GI Bleeding Approach

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Case 1

- A 65 years old male referred for evaluation of 4 months HX of weight loss, fatigue , and weakness. He also gave history of passing dark stool intermittently for the last 3 months. He is known DM on insulin , hyperlipedemia on statin and occasionally aspirin

What can we gather from this scenario?

- ✓ Older age is a red flag we think about differentials we don't think about in young pt
- ✓ Weight loss, fatigue is another alarming symptoms
- ✓ 4 months: Chronic problem not active GI bleeding
- ✓ Fatigue, weakness could represent anemia
- ✓ Medications imp in pt with GI bleeding (NSAIDS, Warfarin, aspirin)

- What other information you would like to ask?

  - ✓ We have to ask about: describe stool character? how many kg lost? intentionally? upper GI symptoms?

ESSENTIALS OF DIAGNOSIS

- Symptoms: Coffee ground vomiting, hematemesis, melena, hematochezia, anemic symptoms
- Past medical history: Liver cirrhosis, use of non-steroidal anti-inflammatory drugs
- Signs: Hypotension, tachycardia, pallor, altered mental status, melena or blood per rectum, decreased urine output
- Bloods: Anemia, raised urea, high urea to creatinine ratio

- ✓ Melena represent upper GI source (blood got digested by pepsin and gastric acid that's why stool turns dark)
- ✓ Anaemic symptoms: SOB, dizziness

- What is the likely diagnosis?

  If I told you no upper GI symptoms, mild epigastric discomfort, no fresh blood, only positives are melena, weight loss unintentionally with fatigue and anaemic symptoms, Hg= 5

  => Malignancy

Causes of UGIB

Commonest common cause of UGIB is peptic ulcer which commonly caused by H. Pylori and NSAIDS

Table 1
Frequency of common causes of upper gastrointestinal bleeding

Diagnosis	Frequency (Percentage)
Peptic ulcer disease, including duodenal and gastric ulcer	28–59
Variceal bleeding	4–14
Mucosal erosive disease, including esophagitis, gastritis, and duodenitis	1–31
Mallory-Weiss tear	4–8
Malignancy	2–4
Arteriovenous malformation	3
Gastric antral vascular ectasia	~1
Dieulafoy lesion	~1

Gibson et al. Gastrointest Endosc Clin N Am 2011;21:583-96.

- What will be the next step?

  Endoscopy

Fungated ulcerated lesion in mid gastric body which goes with malignancy as we expect

Case 2

- A 42 years old male complaining of chronic recurrent epigastric pain which worsen recently especially when he is fasting
- For the last 2 days he started to have frequent vomiting associated with blood
- He is not known to have any chronic medical problems and not on any medications

What can we gather from this scenario?

✓ Middle age, not alarming age

✓ Pain with fasting suggest duodenal ulcer

- What is the best next step in the approach of such patient?

- Detailed HX
  - ✓ Further history: SOCRATES of pain
    - Important associated symptoms: heartburn, burning type of pain, dysphagia, post-prandial fullness, hx of alcohol, hx of drugs

- Full Physical examination

- How would you assess the bleeding severity?

  Unlike the first case where we could do investigations and treat as an outpatient, here it is acute fresh blood, active bleeding need to be admitted immediately to assess severity to know if pt will go to ICU or ward and to plan management

Risk Stratification

You don't have to know it in details (don't memorize) just know that there are certain scores that used in assessing bleeding severity

Glasgow- Blatchford Score (GBS)

Rockall Score

Modified-GBS

AIMS65 Which is commonly used, simple and associated with very high specificity and sensitivity

AIMS65: Albumin, INR, Mental status, systole, age of 56

If AIMS65 score < 0 we can manage him as outpatient

Table 1 | Glasgow–Blatchford score assessment criteria

Risk factors at presentation	Threshold	Score
Blood urea nitrogen (mmol/l)	6.5–7.9	2
	8.0–9.9	3
	10.0–24.9	4
	≥25.0	6
Hemoglobin for men (g/l)	120–130	1
	100–119	3
	<100	6
Hemoglobin for women (g/l)	100–120	1
	<100	6
Systolic blood pressure (mmHg)	100–109	1
	90–99	2
	<90	3
Heart rate (bpm)	>100	1
Melena	Present	1
Syncope	Present	2
Hepatic disease	Present	2
Cardiac failure	Present	2

Total score (0–23). Patients with scores >0 are considered to be at high risk. Permission obtained from Elsevier Ltd © Blatchford, O. *et al*. *Lancet* **356**, 1318–1321 (2000).

Urea

CBC

Physical

History

Why cardiac and renal are imp?
All chronic problems associated with 50% increase risk of PUD (increase risk of bleeding)
So imp to ask in hx and point out in PE

Bardou et al. Nat Rev Gastroenterol Hepatol 2012;9:97-104.

B Rockall Score This score has endoscopic score so can't use it pre-endoscopy

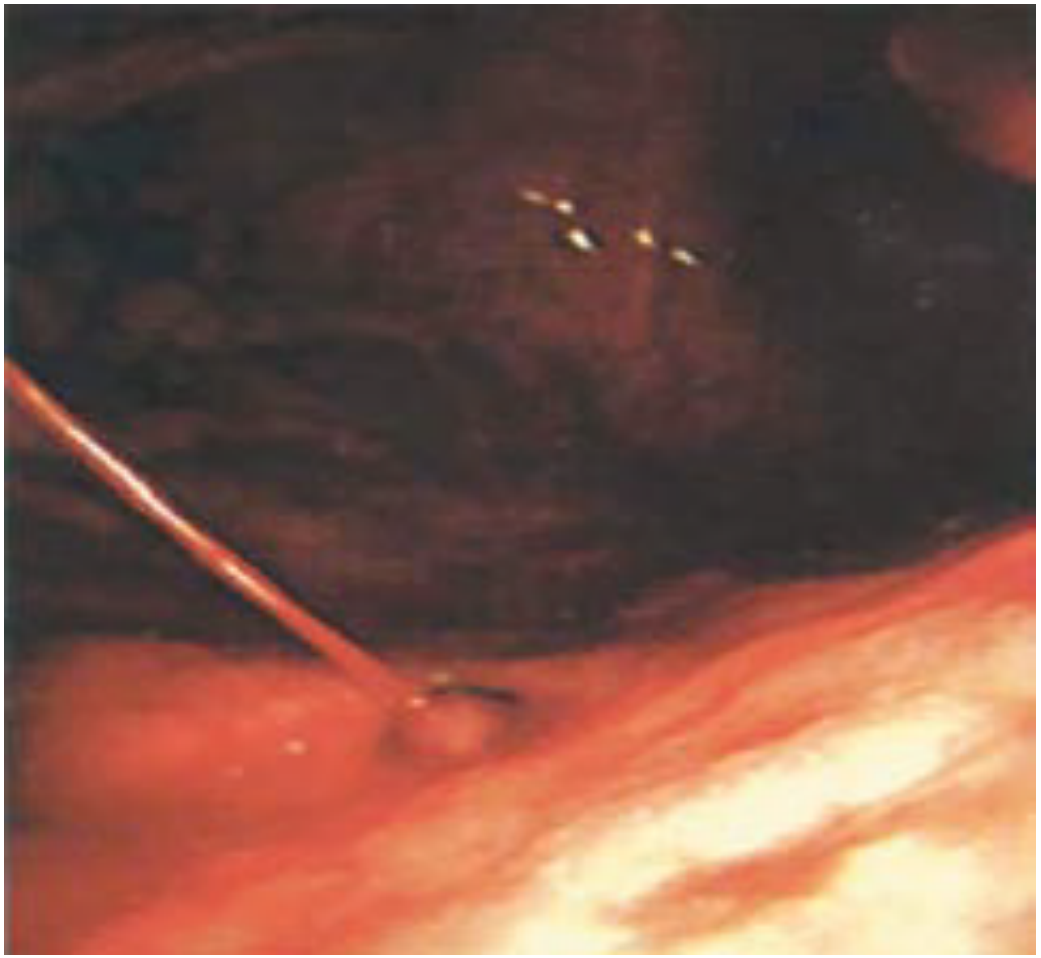
		Variable		Points
Complete Rockall Score	Clinical Rockall Score	Age		
		<60 yr	History	0
		60–79 yr		1
		≥80 yr		2
		Shock		
		Heart rate >100 beats/min	Physical	1
		Systolic blood pressure <100 mm Hg		2
		Coexisting illness		
		Ischemic heart disease, congestive heart failure, other major illness	History	2
		Renal failure, hepatic failure, metastatic cancer		3
		Endoscopic diagnosis		
		No lesion observed, Mallory–Weiss tear		0
		Peptic ulcer, erosive disease, esophagitis		1
		Cancer of upper GI tract		2
		Endoscopic stigmata of recent hemorrhage		
		Clean base ulcer, flat pigmented spot		0
		Blood in upper GI tract, active bleeding, visible vessel, clot		2

Hearnshaw et al. Aliment Pharmacol Ther 2010;32:215-24.

- What is the diagnosis and the associated risk factors?

Spurting Blood

- ✓ Vessels that supply the gastric walls are present in submucosa so anything that disturb the mucosa surface lead to break through and erosion reaching submucosa then the vessels will be visible and you will see this spurting vessel



- ✓ Rebleeding up to 90% and could be massive we have to interfere endoscopically so should be hospitalized and give PPI infusion

Gralnek et al. N Engl J Med 2008;359:928-37.

Non-bleeding Visible Vessel

- ✓ Rebleeding up to 90% and could be massive we have to interfere endoscopically so should be hospitalized and give PPI infusion

Gralnek et al. N Engl J Med 2008;359:928-37.

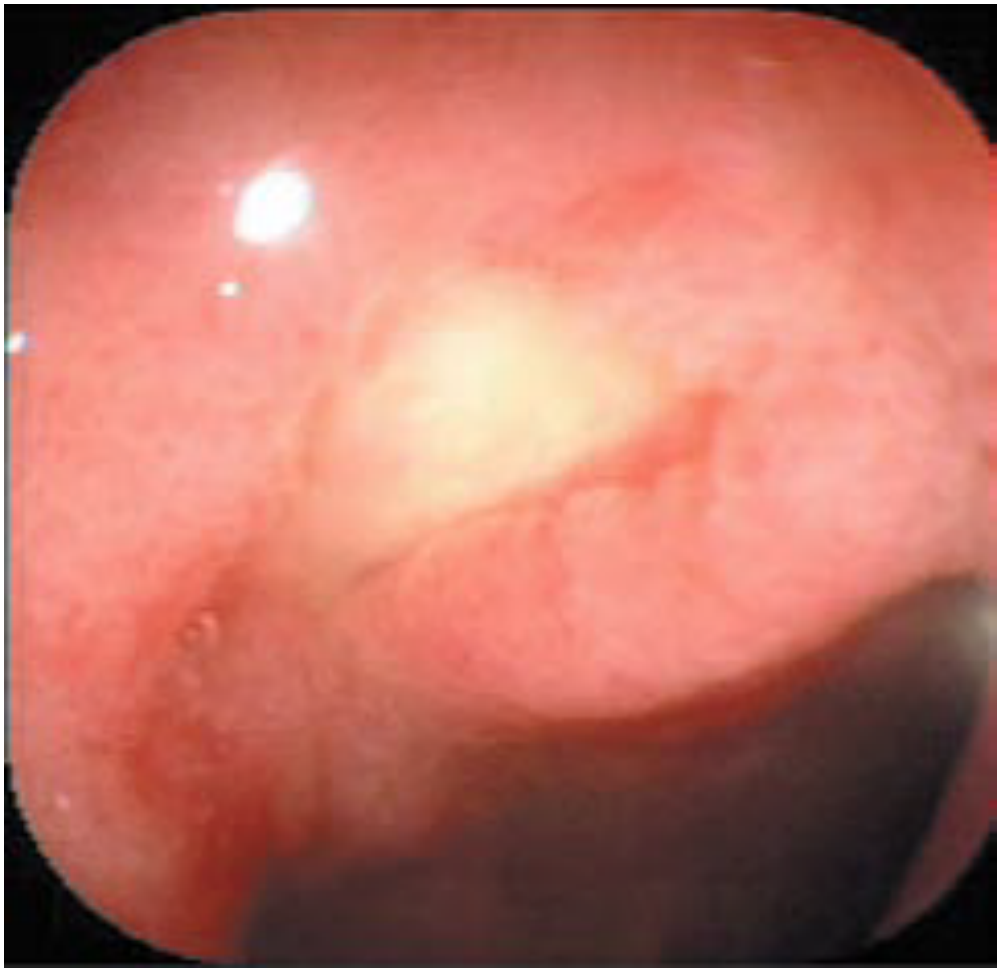
Flat, Pigmented Spot

- ✓ Very low risk to rebleed
- ✓ Don't have to admit pt, manage as outpatient

Gralnek et al. N Engl J Med 2008;359:928-37.

Clean Base ulcer

- ✓ We don't do anything
- ✓ Very low risk to rebleed
- ✓ Don't have to admit pt, manage as outpatient



- ✓ Usually we discharge immediately and treat with PPI and we look for risk factors as NSAIDS and H. pylori (common and major risk factor)
- ✓ We give PPI as oral B.I.D for 4 weeks then once weekly

Gralnek et al. N Engl J Med 2008;359:928-37.

Memorize it

Age >65
Previous peptic ulcer
Previous ulcer-related upper GI complication
High-dose NSAIDs
Multiple NSAID use
Selection of NSAID (e.g., COX-1 vs. COX-2 inhibition)
NSAID-related dyspepsia
Aspirin (including cardioprotective dosages)
Concomitant use of
NSAID plus low-dose aspirin
Oral bisphosphonates (e.g., alendronate)
Corticosteroids
Anticoagulant or coagulopathy
Antiplatelet drugs (e.g., clopidogrel)
Selective serotonin reuptake inhibitor
Chronic debilitating disorders (e.g., cardiovascular disease, rheumatoid arthritis)
Helicobacter pylori infection
Cigarette smoking
Alcohol consumption

[a]Combinations of risk factors are additive.

Data from references 1, 12–15, 20, and 29.

H pylori VERY IMPORTANT SLIDE!!!!!!!!!!!

- Patients with bleeding peptic ulcers should be tested for H. pylori
  - Receive eradication therapy if present
  - Confirmation of eradication
- Negative H. pylori diagnostic tests obtained in the acute setting should be repeated

When we confirm this ulcer is related to PUD you need 2 things:

1) You need to eradicate
2) CONFIRME ERADICATION BY UREA BREATH TEST

So not only eradicate then you are done No!! Confirm eradication because If not eradicated => Recurred ulcer and bleeding

Barkun et al. Ann Intern Med 2010;152:101-13.

Case 3

- A 52 years old lady presented to ER with one day history of vomiting of fresh blood. She also notices passing black tarry stool. She is feeling dizzy and unwell
- Past HX of jaundice no other medical problems and not on any medications
- Clinically jaundiced and pale
- Vital signs BP 100/70 pulse 110/min
- Abdomen examination showed liver span of 7 cm and spleen felt 3 fingers below costal margin with few spider nevi seen over chest

What can we gather from this scenario?

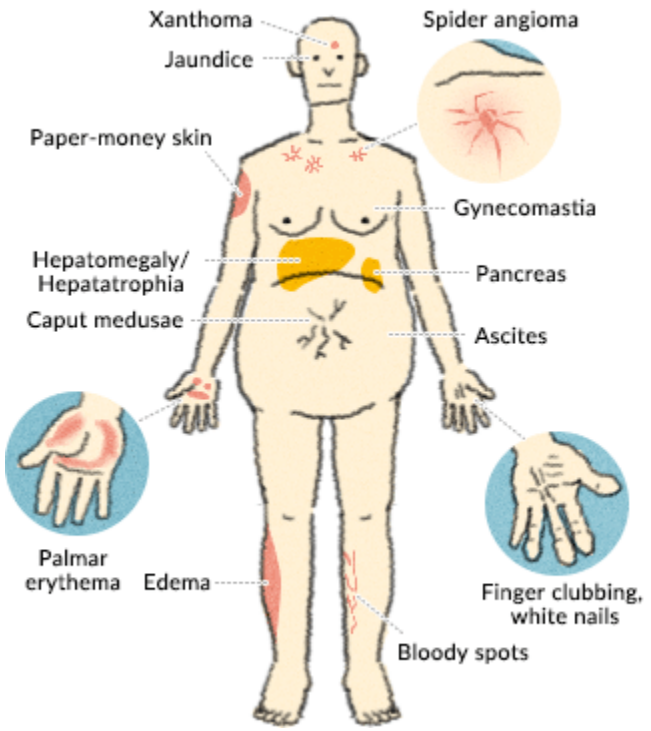
- ✓ Fresh blood (hematemesis) indicating active bleeding which is very serious
- ✓ Present of melena along with hematemesis indicating that the bleeding is massive
- ✓ PE: shrinkage of liver and splenomegaly and jaundice which goes with liver cirrhosis WITH PORTAL HYPERTENSION (portal hypertension => a lot of esophageal varcies => vomiting of fresh blood

- what is the likely diagnosis of this case and list 4 common aetiology ?

4 common aetiology of liver cirrhosis?

- ✓ Hepatitis B, C
- ✓ Alcohol fatty liver
- ✓ NASH
- ✓ Obesity
- ✓ Primary biliary cirrhosis

MEMORIZE IT VERY IMP



Symptoms of liver cirrhosis

- General malaise, fatigue
- Anorexia / weight loss
- Feeling of enlarged abdomen
- Swollen abdomen / legs
- Nose bleed / bleeding from lower limbs
- Jaundice / itch
- Hand tremors

Physical findings

- Skin pigmentation
- Xanthoma
- Spider angioma
- Palmar erythema
- Finger clubbing (hepatopulmonary syndrome)
- Caput medusae
- Gynecomastia
- Fever
- Hepatoceleoma
- Hepatic halitosis (dimethyls -ulphide, ketons in the expired breath)
- Jaundice
- Ascites, lower thigh edema
- Hepatic encephalopathy
- Bleeding plaque / purpura

Akuko Wakuta etc., Hepatobiliary and pancreas, 73(6), 979-984, 2016 (Partially modified)

Doctor read each point

Causes of liver cirrhosis:

1) Viral Hepatitis B, C.
2) Alcoholic liver disease.
3) Non-alcoholic fatty liver disease (NAFLD).
4) Autoimmune hepatitis.
5) Primary biliary cirrhosis.
6) Secondary biliary cirrhosis (associated with chronic extrahepatic bile duct obstruction).
7) Primary sclerosing cholangitis.
8) Hemochromatosis
9) Wilson disease.
10) Alpha-1 antitrypsin deficiency.
11) Granulomatous disease (eg, sarcoidosis).
12) Type IV glycogen storage disease.
13) Drug-induced liver disease (eg, methotrexate, alpha methyldopa, amiodarone).
14) Venous outflow obstruction (eg, Budd-Chiari syndrome, veno-occlusive disease).
15) Cardiac cirrhosis: chronic right-sided heart failure, tricuspid regurgitation.

- What is the priority in the management of this patient?

After good hx and PE:

1) Assess severity and do basic workup
2) Simultaneously put 2 IV lines, 2 cannula
3) RESUSCITATE
4) In liver cirrhosis pts have pancytopenia, Hb low, INR high so watch for these things before starting resuscitation
5) Endoscopy then treat underlying cause and follow up to prevent rebleeding

Korean study showed that mortality is higher if we did the endoscopy before resuscitation

IV Fluid Resuscitation

- What is the target Hb and INR prior to the endoscopy for this cases?

3- Blood Transfusions

The role of transfusion in clinically stable patients with mild GI bleeding remains controversial, with uncertainty at which hemoglobin level transfusion should be initiated

Literature suggesting poor outcomes in patients managed with a liberal transfusion

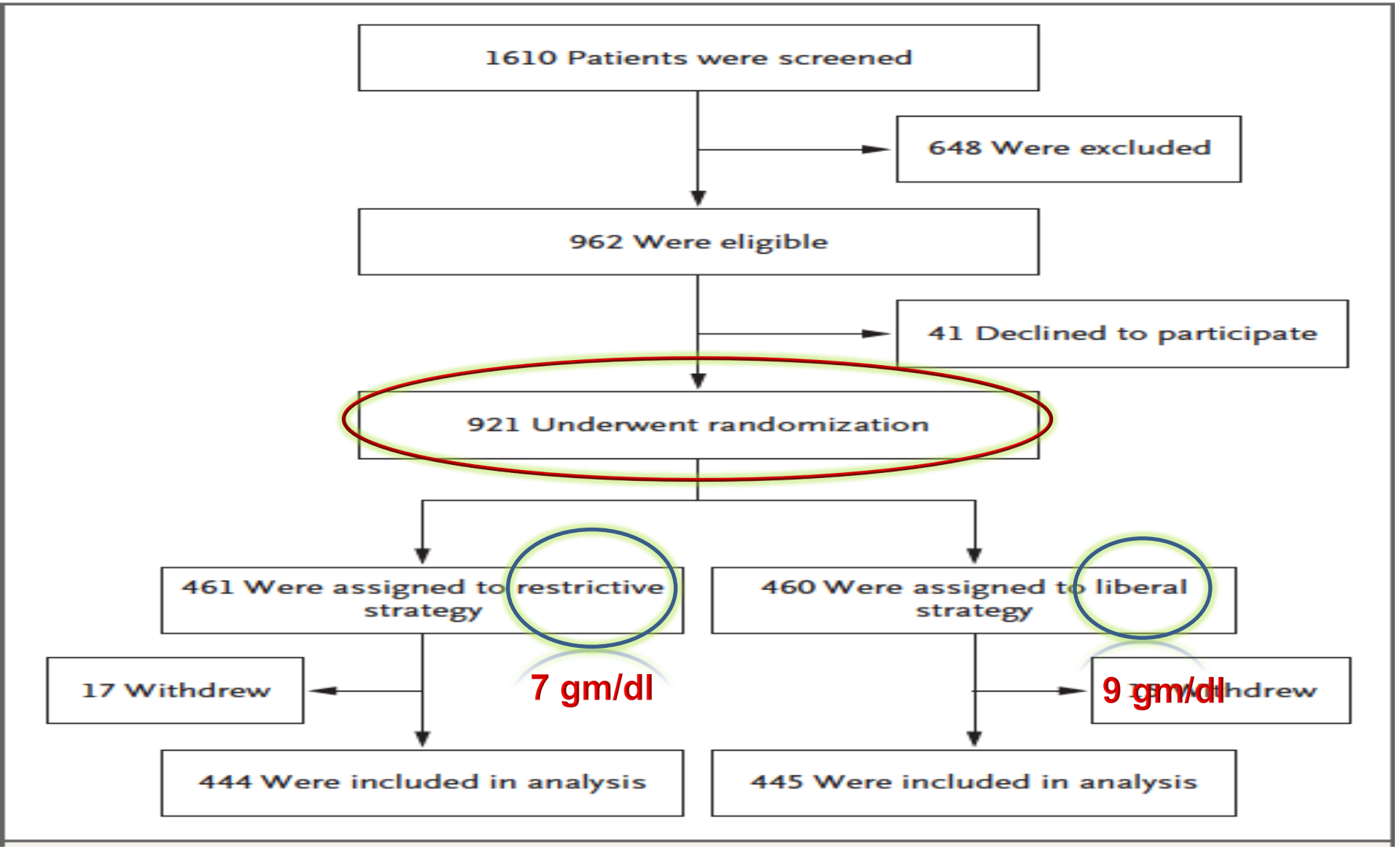
Marik PE, Corwin HL. Crit Care Med 2008; 36: 2667 – 2674
Restellini S, Kherad O, Jairath V et al. Aliment Pharmacol Ther 2013; 37: 316 – 322

3- Blood Transfusions (cont'd)

The restrictive RBC transfusion had significantly improved survival and reduced rebleeding

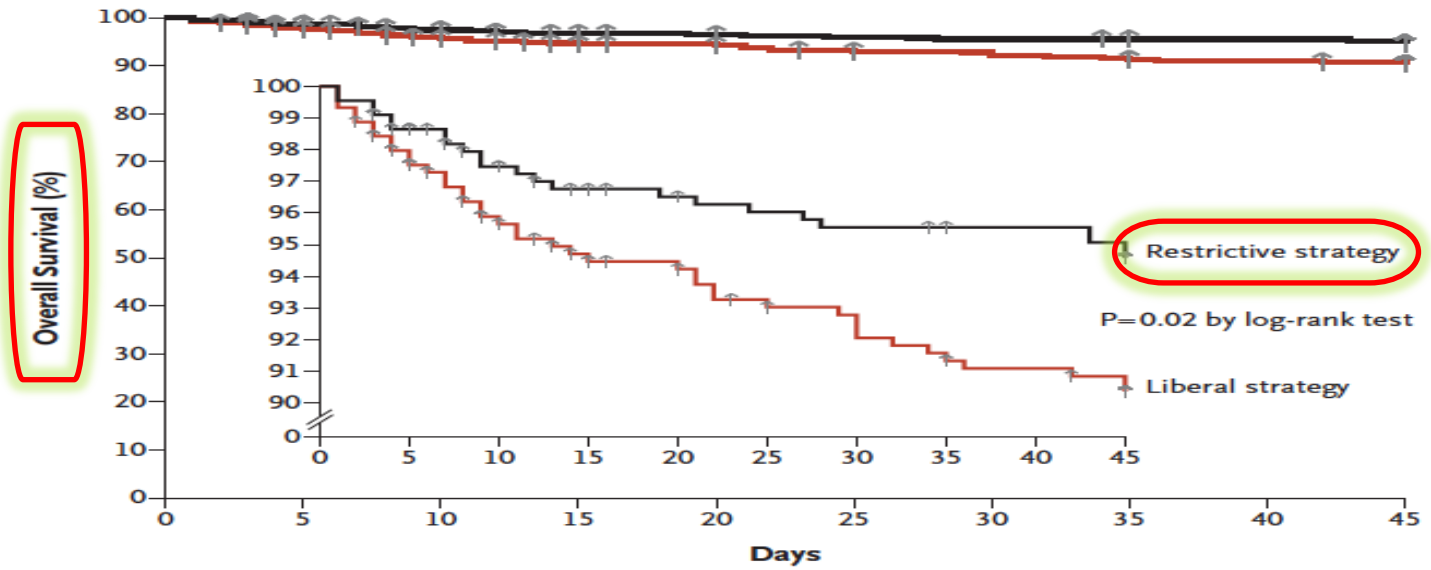
Villanueva C, Colomo A, Bosch A et al. N Engl J Med 2013; 368: 11 – 21

3- Blood Transfusions (Cont'd)



3- Blood Transfusions (Cont'd)

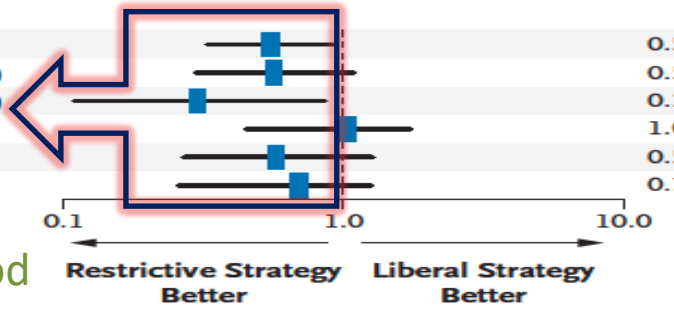
A Survival, According to Transfusion Strategy



No. at Risk										
Restrictive strategy	444	429	412	404	401	399	397	395	394	392
Liberal strategy	445	428	407	397	393	386	383	378	375	372

B Death by 6 Weeks, According to Subgroup

Subgroup	Restrictive Strategy	Liberal Strategy	Hazard Ratio (95% CI)	P Value
	no. of patients/total no. (%)			
Overall	23/444 (5)	41/445 (9)	0.55 (0.33–0.92)	0.02
Patients with cirrhosis	15/139 (11)	25/138 (18)	0.57 (0.30–1.08)	0.08
Child–Pugh class A or B	5/113 (4)	13/109 (12)	0.30 (0.11–0.85)	0.02
Child–Pugh class C	10/26 (38)	12/29 (41)	1.04 (0.45–2.37)	0.91
Bleeding from varices	10/93 (11)	17/97 (18)	0.58 (0.27–1.27)	0.18
Bleeding from peptic ulcer	7/228 (3)	11/209 (5)	0.70 (0.26–1.25)	0.26



Survival better with restrictive method

Patients receiving anticoagulants

Correction of coagulopathy is recommended

Endoscopy should not be delayed for a high INR unless the INR is supratherapeutic

Barkun et al. Ann Intern Med 2010;152:101-13.

Timing and need for early endoscopy

- Definition of early endoscopy
  - Ranges from 6 to 24 hours AFTER INITIAL PRESENTATION

    Before 6 hrs is associated with higher mortality
- May need to be delayed or deferred:
  - Active acute coronary syndromes
  - Suspected perforation

Barkun et al. Ann Intern Med 2010;152:101-13.

Case 4

- A 47 years old male known to have alcoholic liver disease presented with hematemesis of large amount and dizziness after resuscitation an upper GI endoscopy done which showed multiple large oesophageal varix which was banded , however 12 hrs post endoscopy he continued to have melena with drop of Hb and hypotension

What can we gather from this scenario?

✓ Uncontrolled bleeding

- What is the next step in the patient management?

  Second look endoscopy but this time you have to involve other teams with you

Gastroenterology

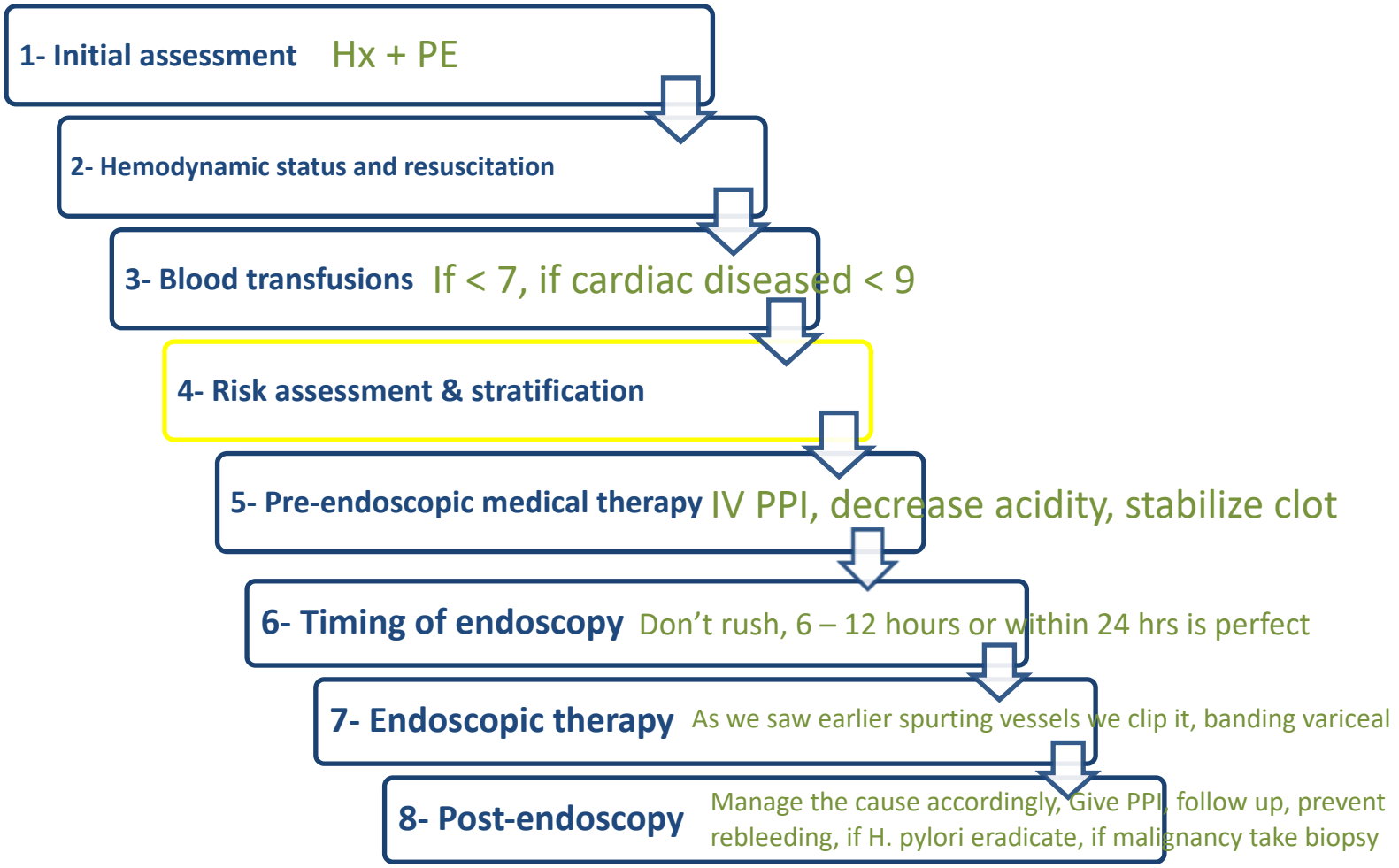
Interventional Rad.

YOU ARE NOT ALONE

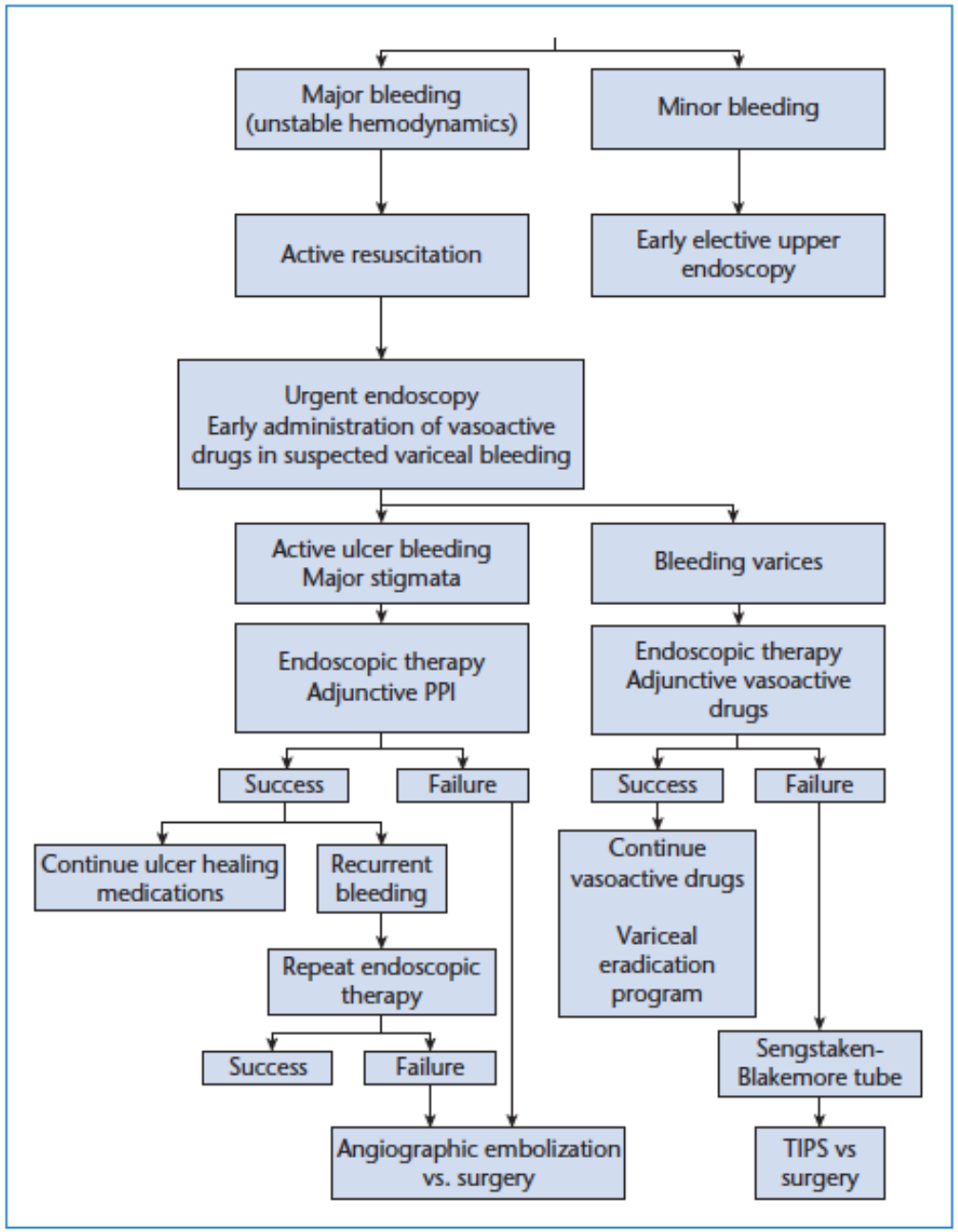
Intensive Care

Surgery

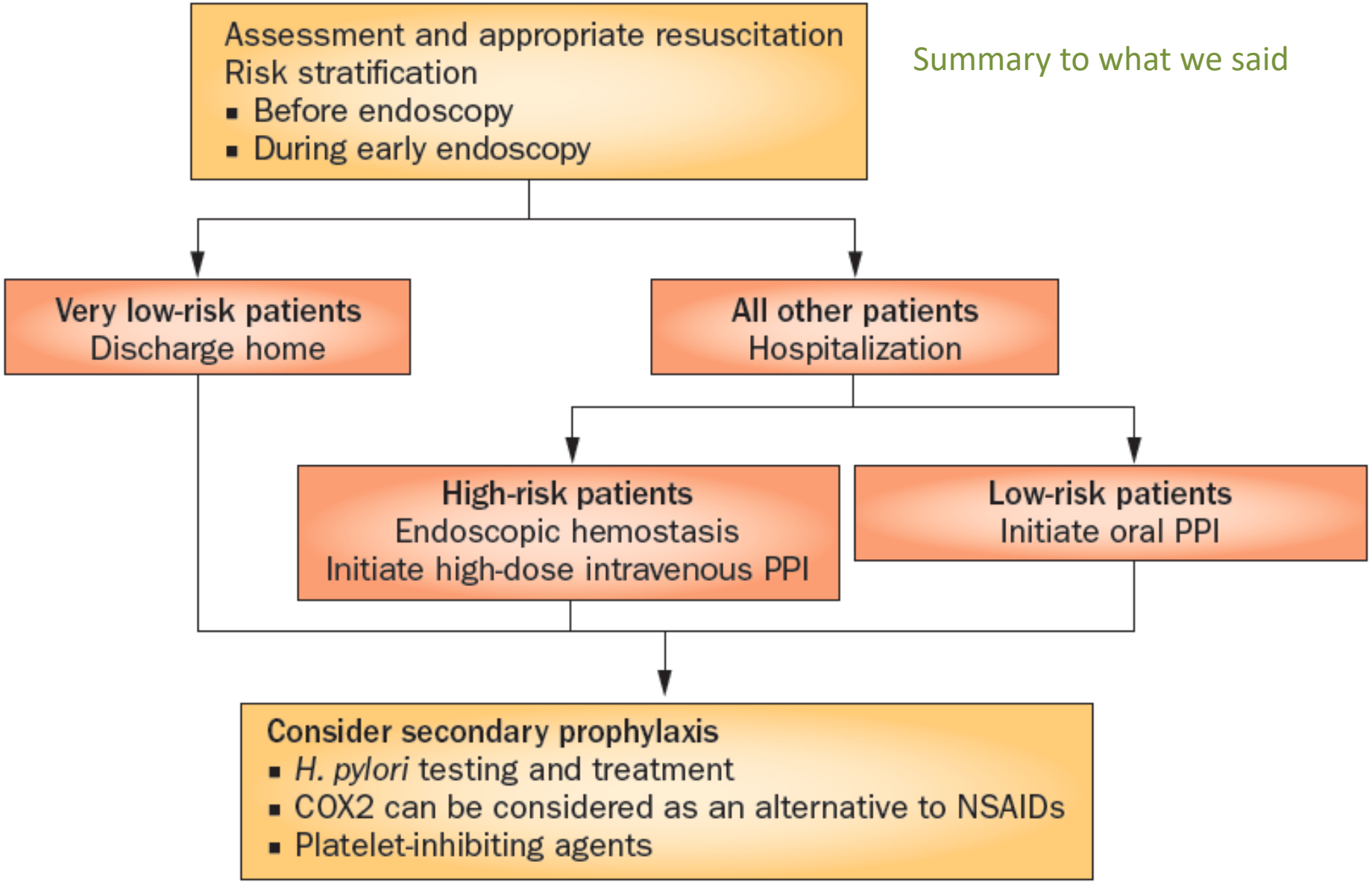
Summary for steps of GI bledding approach



Algorithm for management of acute GI bleeding



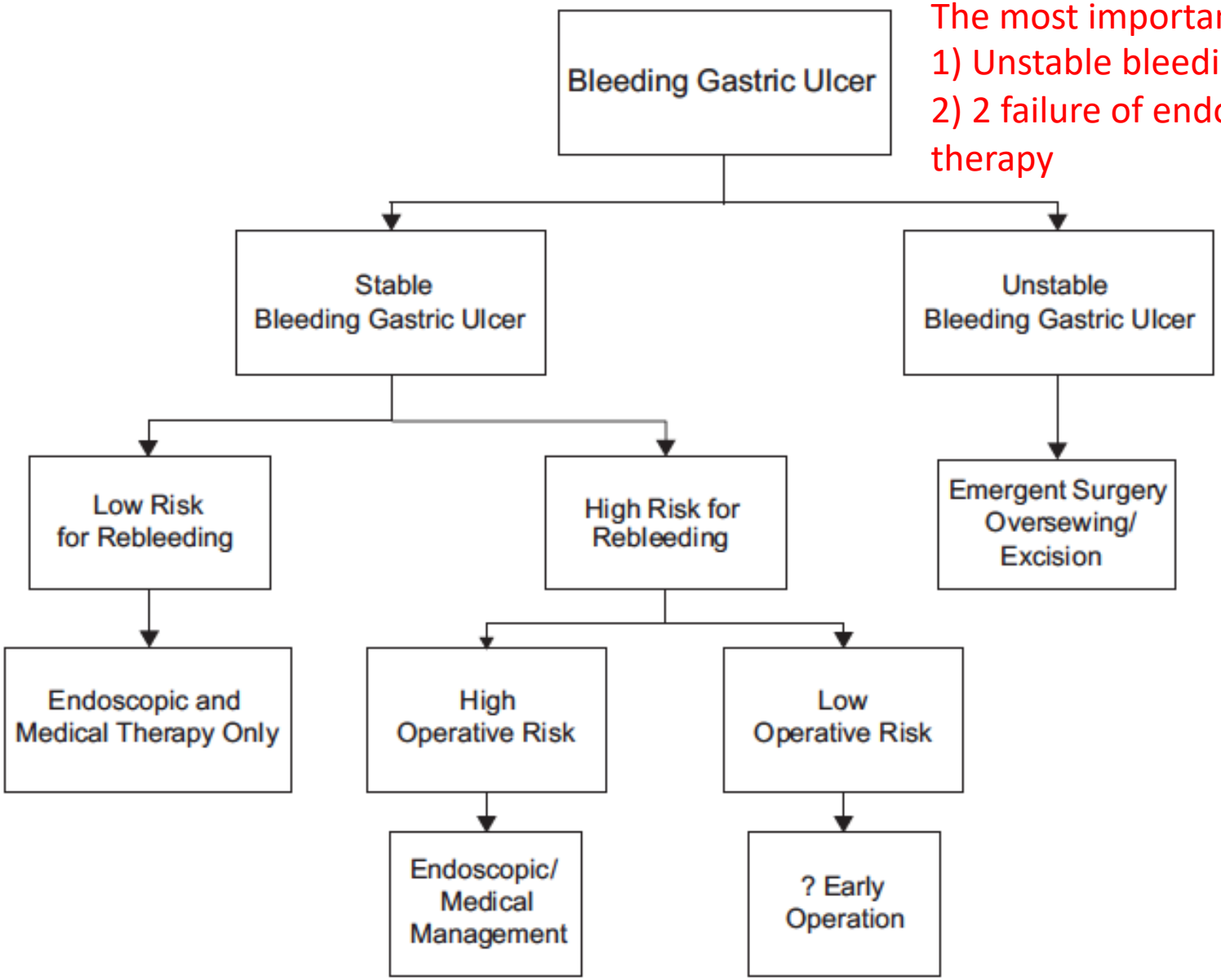
If 2 endoscopy failed don't do endoscopy for third time this is associated with high mortality! Go for surgery



Summary to what we said

Bardou et al. Nat Rev Gastroenterol Hepatol 2012;9:97-104.

When to go to surgery?



The most important is:
1) Unstable bleeding
2) 2 failure of endoscopic therapy

Conclusions

- Resuscitation should be initiated prior to any diagnostic procedure
- Gastrointestinal endoscopy allows visualization of the stigmata, accurate assessment of the level of risk and treatment of the underlying lesion
- Intravenous PPI therapy after endoscopy is crucial to decrease the risk of cardiovascular complications and to prevent recurrence of bleeding
- *Helicobacter pylori testing should be performed in the acute setting*

Bardou et al. Nat Rev Gastroenterol Hepatol 2012;9:97-104.