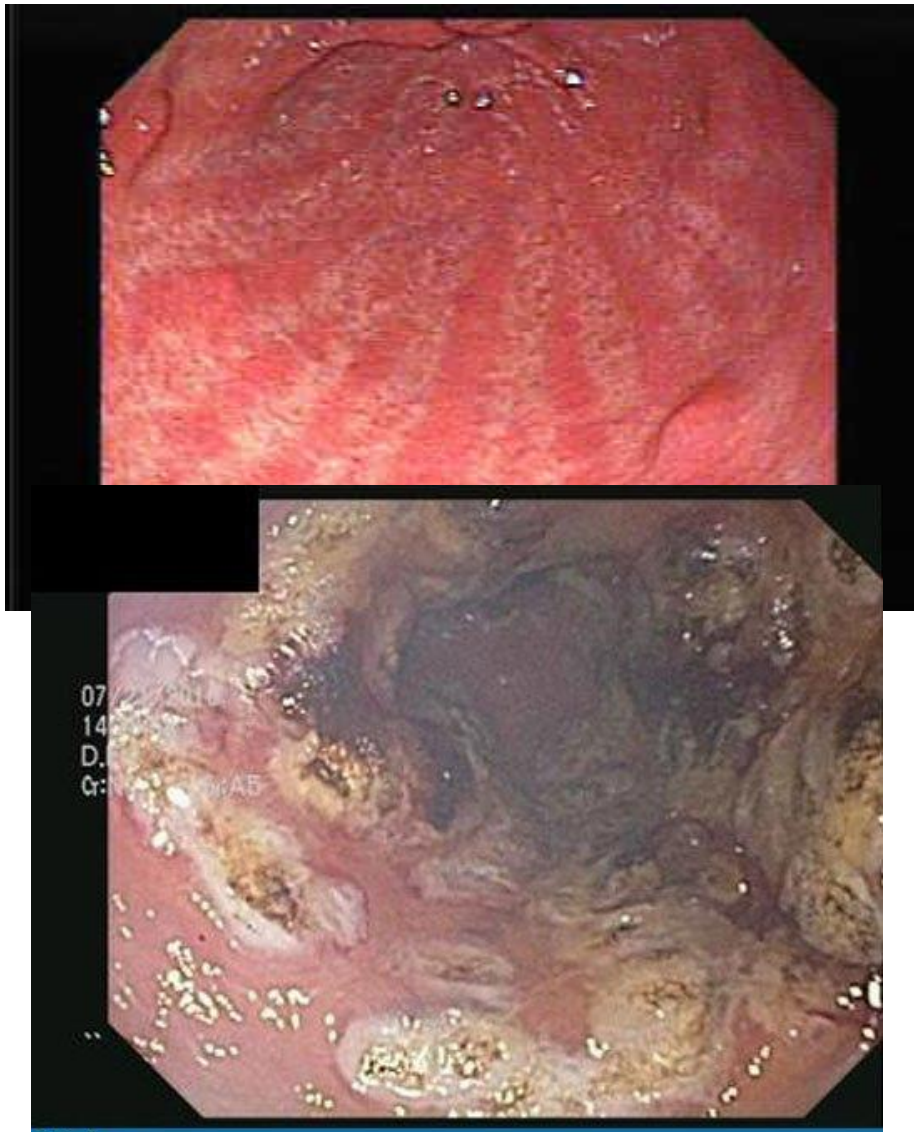
- Vascular ectasias
  - Angiodysplasias, telangectasias
- Gastric Antral Vascular Ectasia – GAVE
  - Watermelon stomach
- Dieulafoy's lesion
  - An arterial bleed, not an ulcer
- Portal hypertensive gastropathy
- Cameron's lesions
  - Linear ulcers from traction of diaphragm in large hernias

Duodenal angioectasia



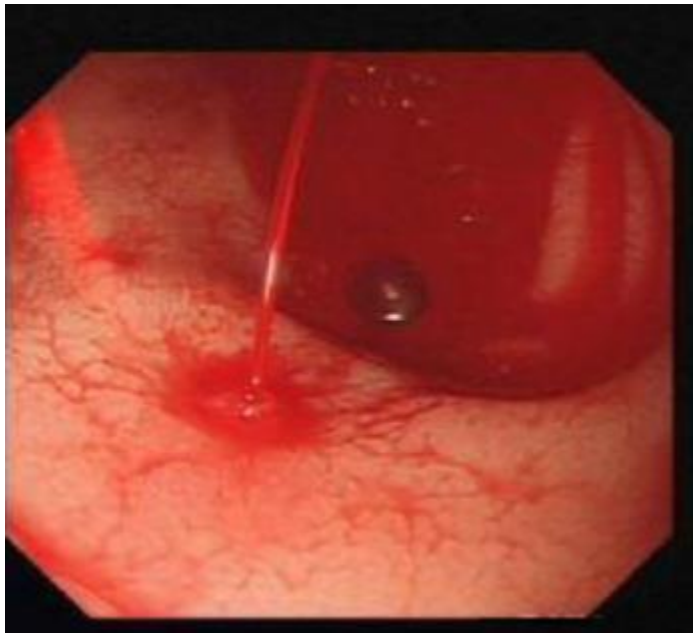
- Acquired
  - Aging
  - CREST
  - Radiation
- Hereditary

GAVE



- Watermelon stomach
- Dilated small vessels in the antrum
- Cause and pathogenesis still unknown
- ? Connective tissue disorder
- Associated conditions:
  - Portal hypertension
  - CKD
  - Collagen vascular diseases/scleroderma
- Argon Plasma Coagulation (APC) and electrocautery is tx

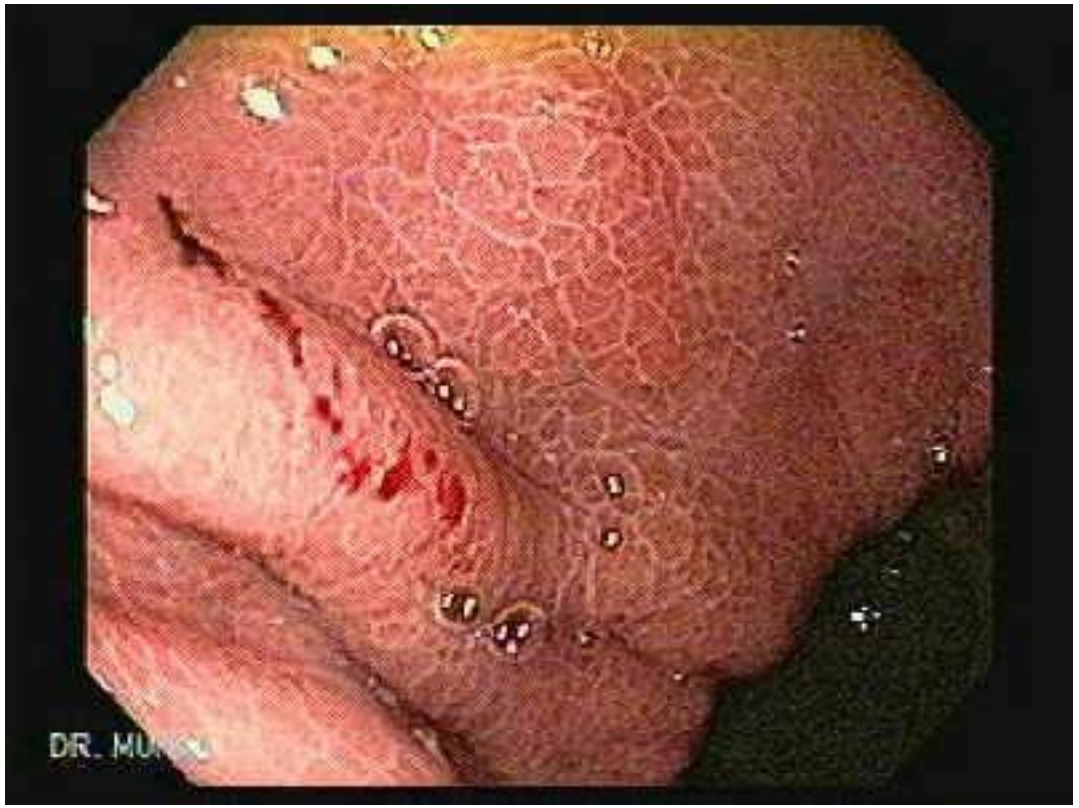
Dieulafoy's lesion



Intermittent, painless, massive bleeding!

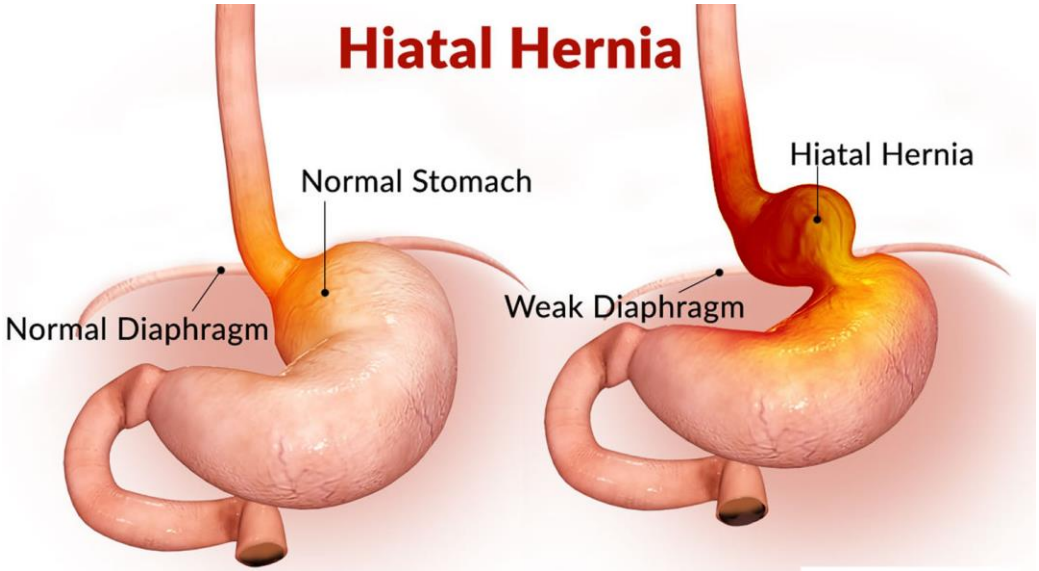
- Large submucosal artery
- Proximal stomach (or elsewhere)
- Often difficult to identify endoscopically
- Combination therapy
- Long-term hemostasis in 85-90%

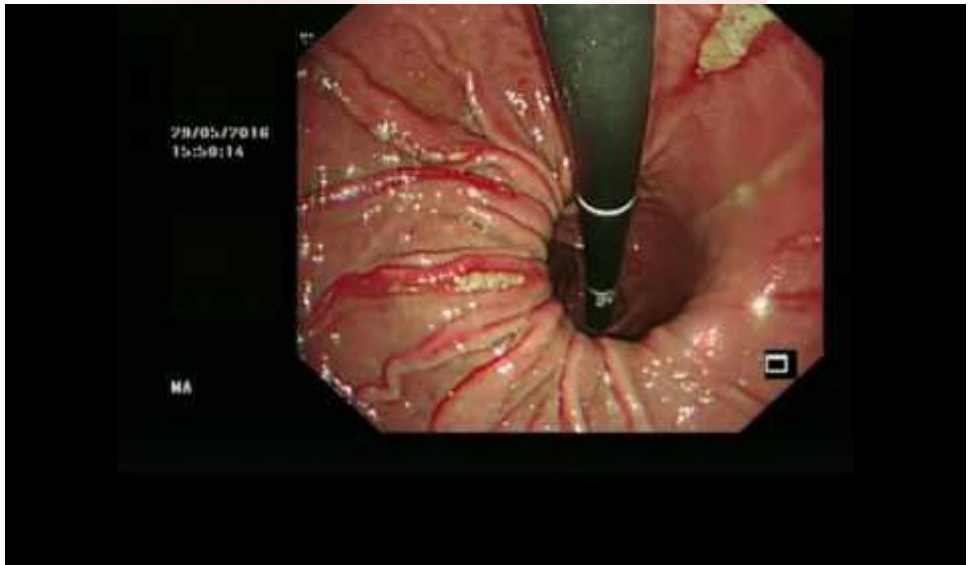
Portal hypertensive gastropathy



- “Mosaic” or “Snake’s skin stomach”
- Classically seen in proximal stomach as opposed to GAVE
- Typically treat underlying portal hypertension, rarely endoscopic tx

Cameron’s lesions





- Linear erosions in a hiatus hernia
- Usually sliding hernia
- Chronic or acute bleeding
- No abdominal pain
- May have reflux sx
- RX: Iron + PPI and fix hernia

Stress ulcer bleeding

- Pt admitted to ICU, endoscopic evidence of GIB within 24Hrs
- Historically occurred in 15% of ICU pts without prophylactic therapy
  - Biggest player: Ventilator
- Lower now with improved ICU care

Gastric pH and clinical effect

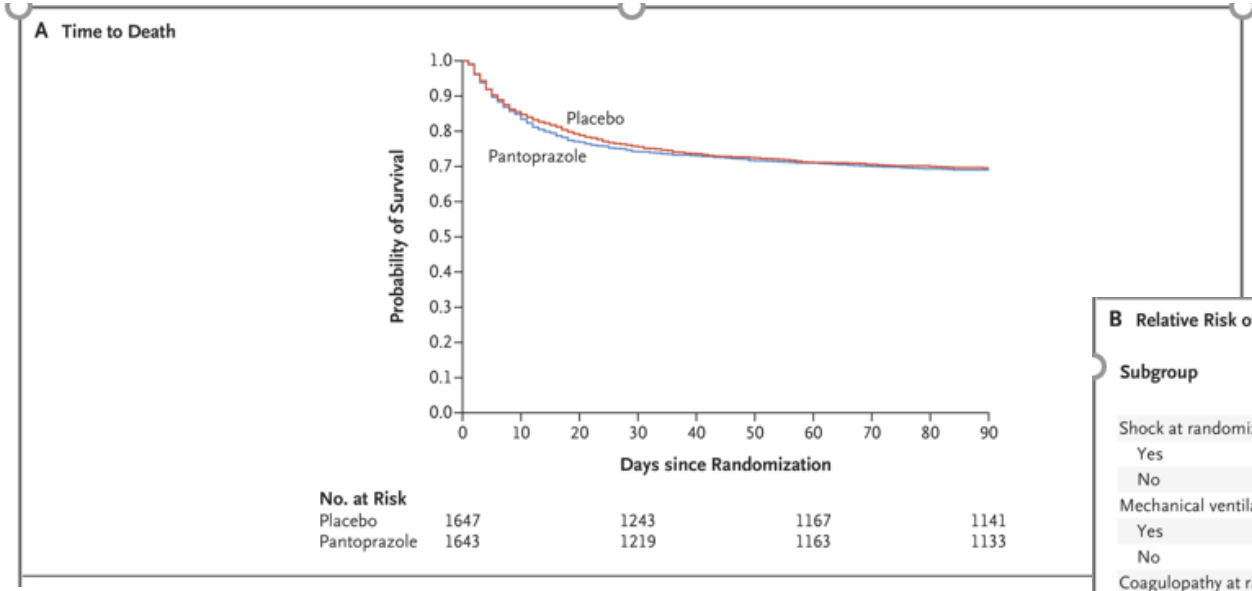
Gastric pH	Clinical Effect	Plan
> 4	Pepsin Inactivated	Stress ulcer prophy
> 6	Functional coagulation and platelet aggregation	Reduction of rebleeding after endoscopic intervention **IV PPI BID X 72Hrs**
> 7	Pepsin denatured	

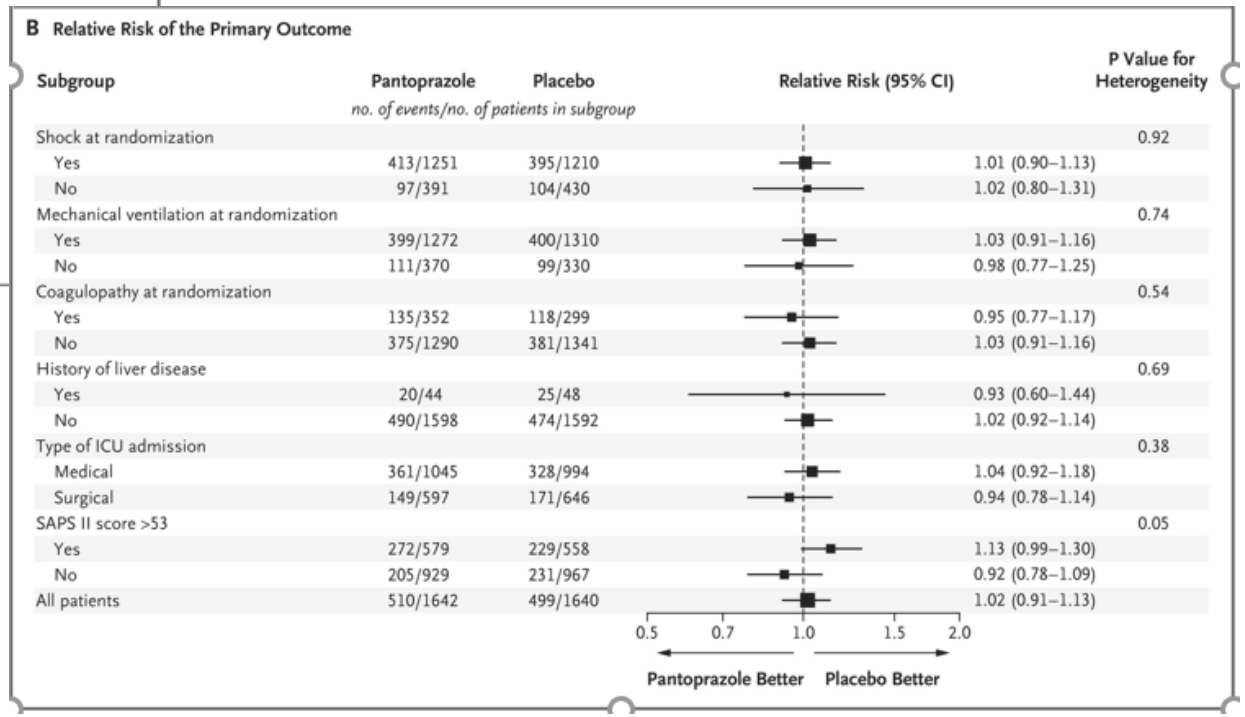
FDA approved continuous, not intermittent H2 for stress ulcer prophylaxis in ICU patients for its continuous effects

Immediate release oral suspension of omeprazole also approved, nobody uses it

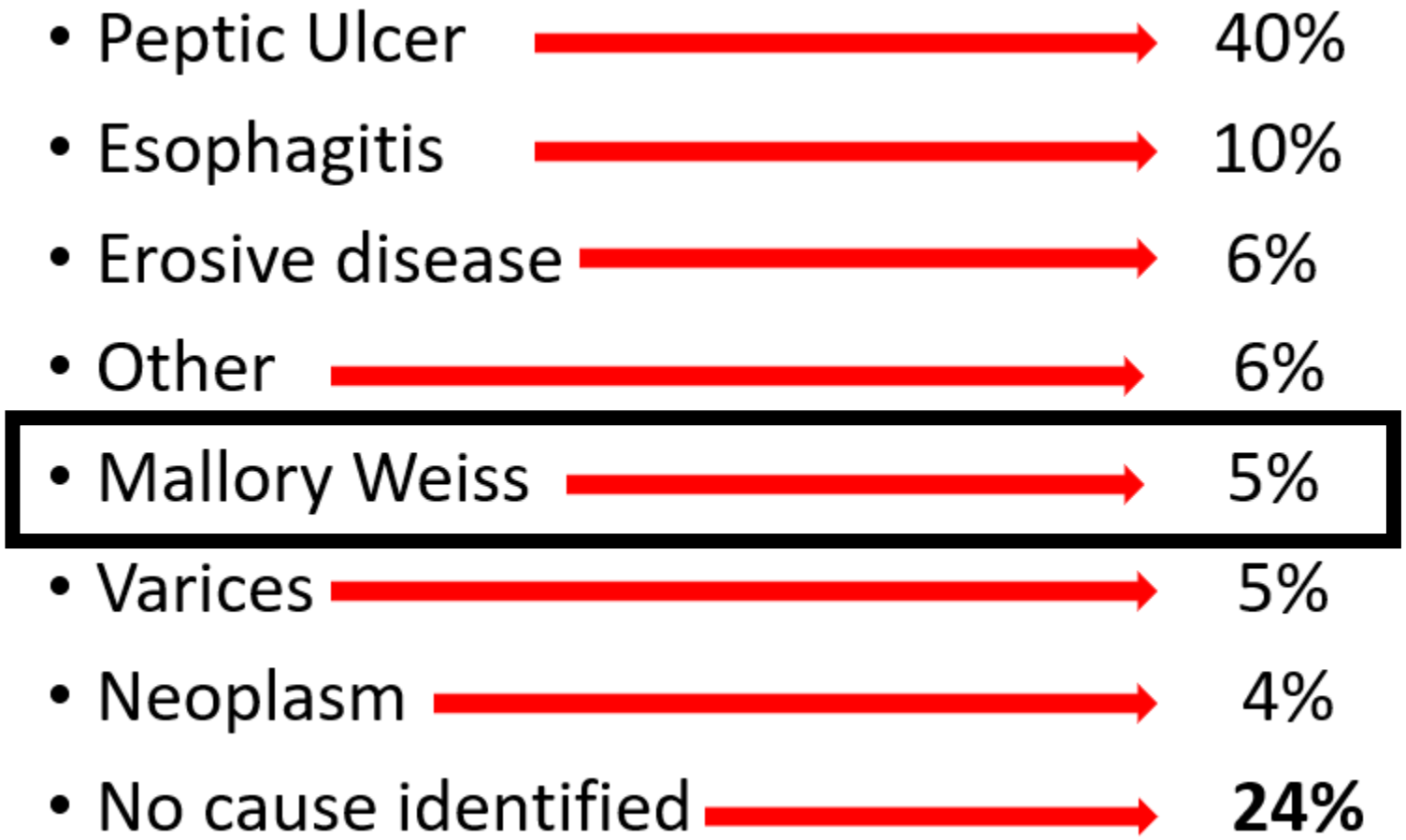
Pantoprazole in Patients at Risk for Gastrointestinal Bleeding in the ICU

Mette Krag, M.D., Ph.D., Søren Marker, M.D., Anders Perner, M.D., Ph.D., Jørn Wetterslev, M.D., Ph.D., Matt P. Wise, M.D., Ph.D., Joerg C. Schefold, M.D., Frederik Keus, M.D., Ph.D., Anne B. Guttormsen, M.D., Ph.D., Stepani Bendel, M.D., Ph.D., Mark Borthwick, M.Sc., Theis Lange, Ph.D., Bodil S. Rasmussen, M.D., Ph.D., et al., for the SUP-ICU trial group*





Causes of UGIB?

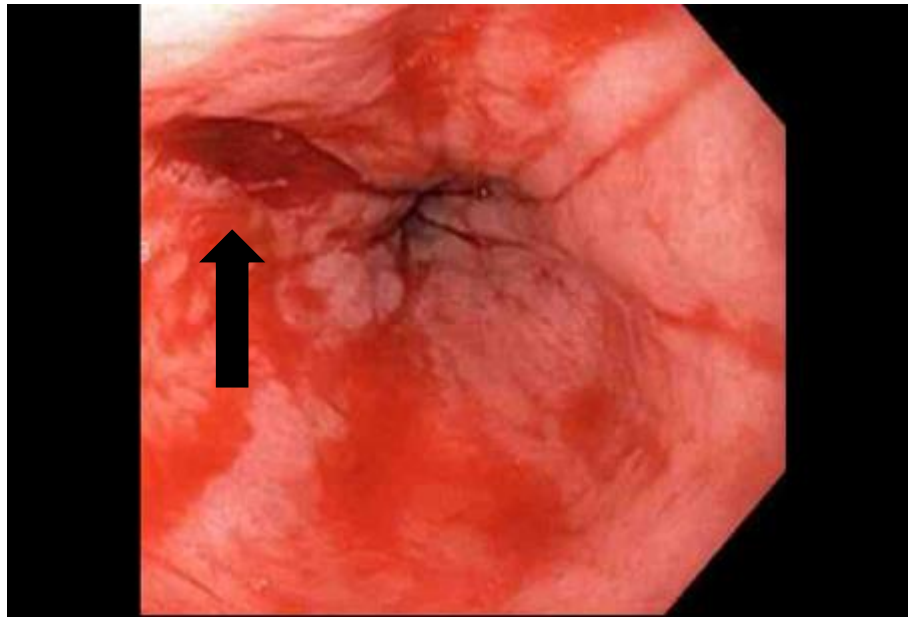


Dallal HJ et al. Upper gastrointestinal hemorrhage: the abcs of the upper gastrointestinal tract. BMJ. 2001 Nov 10; 323(7321): 1115–1117.

Mallory Weiss tear

- Painless upper GI bleeding due to mucosal tear(s) near GE junction
- Usually on the gastric side
- Hemoclip closure

- Notable mentions
  - Intramural hematoma
  - Esophageal rupture (Boorhaave's)
    - Transmural tear, chest pain, pneumothorax



Vomit, vomit, vomit….bleed!

Causes of UGIB?

DEFINITIONS:

Overt: visible blood in emesis or stool

Occult: + FOBT, +/-IDA with no visible blood loss

Obscure: overt or occult bleeding with no identifiable cause

- **Obscure-Overt**
- **Obscure-Occult**

Dallal HJ et al. Upper gastrointestinal hemorrhage: the abcs of the upper gastrointestinal tract. BMJ. 2001 Nov 10; 323(7321): 1115–1117.

Bleeding of obscure origin

Upper Origin

- Lesions already discussed
- Esophagitis
- Gastric neoplasms
- Blue-Rubber Bleb Nevus Syndrome
- Sprue
- Hemobilia
- **Hemosuccus (hemorrhage from pancreatic duct)**

Etiologies:

pancreatic pseudocyst, pseudoaneurysms, or post-procedure injury

Mid or Lower Origin

- Angiodysplasia, telangectasia
- Small or large bowel tumors
- Small or large bowel erosions or ulcers
- Crohn's
- Radiation enteritis
- Amyloidosis
- Other
- Swallowed blood

Age is just a number, right?
Not when it comes to risk of Occult GIB!

- > 50 years old → Think angiodysplasia
- < 50 years old → IBD, Dieulafoy, cancer

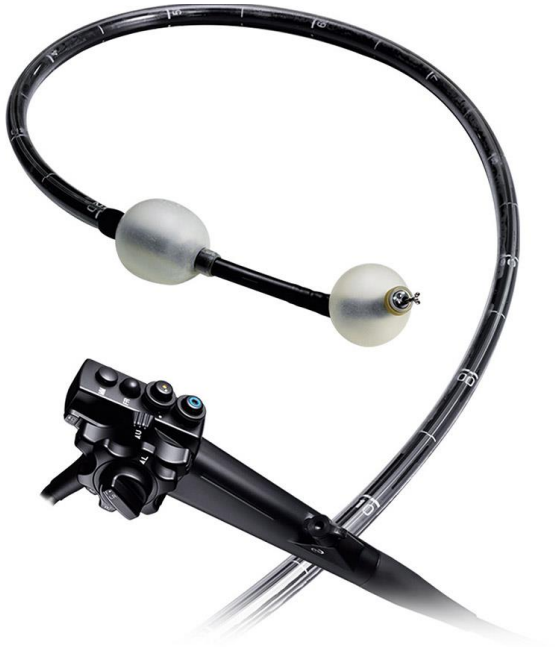
Which organs to evaluate for obscure GIB?

- EGD/Colonoscopy
- EGD after a negative colonoscopy
- Negative EGD/Colonoscopy? Capsule
- LVAD bleeders? EGD/Colon, and then a capsule (all at once)
- Radiographic imaging:
  - Yield higher for obscure-overt than obscure occult

A bit about wireless capsule endoscopy

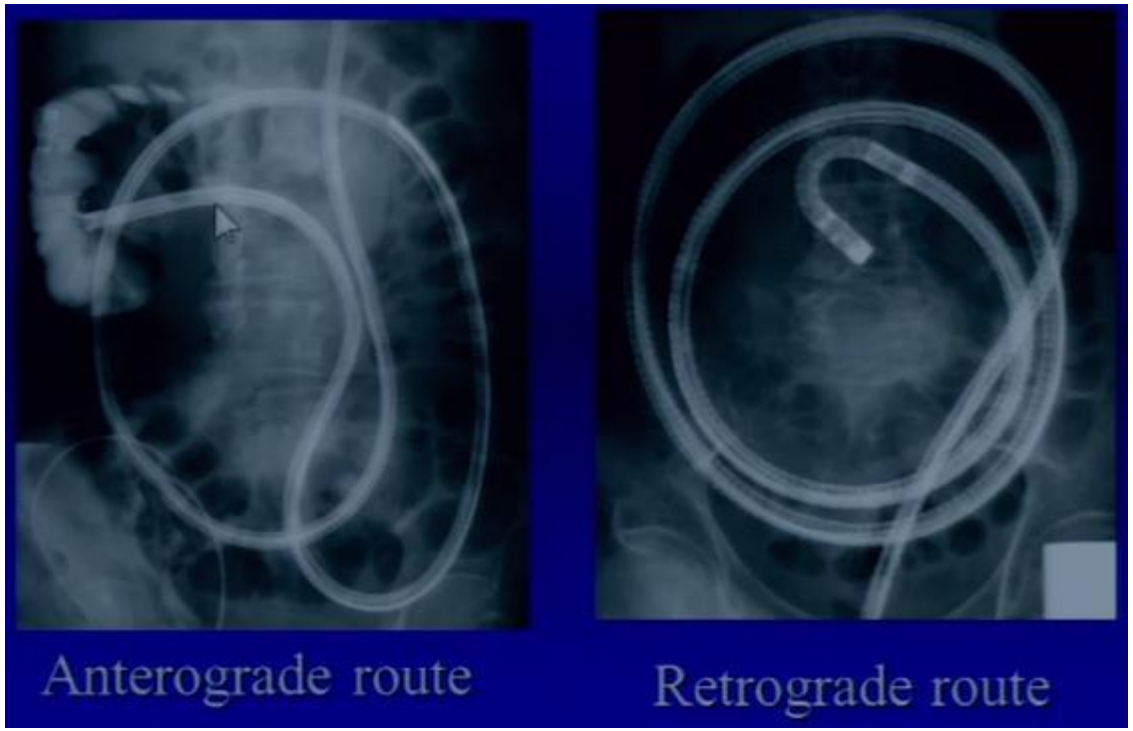
- Some lesions clinically insignificant
- Some lesions may be missed
- May direct antegrade vs retrograde enteroscopy
- If (-) may still be reasonable to do double balloon
- Fun fact: we still prep patients to wash off bile from walls for better visualization

Double balloon enteroscopy



- Retrospective study, 7 institutions, 183 pts w/ suspected small bowel lesions
- 49%, 90 pts bleeding lesions
- 20%, 18 pts mass lesion
- (4 duodenum, 9 jejunum, 5 ileum)
- Prior VCE in 15/18 with mass
  - Mass lesion only detected in 5 (33%)
  - Yikes!

DBE: possible, but…



- Only complete exam 40% of time
- Long procedure (1.5-2hrs)
- Technically difficult to do
- Higher $$$
- Single balloon isn’t better because it doesn’t make it as far

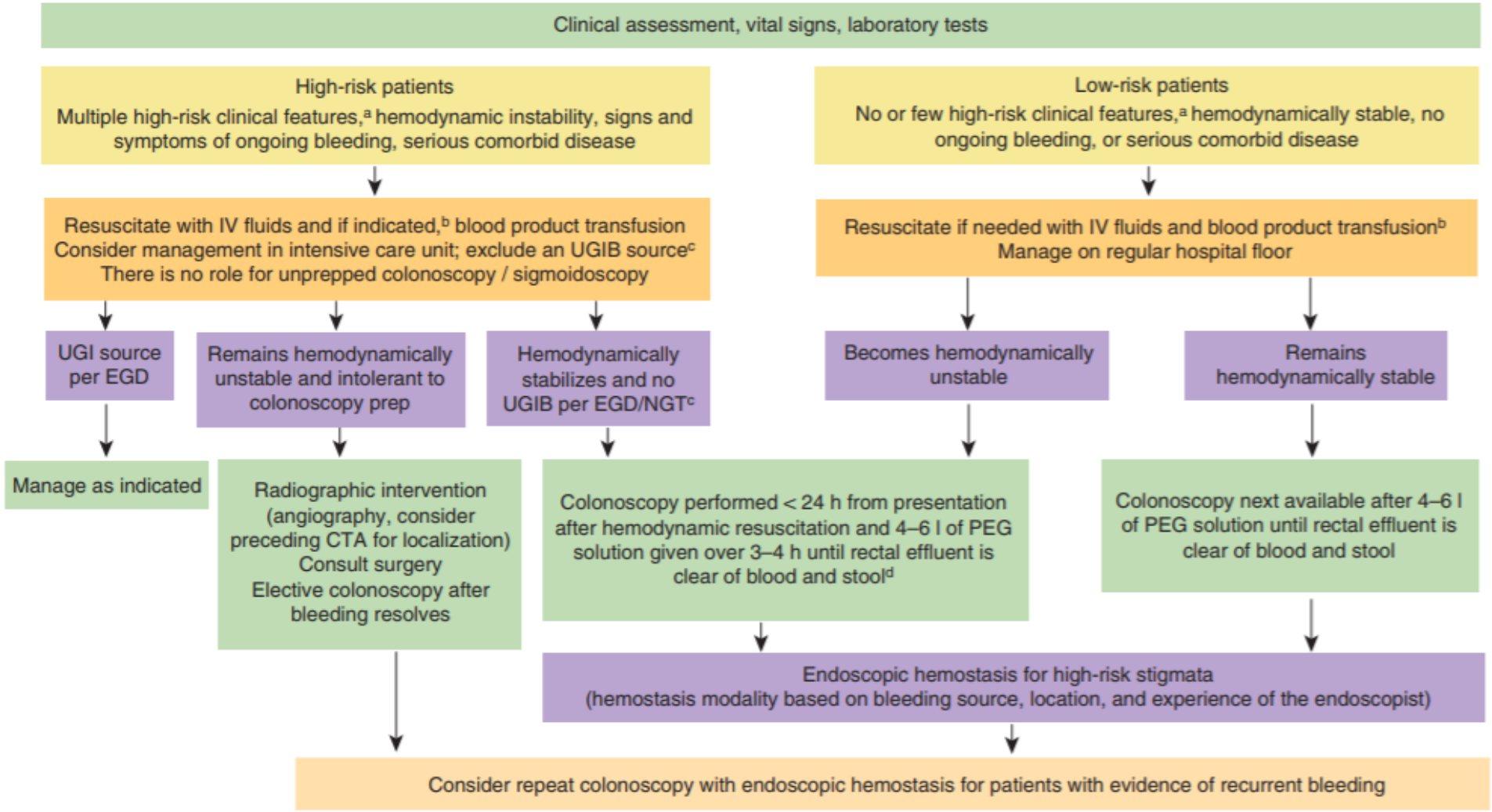
Lower GIB causes

Strate LL et al. Lower GI bleeding: epidemiology and diagnosis. Gastroenterology Clinics of North America. Vol 34;4: Dec 2005:643-664.

Prognostic factors in lower GIB

- Age >60
- Comorbid illnesses (same as UGIB)
- Hemodynamic instability
- Overt rectal bleeding
- Exposure to anticoagulation/antiplatelet agents

ACG management of lower GIB



Strate LL et al. ACG Clinical Guideline: Management of Patients With Acute Lower Gastrointestinal Bleeding. Am J Gastroenterol 2016; 111:459–474; doi: 10.1038/ajg.2016.41; published online 1 March 2016.

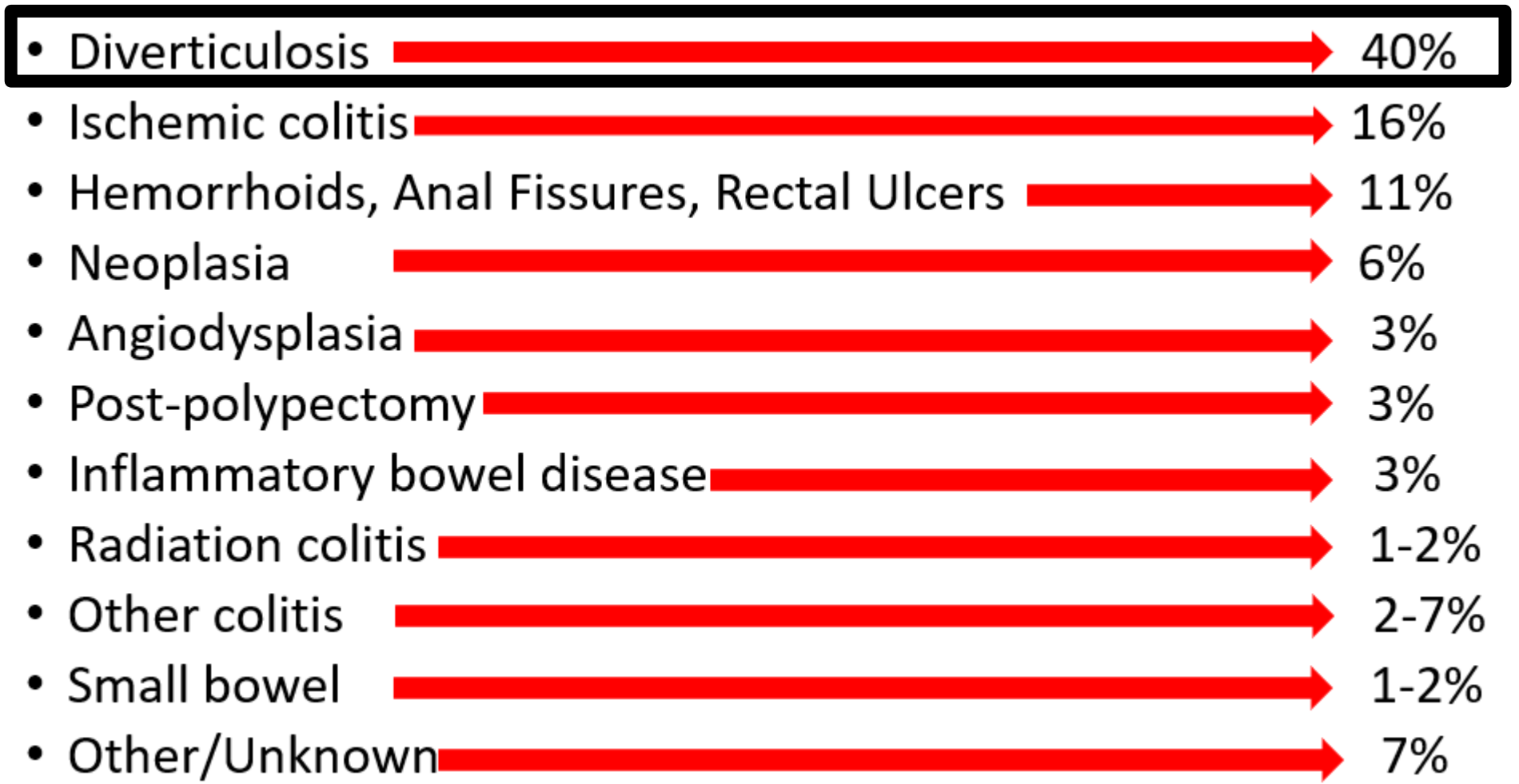
ACG management of lower GIB cont.

Aspirin for secondary cardiovascular prevention should not be discontinued. Aspirin for primary prevention should be avoided in LGIB. Dual antiplatelet therapy (DAPT, thienopyridine) should generally be resumed within 7 days. The exact timing of the thienopyridine resumption depends on cardiovascular risk and adequacy of bleeding control. DAPT should not be discontinued in the 90 days post acute coronary syndrome and 30 days post coronary stenting.

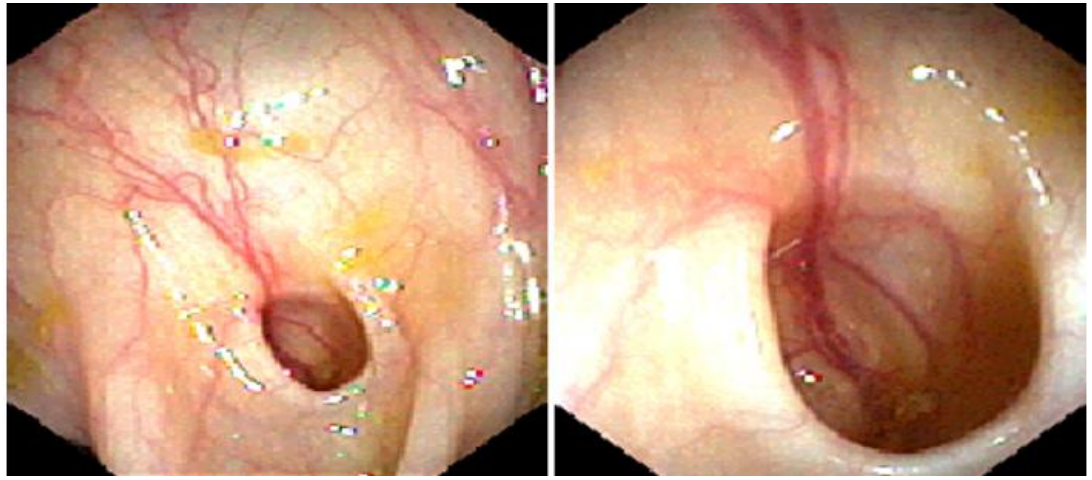
[a]See Table 3 for risk factors.[b]Packed red blood cell transfusion to maintain Hgb ≥ 7 g/dl. Consider threshold of 9 g/dl in patients with significant comorbid condition(s) (especially ischemic cardiovascular disease) or expected delay in intervention. [c]EGD if high suspicion, NGT if moderate suspicion of UGIB. [d]Consider NGT to facilitate colonoscopy preparation in patients who are intolerant to oral intake and low aspiration risk.

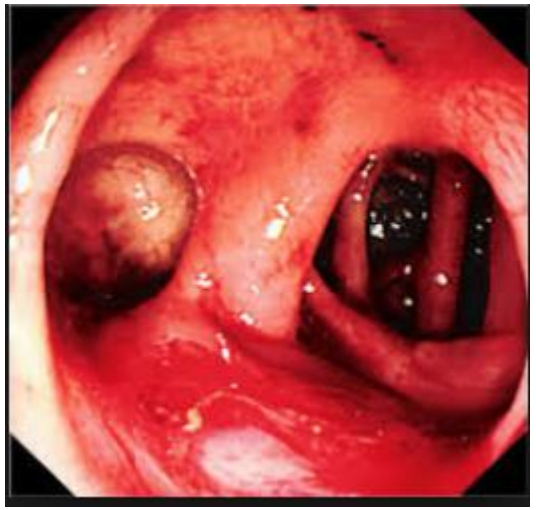
Strate LL et al. ACG Clinical Guideline: Management of Patients With Acute Lower Gastrointestinal Bleeding. Am J Gastroenterol 2016; 111:459–474; doi: 10.1038/ajg.2016.41; published online 1 March 2016.

Lower GIB causes



Diverticular Bleeding

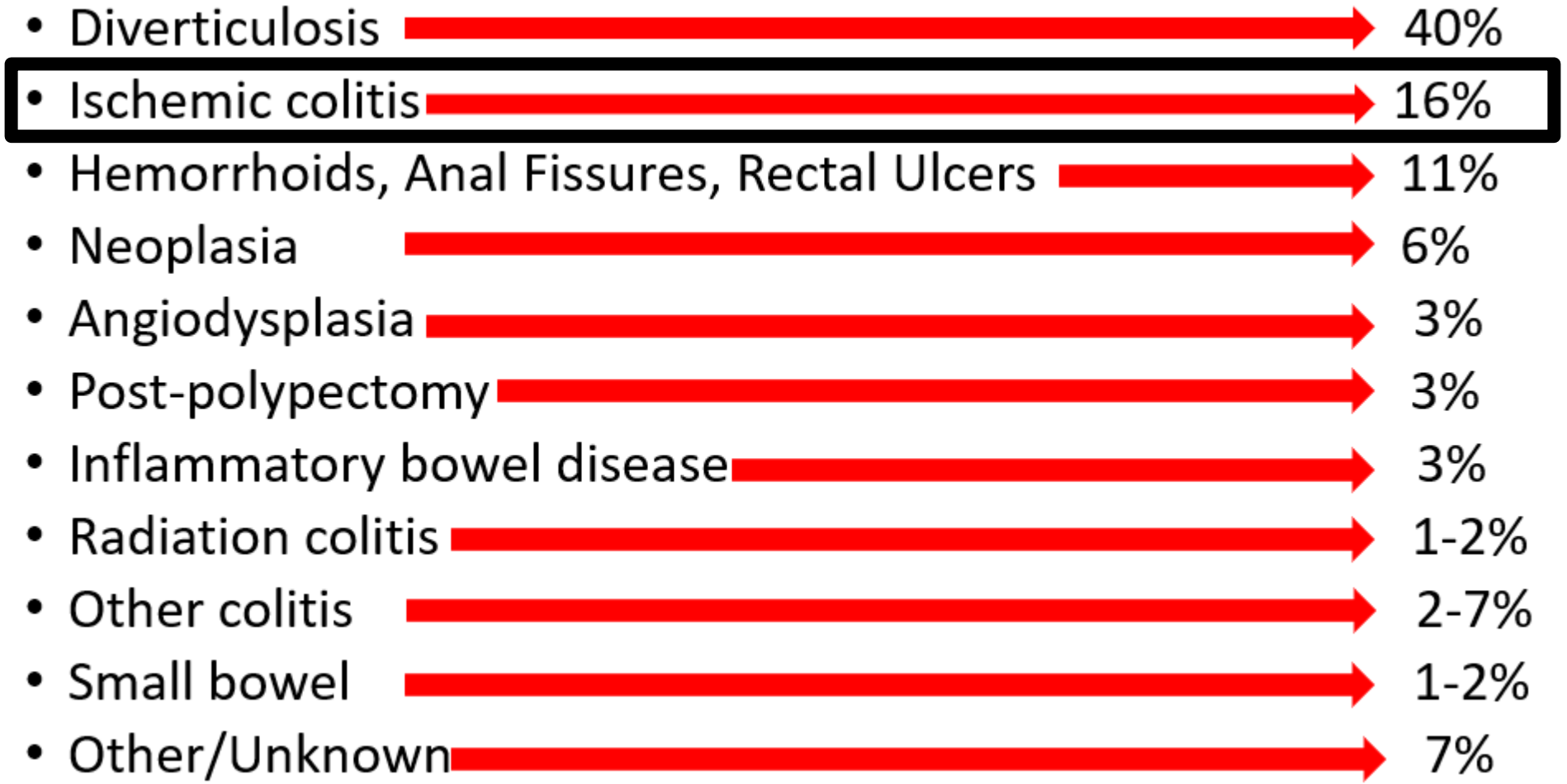




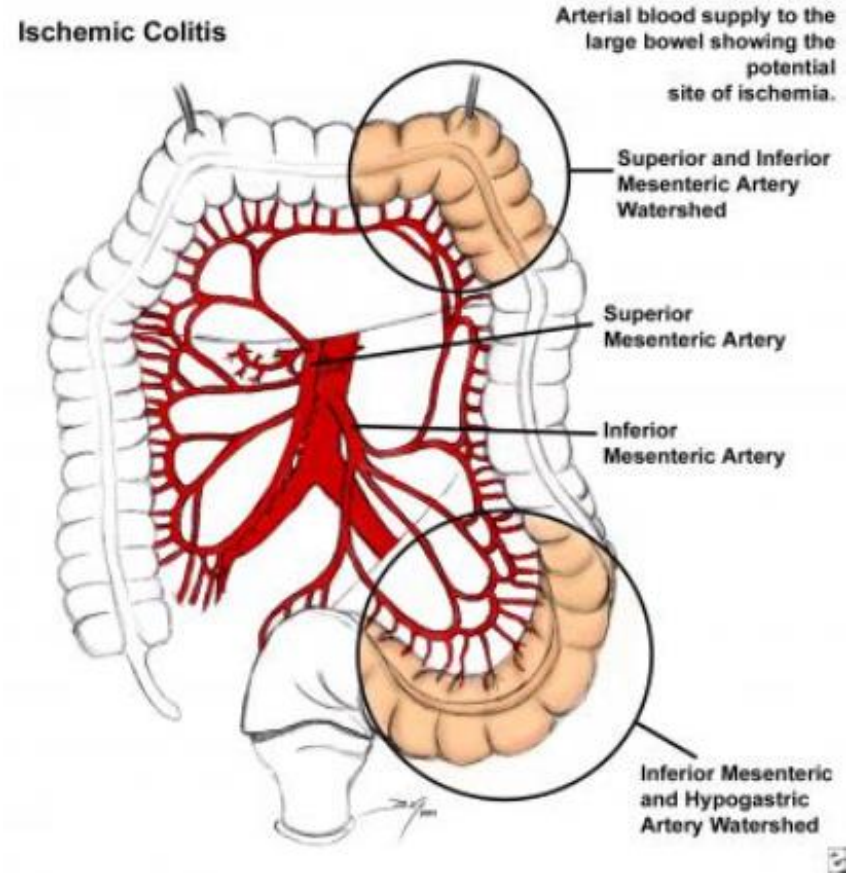
Massive, painless bleeding!

- Bleeding is a rare complication of this common disease
- Penetrating vessel becomes superficial, bleeds
- 75% Western countries on Left
- R sided have wider necks and domes ie “mouths”; R side more likely to be one time bleeds (50-90%)
- Self limited 70-80% of cases
- Rebleed risk of 40%
- Endoscopic, angiography, surgery

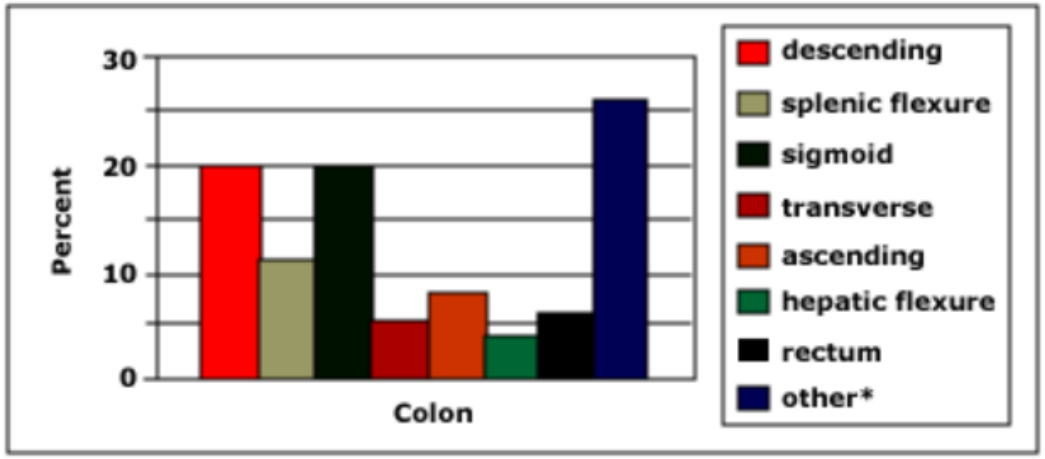
Lower GIB causes



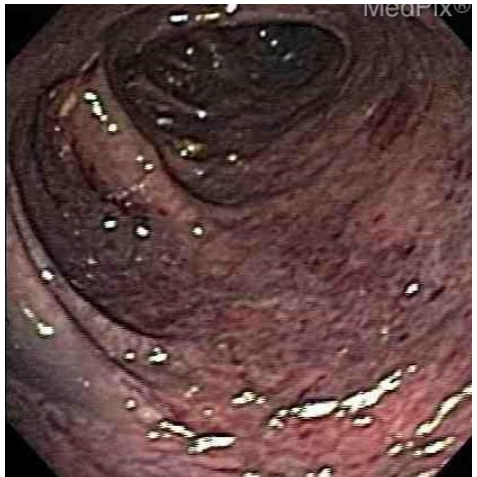
Ischemic colitis

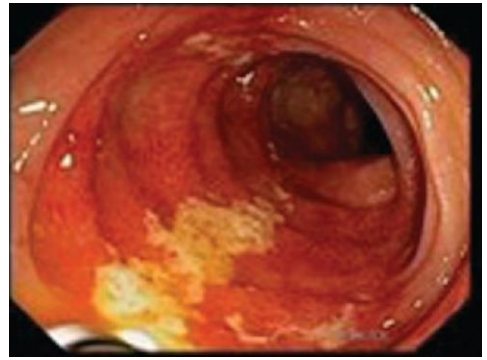


Distribution of colonic Ischemia



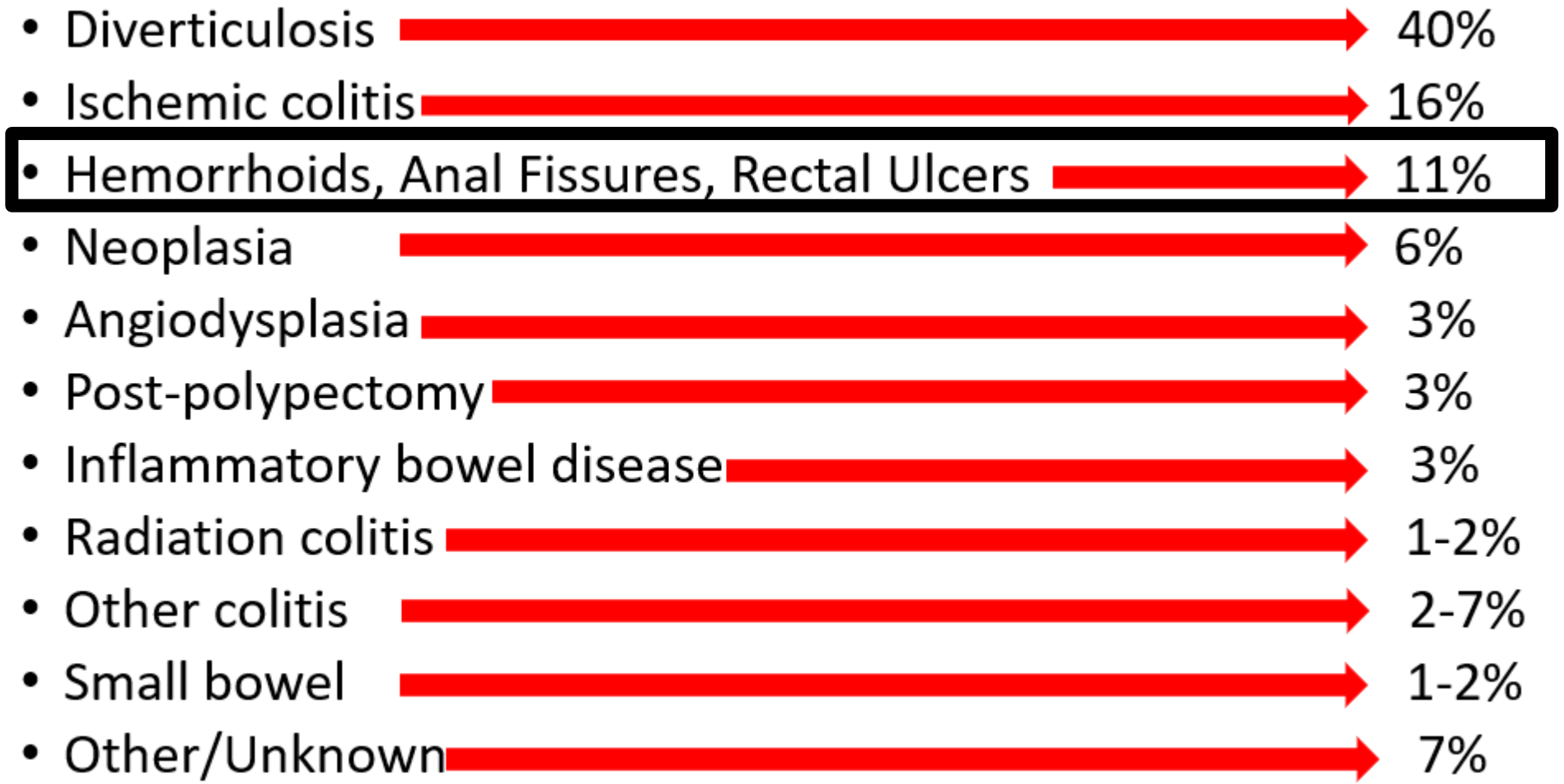
Reinus JF, et al. Ischemic diseases of the bowel. Gastroenterol Clin North Am 1990; 19:319.



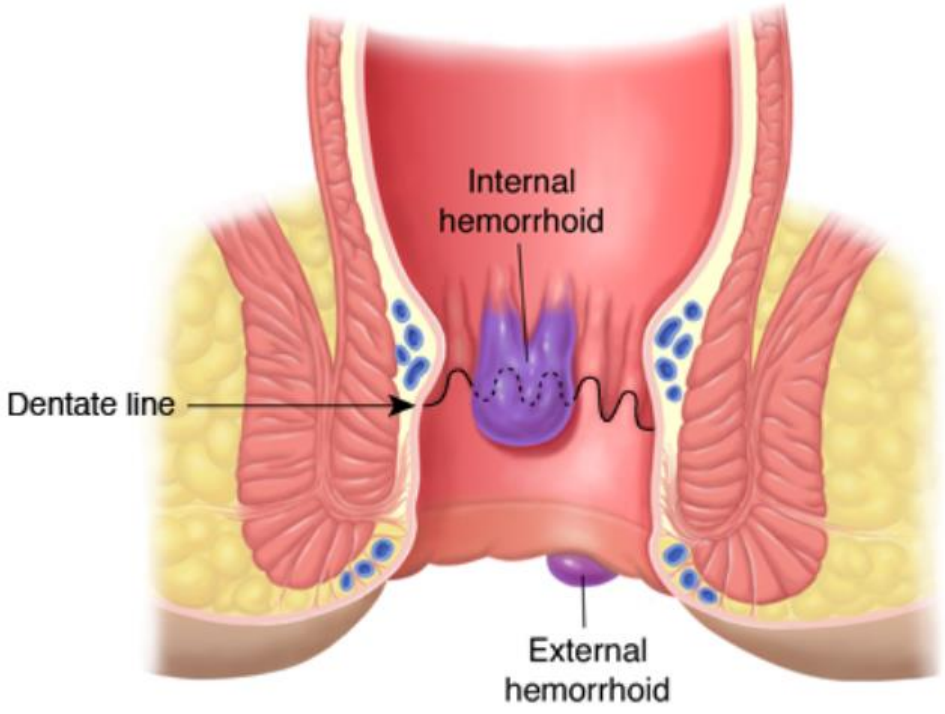


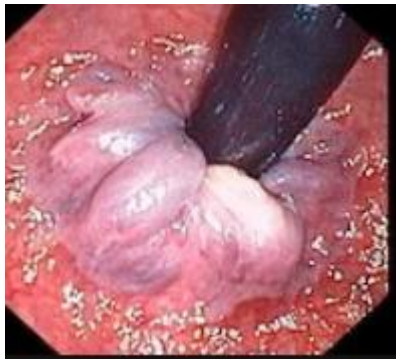
Single stripe sign

Lower GIB causes



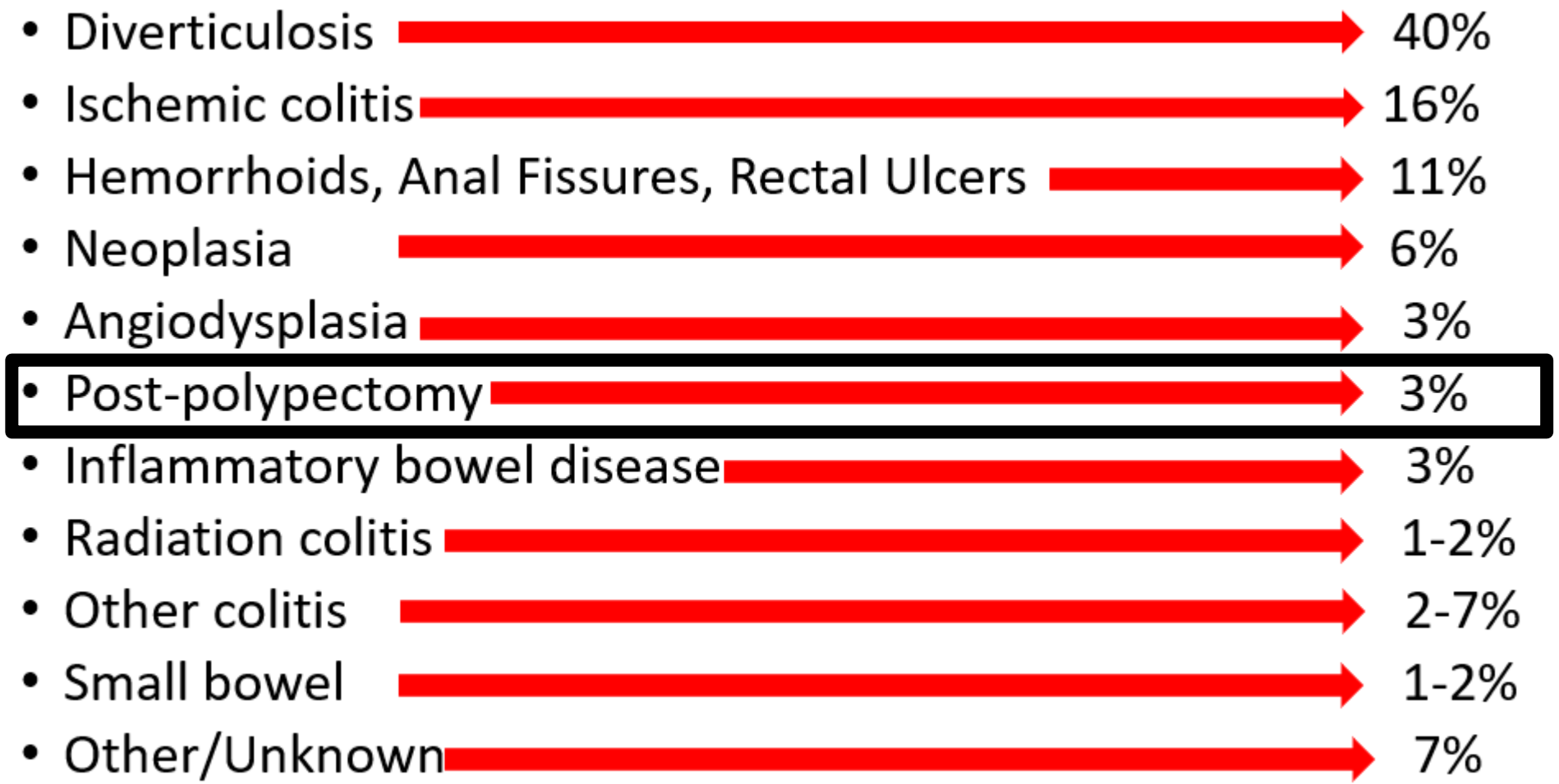
Hemorrhoidal bleeding





- Internal tend to bleed
- Typically external do not
- Mild:
  - Fiber
  - Avoid straining
  - Regular exercise
  - Topical analgesics/steroids
  - Sitz baths
- Severe: band ligation (internal)
- External colorectal surgery

Lower GIB causes



Post-polypectomy bleeding

- Immediate or delayed (up to 29 days)
- Range: arterial pumping to minor oozing
- Immediate:
  - 2% of polypectomies
  - higher risk with blended current
  - larger polyps
- Delayed:
  - Sloughing of eschar covering a vessel
  - Due to thermal necrosis *deeper than visualized
  - Hours to days
  - If on antiplatelet therapy, higher risk of delayed

Thank you