



UPPER GASTROINTESTINAL BLEEDING

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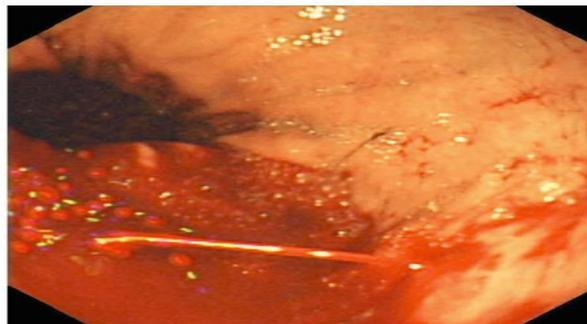
Faculty of Medicine
Hashemite University
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INTRODUCTION

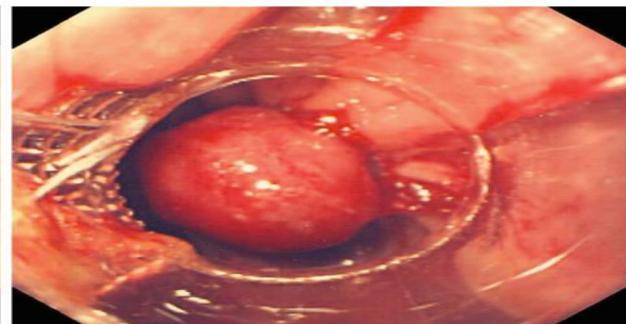
- UGIB is considered medical emergency and require admission to hospital for urgent diagnosis and management. It is a common cause of emergency admission to hospital.
- UGIB vs LGIB= 5:1. **Incidence:** 170/100,000/yr. (US data). More common in males. Over 350,000 US hospitalization/yr.; cost \$ 1 billion/yr.
- Despite a decrease incidence of ulcer disease and improvements in the management of UGIB, **mortality** remains high at **6-10%**, which increase in the elderly. Patients die rarely from exsanguinations but from complications of an underlying disease. Self-limited in 80% of patients.
- Patients are usually stratified into having either Variceal or Non-variceal sources of UGIB, as the two have different treatment algorithms and prognosis: **Variceal:** Look for evidence of chronic liver disease such as jaundice, spider naevi, ascites and so on. **Non-variceal:** Any previous history of PUD, NSAIDs, anticoagulants, dyspeptic symptoms.

UpperGI Bleeding

Non variceal Upper GI bleeding 90%

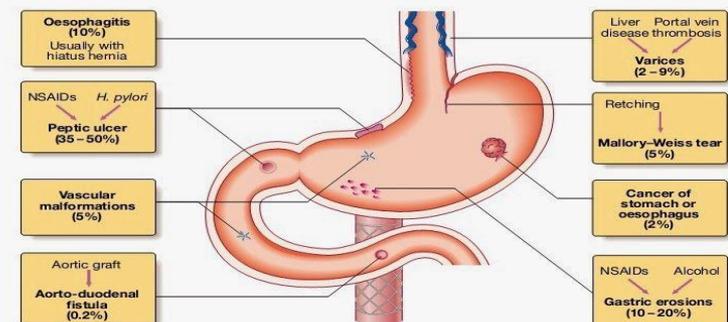


Variceal bleeding 10%



CAUSES

Pathology	Risk factor	Frequency (%)
Peptic Ulcer: Duodenal Ulcer; Gastric ulcer	H. pylori; NSAIDs	35-50
Gastric erosions; hemorrhagic gastropathy	Alcohol; NSAIDs	10-20
Esophageal varices; gastric varices	Liver disease; portal vein thrombosis	2-9
Erosive Esophagitis; esophageal ulcer	Usually with hiatus hernia	10
Mallory-Weiss tear	Retching	5
Vascular malformation: Dieulafoy lesion; Hereditary telangiectasia (Osler-Weber-Rendu syndrome; angiodysplasia; gastric antral vascular ectasia (watermelon stomach).	Hereditary	5
Esophageal; gastric cancer		2
Aorto-enteric fistula	Aortic graft; primary	0.2
Portal gastropathy; Blood dyscrasias; coagulopathies; alcohol & drugs (anti-platelets; anticoagulants; aspirin; NSAIDs; SSRIs; steroids); Hemobilia; Hemosuccus pancreaticus; Pseudoxanthoma elasticum; trauma; foreign body; peri-ampullary ca; duodenitis; anastomotic ulcer; Crohn; severe superior mesenteric artery syndrome; Cameron lesions; Non-GI source (epistaxis), Factitious bleeding; unknown		10



OTHER CAUSES (1)

- **Drugs: NSAIDs:** 50% of patients > 60 yr. presented with UGIB has history of NSAIDs; **Steroid therapy:** rarely may cause **Cushing's ulcer**; Poorly controlled **Anticoagulant therapy**; **SSRIs** (Selective serotonin reuptake inhibitors): double the rate of UGIB.
- **Stress ulcer:** fortunately uncommon, associated with high mortality.
- **Acute mucosal ulceration (stress gastritis):** often multiple and not extend through muscularis mucosa. Diffuse and typically involve the gastric body and fundus. More frequently seen in the following conditions (shock, sepsis, surgery, trauma, burn, renal or respiratory failure, and jaundice). It is due to imbalance between aggressive and protective mucosal factors. Both H₂-blockers and antacid are effective in prevention.
- **Mallory–Weiss syndrome:** Account for **5-15%** of all cases of UGIB, and are relatively common in **alcoholics**. Bleeding from a laceration in the mucosa at the gastric cardia or GEJ. This is usually caused by severe vomiting because of alcoholism or bulimia, but can be caused by any condition which causes violent vomiting and retching such as food poisoning. Forceful vomiting, retching, coughing or straining may create a rapid increase in the gradient between intragastric and intrathoracic pressures → gastric mucosal tear from the forceful distension of the GEJ. The tear involves the mucosa and submucosa but not the muscular layer (contrast to **Boerhaave syndrome** which involves all the layers). It often presents as an episode of hematemesis after violent retching or vomiting, but may also be noticed as melena, and a history of retching may be absent. In most cases, the bleeding stops spontaneously after 24–48 hours, but endoscopic or surgical treatment is sometimes required. The condition is rarely fatal.
- **Hemobilia:** is usually associated with intraductal neoplasm, trauma, or iatrogenic injury such as percutaneous liver biopsy and cystic artery pseudoaneurysm. Suggested by jaundice, RUQ pain & UGIB. May be confirmed at endoscopy but often require angiography. Angiographic therapy is the treatment of choice, although occasionally surgical therapy is necessary.
- **Hemosuccus pancreaticus:** most commonly due to a splenic artery pseudoaneurysm in patients with CP, pseudocyst, but rarely due to pancreatic duct malignancy.

OTHER CAUSES (2)

- **Dieulafoy lesion:** is characterized by a large tortuous arteriole most commonly in the gastric submucosa that erodes and bleeds. 75-95% occur in the proximal stomach, usually on the lesser curvature and within 6 cm of GEJJ, although they have been reported to occur throughout the GIT. It can cause UGIB, but is relatively uncommon. It is thought to cause < 5% of all gastrointestinal bleeds in adults. It is also called "caliber-persistent artery" or "aneurysm" of gastric vessels. However, unlike most other aneurysms, these are thought to be developmental malformations rather than degenerative changes.
- **Cameron lesion:** is a linear erosion or ulceration of the mucosal folds lining the stomach where it is constricted by the thoracic diaphragm in persons with large hiatal hernias. The lesions may cause chronic blood loss resulting in iron deficiency anemia; less often they cause acute bleeding. Treatment of anemia includes iron supplements and PPI acid suppression. Surgical hernia repair is sometimes needed.
- **Angiodysplasia/ectasia:** whether sporadic or secondary, is the most common vascular anomaly seen in the GIT. They are dilated tortuous vessels in the mucosa & submucosa. May be due to intermittent obstruction of the submucosal veins because of the colonic wall tension, which is highest in the cecum. May be sporadic, usually developing in the elderly or may be found in association with a number of disorders including renal failure, cirrhosis, the CREST syndrome, radiation injuries, von Willebrand's disease and aortic stenosis. May occur anywhere in the GIT, but are more commonly found in the colon (most common in the cecum & ascending colon), followed by the small intestine and the stomach. These lesions usually lead to occult blood loss, but can also cause overt GI bleeding.
- **Gastric antral vascular ectasia (GAVE, watermelon stomach) :** characterized by rows or stripes of ectatic (distensible) mucosal blood vessels that emanate from the pylorus and extend proximally into the antrum. It is an uncommon cause of chronic UGIB or iron deficiency anemia. Occasionally may present as acute UGIB (melena and/or hematochezia). The condition is associated with dilated small blood vessels in the pyloric antrum. The dilated vessels result in intestinal bleeding. It is also called **watermelon stomach** because streaky long red areas that are present in the stomach may resemble the markings on watermelon. GAVE is associated with a number of conditions, including portal hypertension, chronic kidney failure, and collagen vascular diseases. It also occurs particularly with scleroderma, and especially the subtype known as systemic sclerosis. GAVE is treated commonly by means of an endoscope, including argon plasma coagulation and electrocautery. Since endoscopy with argon photocoagulation is "usually effective", surgery (antrectomy) is usually not required.

RISK FOR UGIB

- **Acute Illness:**

1. Shock
2. Respiratory failure
3. Head trauma
4. Thermal injury

- **Chronic Conditions:**

1. Renal dysfunction
2. Liver diseases
3. Coagulopathy
4. *Helicobacter pylori*

- **Drugs:**

1. Anticoagulants
2. Antiplatelets agents
3. NSAIDs
4. SSRIs

- **Devices:**

1. Mechanical ventilation
2. Renal –replacement therapy
3. Extracorporeal life support

Upper GI Bleed

- **History**

- PUD, prior bleeds, EtOH, prior surgical/endoscopic interventions (marginal ulcers), liver disease (varices), tumor, prior radiation
- Meds – NSAIDs, anti-platelets, anticoagulation
- ROS – epigastric pain (PUD), retching (Mallory-Weiss tear), odynophagia/dysphagia (esophageal ulcer)

- **Physical Exam**

- Look for evidence of hypovolemia (tachycardia/hypotension)
- Abdominal exam
- Rectal exam
 - × Guaiac?!

- **Accurate H&P allows for proper assessment of bleeding severity, volume status, risk factors, and triage decision**

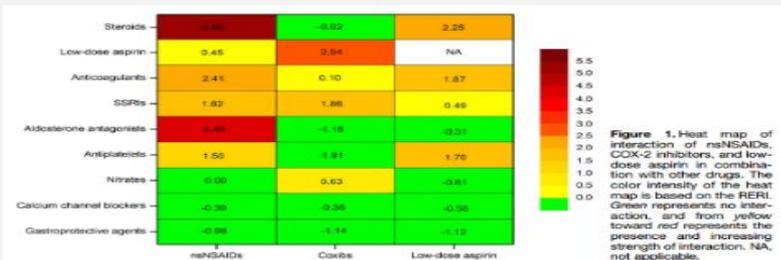


Figure 1. Heat map of interaction of mNSAIDs, COX-2 inhibitors, and low-dose aspirin in combination with other drugs. The color intensity of the heat map is based on the RERI. Green represents no interaction, and from yellow toward red represents the presence and increasing strength of interaction. NA, not applicable.

Table 2. Relative Risk of Diagnosed UGIB During Exposure to Specific Drug Groups (With Corresponding 95% CIs) in Monotherapy and in Combination With Other Drugs

Drug groups	Monotherapy		Combination with					
	n	RR (95% CI)	mNSAIDs	COX-2 inhibitors	Low-dose aspirin	n	RR (95% CI)	
No drug	69,664	1.00 (reference)	NA	NA	NA	416	0.77 (0.69-0.83)	
mNSAIDs	3327	4.27 (4.11-4.44)	NA	NA	NA	129	7.48 (6.20-8.93)	
COX-2 inhibitors	635	2.50 (2.07-3.13)	NA	NA	NA	198	8.37 (7.14-9.81)	
Low-dose aspirin	4733	3.05 (2.94-3.17)	416	6.77 (6.09-7.53)	131	7.48 (6.20-8.93)	NA	
COX-2 inhibitors	1378	4.87 (3.88-6.33)	244	12.82 (11.17-14.72)	40	5.95 (4.25-8.33)	NA	
SSRIs	1793	2.06 (1.94-2.18)	210	6.85 (5.97-7.95)	65	5.82 (4.40-7.67)	401	4.80 (4.03-5.71)
Antiplatelets	8279	1.61 (1.58-1.66)	676	6.80 (5.98-7.76)	80	2.37 (1.82-3.05)	407	2.24 (2.22-2.26)
SSRIs	1211	3.27 (3.09-3.50)	75	11.80 (8.03-14.00)	10	4.82 (2.57-7.81)	131	5.01 (4.13-6.08)
Aldosterone antagonists	3566	1.37 (1.31-1.43)	363	4.45 (3.98-4.98)	77	3.11 (2.40-3.89)	103	3.07 (2.66-3.58)
Calcium channel blockers	1762	3.51 (2.85-4.35)	143	8.69 (7.25-10.35)	21	5.01 (3.21-7.62)	168	6.94 (5.86-8.23)
Antiplatelets (excluding low-dose aspirin)	554	1.74 (1.61-1.87)	27	6.90 (5.19-9.15)	9	1.73 (0.67-3.44)	346	5.49 (4.71-6.41)
Nitrates	2572	2.55 (2.43-2.68)	172	6.80 (4.97-9.62)	49	6.09 (3.70-9.67)	889	3.70 (3.51-4.15)

NOTE: n refers to the number of UGIB events during exposure to specific drug groups (the total number does not add up to 114,835 because of diagnoses of UGIB in "other drug category"). NA, not applicable.

*No use of the predefined drugs of interest.

CLINICAL FEATURE

- **Past history:** dyspepsia, alcohol or NSAIDs ingestion, weight loss may suggest the cause.
- **Hematemesis:** Vomiting of blood, could be: digested blood in the stomach (coffee-ground vomitus that indicate slower rate of bleeding) or fresh/unaltered blood (gross blood and clots, indicates rapid bleeding). More common with lesions in the esophagus and stomach.
- **Melena:** Stool consisting of partially digested blood (black tarry, semi solid, shiny and has a distinctive odor, when present it indicated that blood has been present in the GIT for at least 14 hr. The more proximal the bleeding site, the more likely melena will occur. More common with lesions distal to the pylorus. The black color of melena stool is caused by hematin, the product of enzymatic degradation and oxidation of heme (Fe in hemoglobin) by intestinal and bacterial enzymes during passage through ileum and colon. Foul smelling, black (not dark) (make sure patient is not on iron or bismuth medication).
- **Hematochezia:** It is defined as passage of bright-red blood or maroon stools from the rectum. Bright red blood may come out unchanged in the stool. Usually represents a lower GI source of bleeding, however, an upper GI lesion may bleed so briskly (> 1L blood loss) that blood does not remain in the bowel long enough for melena to develop. When hematochezia is the presenting symptom of UGIB, it is associated with hemodynamic instability and low hemoglobin. Present if profuse UGIB.
- **Signs of severe acute blood loss:** Pallor, clammy skin, tachycardia, and hypotension.
- **Signs & symptoms of the underlying disease** (e.g. liver disease, malignancy)
- **BUN/Cr:** usually > 30:1 ratio. Secondary to blood protein absorption or pre-renal azotemia.
- **Positive Guaiac.**
- The diagnosis of UGIB is assumed when hematemesis is documented. If absent, an upper source for bleeding is likely if there is melena or positive gastrocult test or endoscopic image of gastric or duodenal ulcer with stigmata of recent hemorrhage (e.g., visible vessel).

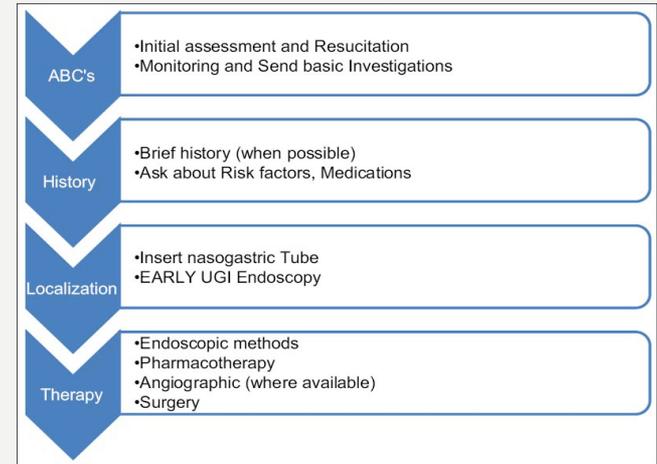
MANAGEMENT

- Four steps:

1. Resuscitation.
2. Initial Assessment & Triage.
3. Establishment of a diagnosis (Endoscopy).
4. Management of specific conditions.

- Initial assessment, resuscitation and triage:

- UGIB may have different clinical presentations:
 - Hematemesis or hematochezia with hemodynamic instability,
 - Melena or rectal bleeding without hemodynamic compromise.
 - Patients may have chronic GI bleeding with asymptomatic iron-deficiency anemia, or hemoccult-positive stool on screening for colorectal cancer.
- Patients presenting to the ER with hemodynamic instability require rapid clinical assessment:
 - Intravenous access with at least two large-bore lines.
 - Nasogastric tube placement (controversial).
 - Determination of hematocrit and coagulation studies, and type and cross for blood products.
 - Patients with altered mental status should undergo endotracheal intubation for airway protection.
 - Emergent evaluation by a gastroenterologist should be requested.
 - The patients should be stabilized before proceeding to urgent endoscopy.



RESUSCITATION

1. Measure BP and HR & repeat measurement hourly.
2. Admission (if SBP < 100 or HR > 100 → ICU admission).
3. NPO: for 24 hr.
4. Complete bed rest.
5. IV access with **two large bore cannula** (IV lines).
6. Draw blood samples for Basic investigations:
 - A. CBC (Hg level).
 - B. U & E.
 - C. LFT.
 - D. PT, PTT.
 - E. Blood group and cross match.
7. IV colloids or crystalloids. Plasma expanders: e.g. Hess solution.
8. Start blood transfusion.
9. CVP line
10. Insert Foley's catheter and monitor the urine output hourly.
11. Insert NG tube (controversial). (NG aspirate may be negative in 10% of bleeding DU due to edema or pylorospasm; the sensitivity of NG aspirate of assessing active bleeding is 79%; NG may cause trauma or dislodge a clot!).
12. Endoscopy after stabilization for diagnosis & treatment.
13. IV PPI therapy for bleeding ulcer.



Controversial pre-endoscopy actions

- Naso-gastric tube placement with aspiration
 - Presence of fresh blood is a sign of high-risk lesion (low sensitivity and specificity) – need for urgent endoscopic therapy
 - Reduction of quantity of blood – better visibility during endoscopy
- Use of prokinetic agents (erythromycin or metoclopramide) intravenously 20 to 120 minutes before endoscopy in patients with severe bleeding
 - Reduction of quantity of blood – better visibility during endoscopy

BRITISH SOCIETY OF GASTROENTEROLOGY RECOMMENDATIONS

- We recommend that patients with hematemesis, melena, or coffee ground vomiting in the absence of an alternate diagnosis (e.g., bowel obstruction) trigger the acute upper gastrointestinal bleeding (AUGIB) bundle.
- We recommend that patients with suspected AUGIB should have urgent observations performed using a validated early warning score such as the National Early Warning Score (NEWS).
- We recommend all patients with AUGIB be commenced on intravenous fluids. We recommend in hemodynamically unstable patients a crystalloid solution as a bolus of 500 mL in less than 15 min.
- We recommend that red blood cell transfusion should follow a restrictive protocol (trigger: Hb <70 g/L; target: 70–100 g/L). A higher trigger should be considered in patients with ischemic heart disease or hemodynamic instability.
- We recommend that patients with AUGIB with ongoing hemodynamic instability are referred for critical care review.
- We suggest that platelets should be given in active acute upper GI bleeding with a platelet count $\leq 50 \times 10^9/L$, as per major hemorrhage protocols.
- We recommend the Glasgow-Blatchford Score (GBS) is calculated at presentation with AUGIB.
- We recommend that patients with GBS ≤ 1 at presentation are considered for outpatient management.
- We recommend intravenous terlipressin is given to all patients with suspected cirrhosis/variceal bleeding. However, caution should be exercised in patients with ischemic heart disease or peripheral vascular disease.
- We recommend giving intravenous antibiotics as per local protocol to patients with suspected cirrhosis/variceal bleeding.
- We recommend continuing aspirin at presentation.
- We recommend interrupting P2Y12 inhibitors until hemostasis is achieved unless the patient has coronary artery stents, in which case, a decision should be undertaken after discussion with a cardiologist.
- We recommend interrupting warfarin therapy at presentation.
- We recommend interrupting direct oral anticoagulant therapy at presentation.
- We recommend endoscopy is offered to patients admitted with suspected AUGIB within 24 hours of presentation. Patients with ongoing hemodynamic instability will require more urgent endoscopy after resuscitation.
- We suggest that the endoscopy report should be reviewed by the ward team.
- We suggest that all patients with varices or those requiring endoscopic therapy are referred to a specialist gastroenterology service.
- We recommend patients with bleeding from ulcers with high-risk stigmata at endoscopy receive high-dose intravenous proton pump inhibitor (PPI) therapy; high-dose oral PPIs may be considered as an alternative.
- We recommend patients with AUGIB in whom antithrombotic therapy is interrupted have a clear plan for resumption.

UK ACUTE UPPER GI BLEEDING BUNDLE



sam
THE SOCIETY FOR ACUTE MEDICINE



bsg BRITISH SOCIETY OF
GASTROENTEROLOGY



AUGIS
Association of Upper Gastrointestinal Surgeons of
Great Britain and Ireland

UK Acute Upper GI Bleeding Bundle

(to be performed within 24h)

RECOGNITION

RESUSCITATION

RISK ASSESSMENT

R_x (Treatment)

REFER

REVIEW

Patient Details / Label

Name: _____

D.O.B.: _____

Hospital No.: _____

Date: _____

If reported:
Haematemesis, melaena or coffee ground vomiting

Trigger bundle and record if performed

Perform NEWS as indicated

Commence IV crystalloid

Transfuse if Hb <70g/L, aim for 70-100g/L

Calculate Glasgow-Blatchford Score (GBS): enter value →

- Consider discharge if GBS 0 or 1

If suspected cirrhosis/variceal bleed, give terlipressin 2mg QDS and antibiotics as per local protocol

Continue aspirin

Suspend all other antithrombotics

Referral to ensure that endoscopy is performed within 24h of presentation

Refer to GI specialist if varices or requiring therapeutic endoscopy

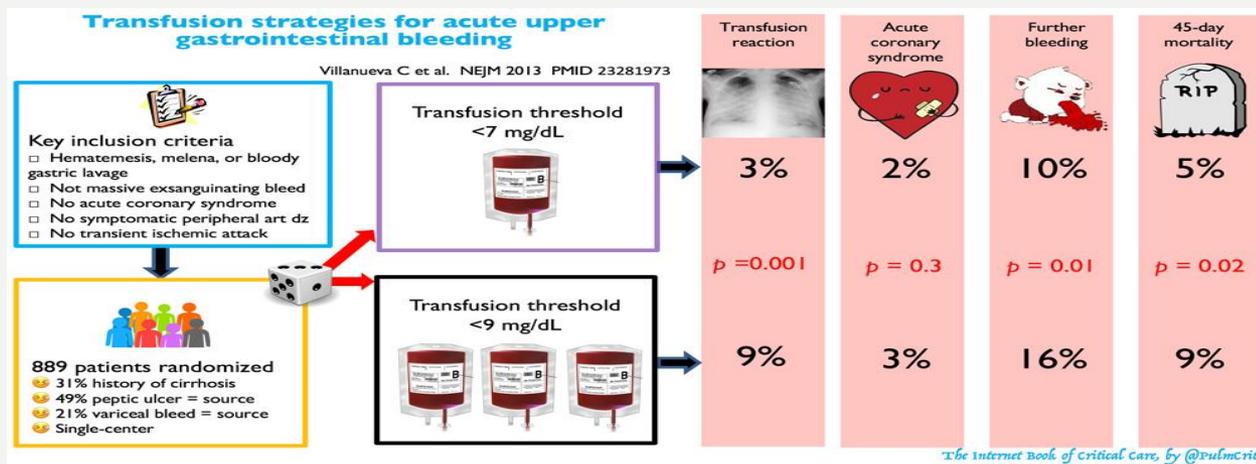
Review endoscopy report

PPI if high risk ulcer post-endoscopy

Post-haemostasis antithrombotic plan

Y	N	NA

Haemodynamic instability? Think Major Haemorrhage Protocol +/- critical care review



INITIAL ASSESSMENT & TRIAGE:

- To identify patients with non-variceal UGIB at greatest risk for mortality and rebleeding. Patients may be categorized as low, intermediate and high risk.
- **Pre-endoscopy scoring systems:**
 1. **Blatchford Score:** BP, BUN level, Hemoglobin, liver disease, heart failure.
 2. **Clinical Rockall score:** patient's age, shock & coagulopathy.
- **Post-endoscopy scoring system:**
 1. **Complete Rockall score:** Clinical Rockall score plus endoscopic findings. Correlates well with mortality & risk of rebleeding.
- Risk factors associated with increased mortality, recurrent bleeding, the need for endoscopic hemostasis, or surgery: Age > 60; severe comorbidity; active bleeding (e.g. witnessed hematemesis, red blood per NG tube, fresh blood per rectum); hemodynamic instability (hypotension); red blood transfusion > 6 units; severe coagulopathy.

Management of GI Bleed

- ICU admit indications
- Significant bleeding with hemodynamic instability
- Transfusion
- Brisk Bleed, transfusing should be based on hemodynamic status, not lab value of Hgb.
- Cardiopulmonary symptoms-cardiac ischemia or shortness of breath, decreased pulse ox
- 1 unit PRBC increases Hgb by 1mg/dL and increase Hct by 3%
- FFP for INR greater than 1.5
- Platelets for platelet count less than 50K

ROCKALL RISK SCORE (1)

- Rockwall's score:

Variable	Score
Age	0-2
Presence of Shock	0-2
Comorbidity	0-3
Diagnosis	0-2
Endoscopic Stigmata of Recent Hemorrhage	0-2

Rockall Risk Score for rebleeding & death after admission to The hospital for Acute UGIB (2)

Variable	Score			
	0	1	2	3
Age (years)	<60	60-79	≥ 80	
Shock Pulse rate SBP (mmHg)	“No shock” < 100 ≥ 100	“Tachycardia”, ≥ 100 ≥ 100	“Hypotension” < 100	
Comorbidity	No Major comorbidity		Cardiac failure, ischemic heart disease, any major comorbidity	Renal or liver failure, disseminated malignancy
Diagnosis	Mallory-Weiss tear or no lesion identified and no SRH/blood	All other diagnosis	Malignant lesion of Upper GIT	
Major SRH	None or dark spot only		Blood in the UGIT, adherent clot, visible or spurting vessel	

Rockwall Risk Score (3)

Score	% of Total	Rebleeding	Death
0	5.6	4.9	0
1	11	3.2	0
2	12.8	5	0.3
3	15.9	12.2	2
4	17.8	13.8	4.2
5	14.5	16.9	7.9
6	9.4	29.4	15.1
7	8	39.6	19.8
>8	5.1	47.7	39.1

Rockall Risk Score (4)

Score	Mean Hospital Stay (days)
0	3.7
1	4.1
2	6.1
3	7.6
4	9.3
5	10.8
6	10.6
7	12.7
>8	15.3
Total	8.6

Risk-Stratification Tools for Upper Gastrointestinal Hemorrhage

A Blatchford Score

At Presentation	Points
Systolic blood pressure	
100–109 mm Hg	1
90–99 mm Hg	2
<90 mm Hg	3
Blood urea nitrogen	
6.5–7.9 mmol/liter	2
8.0–9.9 mmol/liter	3
10.0–24.9 mmol/liter	4
≥25 mmol/liter	6
Hemoglobin for men	
12.0–12.9 g/dl	1
10.0–11.9 g/dl	3
<10.0 g/dl	6
Hemoglobin for women	
10.0–11.9 g/dl	1
<10.0 g/dl	6
Other variables at presentation	
Pulse ≥100	1
Melena	1
Syncope	2
Hepatic disease	2
Cardiac failure	2

B Rockall Score

Complete Rockall Score	Variable	Points
Clinical Rockall Score	Age	
	<60 yr	0
	60–79 yr	1
	≥80 yr	2
	Shock	
	Heart rate >100 beats/min	1
	Systolic blood pressure <100 mm Hg	2
	Coexisting illness	
	Ischemic heart disease, congestive heart failure, other major illness	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	

Blatchford scores from 0 to 23, with higher scores indicating higher risk

The Rockall score :

-Used clinical and endoscopic criteria

-The scale ranges from 0 to 11 points, with higher scores indicating higher risk.

BLATCHFORD SCORE

<ul style="list-style-type: none"> • Blood Urea Nitrogen(mmol/L) 6.5 – 7.9 2 8 – 9.9 3 10 – 24.9 4 ≥25 6 	<ul style="list-style-type: none"> •Other markers Pulse ≥ 100 (per min) 1 Presentation with melena 1 Presentation with syncope 2 Hepatic disease 2 Cardiac failure 2
<ul style="list-style-type: none"> • Haemoglobin (g/dL) for men 12–12.9 1 10–11.9 3 <10 6 	<ul style="list-style-type: none"> •Score from 0 to 23 •Scores ≥ 6 – 50% risk of needing an intervention.
<ul style="list-style-type: none"> • Haemoglobin (g/dL) for women 10–11.9 1 <10 6 	<ul style="list-style-type: none"> Score is "0" if : •Hemoglobin level >12.9 g/dl(men) or >11.9 g/dl(women)
<ul style="list-style-type: none"> • Systolic BP (mm Hg) • 100–109 1 • 90–99 2 • <90 3 	<ul style="list-style-type: none"> •Systolic blood pressure > 109 mm Hg •Pulse <100/minute •BUN level <6.5 mmol/L •No melena or syncope •No liver disease or heart failure

Blatchford O, Murray WR, Blatchford M. Lancet 2000; 356:1318-21.

University of Leicester



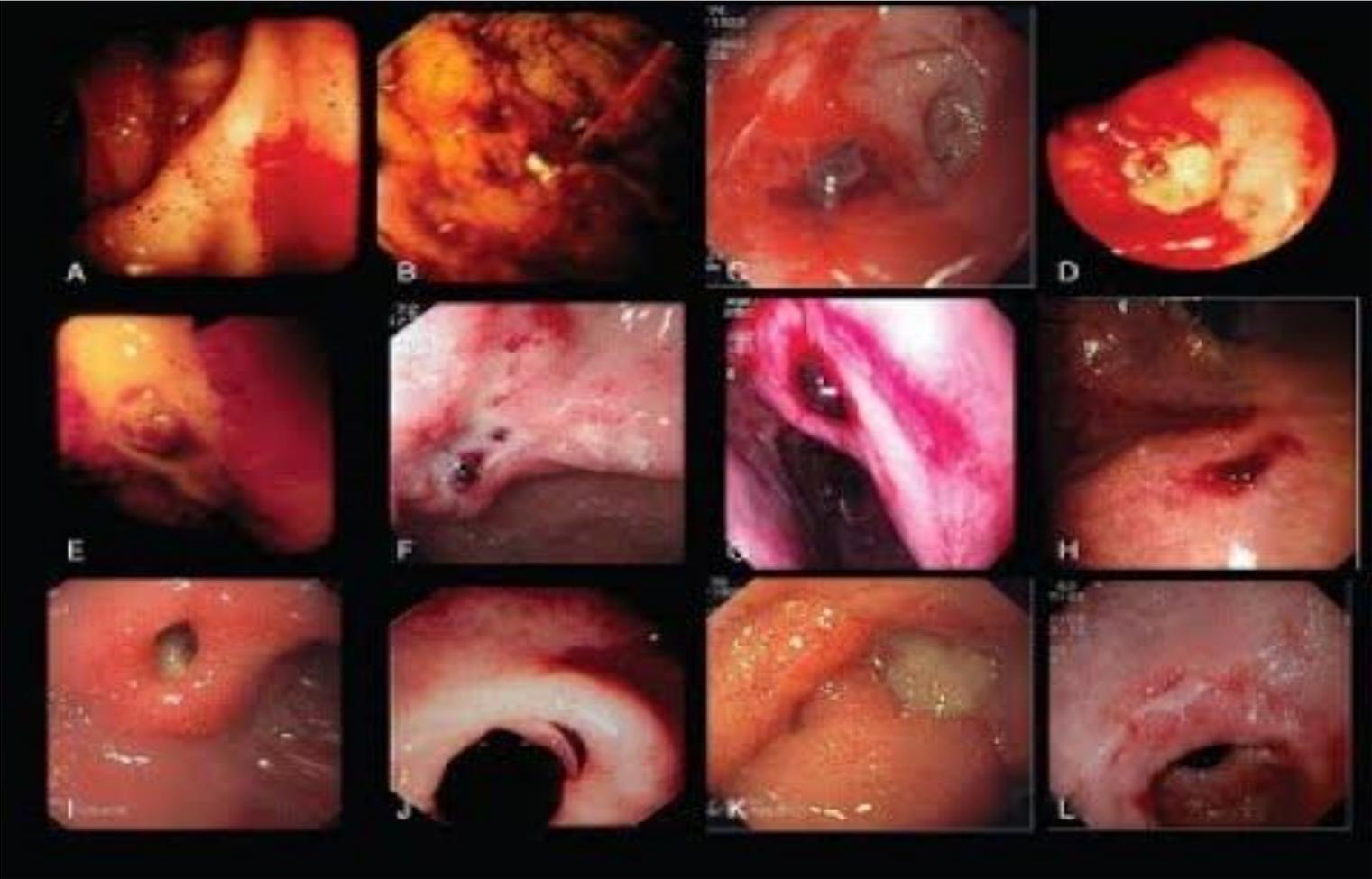
Glasgow-Blatchford Score

Admission Risk Marker	Score	Admission Risk Marker	Score
Blood Urea		Systolic BP (mm Hg)	
• <6.5 <8.0	2	• 100–109	1
• 8.0 <10.0	3	• 90–99	2
• ≥10.0 <25.0	4	• <90	3
• ≥25	6		
Haemoglobin (g/L) for Men		Other Markers	
• ≥12.0 <13.0	1	• Pulse ≥100 (per min)	1
• ≥10.0 <12.0	3	• Presentation with melena	1
• <10.0	6	• Presentation with syncope	2
		• Hepatic disease	2
Haemoglobin (g/L) for Women		• Cardiac failure	2
• ≥10.0 <12.0	1		
• <10.0	6		

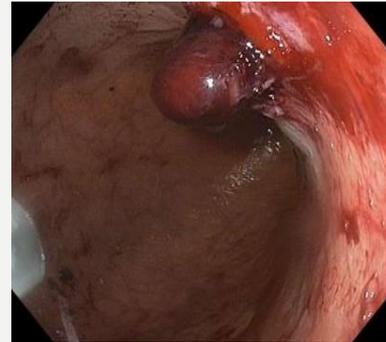
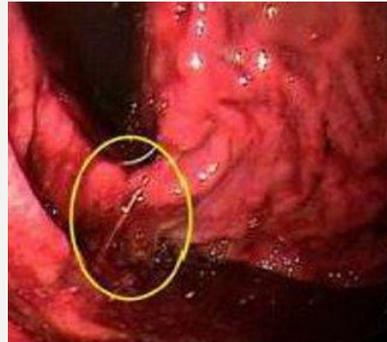
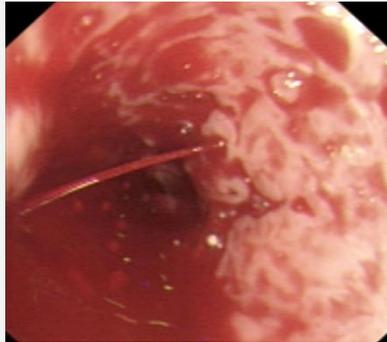
ESTABLISHMENT OF A DIAGNOSIS

- The foundation of diagnosis and management of patients with an UGIB is an endoscopy. After stabilization, upper GI endoscopy: under minimum sedation with wide pore suction channel endoscope.
- Advantage of early endoscopy (within 24 hours):
 1. Identify the bleeding **site**.
 2. Assess the **rate** of bleeding.
 3. **Therapeutic** hemostatic procedures “adrenaline, laser diathermy, heater probe...”
 4. Reduction in blood transfusion requirement.
 5. Identify patients who are **not suitable for surgery**.
 6. Decrease in the need for surgery.
 7. Shorter length of hospital stay

Endoscopic finding



Stigmata of recent hemorrhage



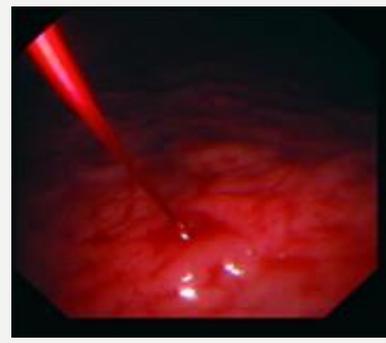
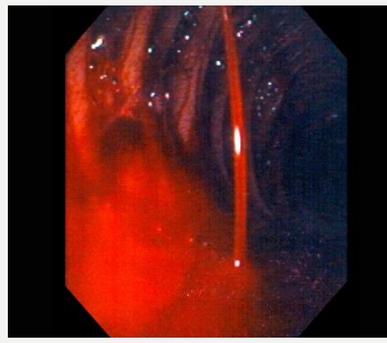
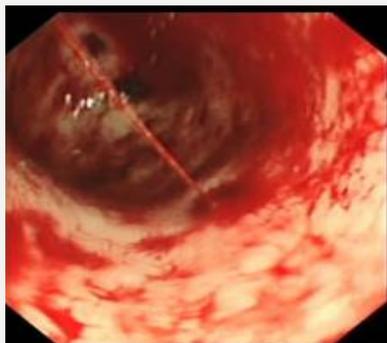
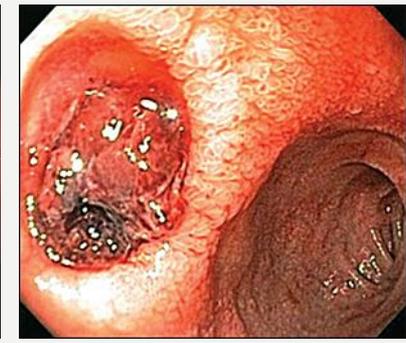
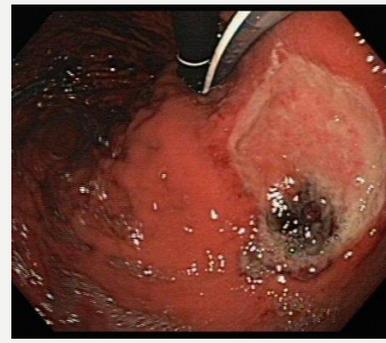
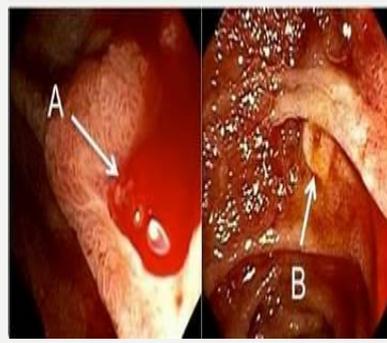
(Forrest classification)

- Forrest 1a - Spurting bleeding
- Forrest 1b - Non-spurting active bleeding

University of Alexandria

A

ID No.:
Name:
Sex: Age:
D.O.Birth:
05/15/2015
09:54:19
SCV:79
Ct:N Br:A1
Ct:1 Z:1.0
Physician:
Comment:



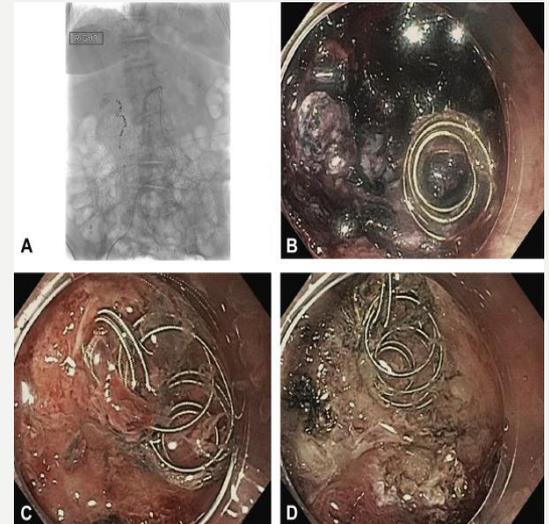
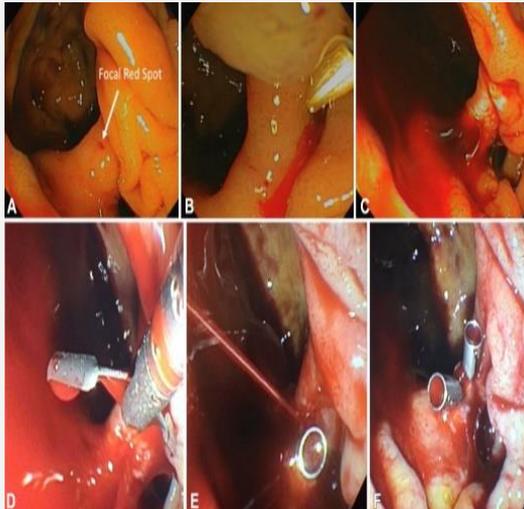
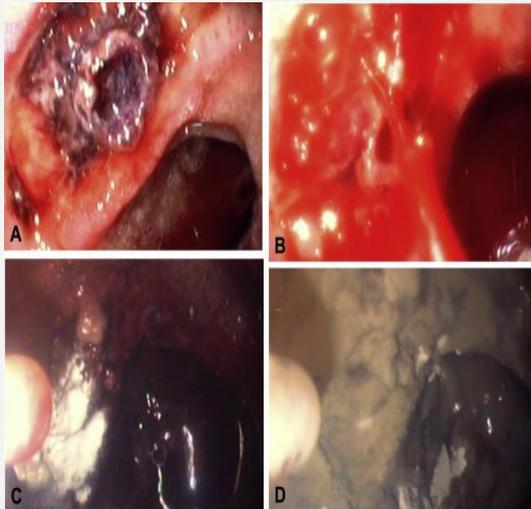
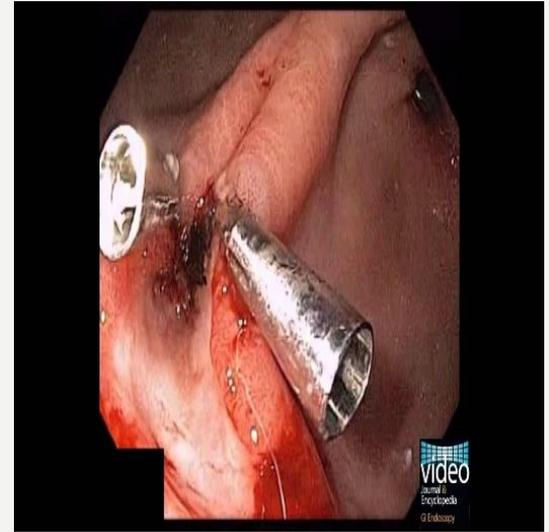
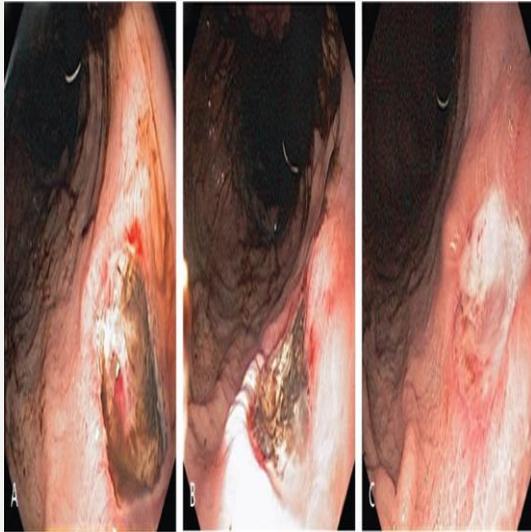
ENDOSCOPIC TREATMENT MODALITIES:

- The nature of the visible vessel could be: a vessel; a pseudoaneurysm; or a clot.
- Topical treatment include: tissue adhesives (cyanoacrylate), blood clotting factors (thrombin, fibrinogen), vasoconstriction drugs (epinephrine), collagen, Ferromagnetic tamponade.

Endoscopic treatment modalities		
Injection	<ul style="list-style-type: none"> ➤ Adrenaline (1:10000) ➤ Sclerosants (ethanolamine, ethanol, polidocanol) ➤ Pro-coagulants (thrombin, fibrin) ➤ Cyanoacrylate 	<p>-----</p> <p>Most commonly used for variceal UGIB</p>
Thermal Devices	<ul style="list-style-type: none"> ➤ Heater probes ➤ Electrocautery probes ➤ Argon plasma coagulation ➤ Lasers photocoagulation 	
Mechanical Therapy	<ul style="list-style-type: none"> ➤ Clips ➤ Band ligation 	<p>-----</p> <p>Modality of choice for variceal UGIB</p>

Meta-analyses have found that combination therapy (adrenaline + 2nd modality) is superior to adrenaline alone in treating high risk stigmata lesions (reducing risk of rebleeding, mortality and surgery).

Endoscopic therapy



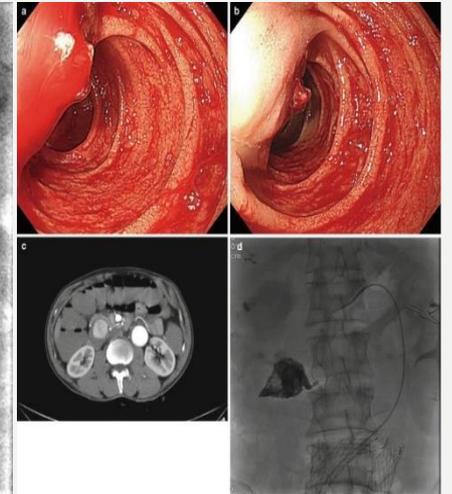
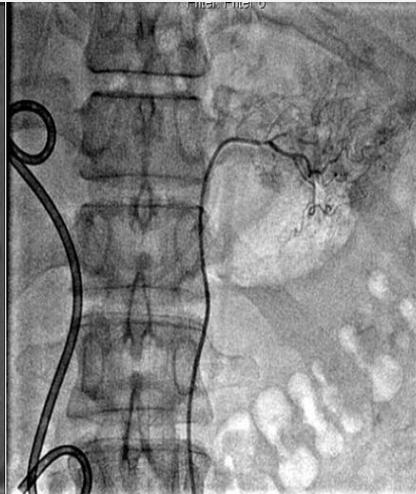
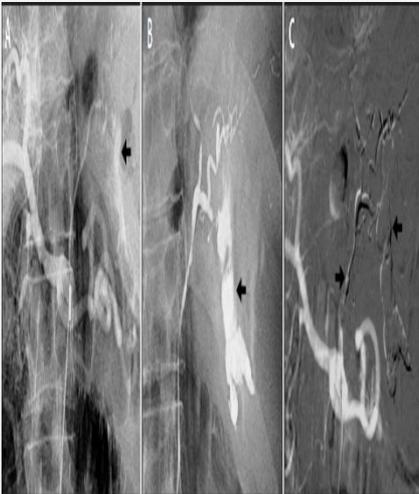
Angiographic therapy: Embolization



Figure 28.4 (Continued) **E:** Repeat celiac arteriogram revealed active extravasation of iodinated contrast from the superior pancreaticoduodenal artery. **F:** Coil embolization of the gastroduodenal artery.



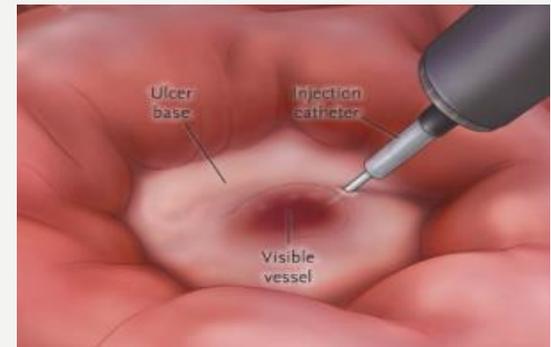
Figure 28.5 Endoscopy found an ulcer along the lesser curve at the incisura with active bleeding from a visible vessel. **A:** Celiac arteriogram shows previous coil embolization of the GDA but no active extravasation. **B:** Closer inspection of left gastric artery reveals vasospasm and pseudoaneurysm of left gastric artery branches. **C:** Superintension of the branch in question with a microcatheter uncovers active extravasation (arrow). **D:** Coil embolization of the left gastric artery. The patient continued to bleed despite technically successful embolization. This necessitated surgical intervention. Due to embolization of both the GDA and left gastric artery, total gastrectomy was favored over partial gastrectomy.



MANAGEMENT OF SPECIFIC CONDITIONS

I. BLEEDING PEPTIC ULCER:

- **Medical treatment:**
 - Proton pump inhibitor
- **Endoscopic therapy (hemostasis):**
 1. **Injection therapy:** Adrenaline (1/10,000) or sclerosant injection.
 2. Heat probes.
 3. Bipolar diathermy.
 4. **Laser photocoagulation:** using the Nd-YAG laser.
 5. **Metallic clips application.**
- **Angiographic therapy:**
 - Angiographic Embolization.
- **Surgical treatment; indications:**
 - Continued bleeding.
 - Recurrence of bleeding after endoscopic therapy.
 - Patient > 60 yr. who need > 6 units of blood for stabilization.



PEPTIC ULCER BLEEDING: CLASSIFICATION

Peptic ulcer bleeding:

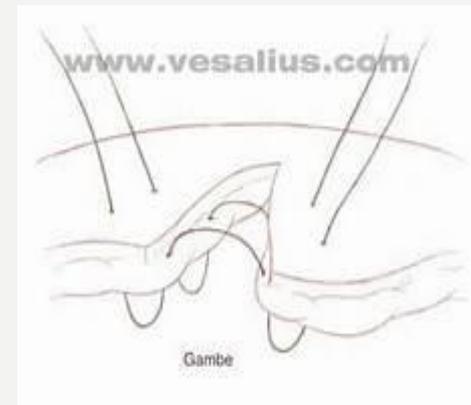
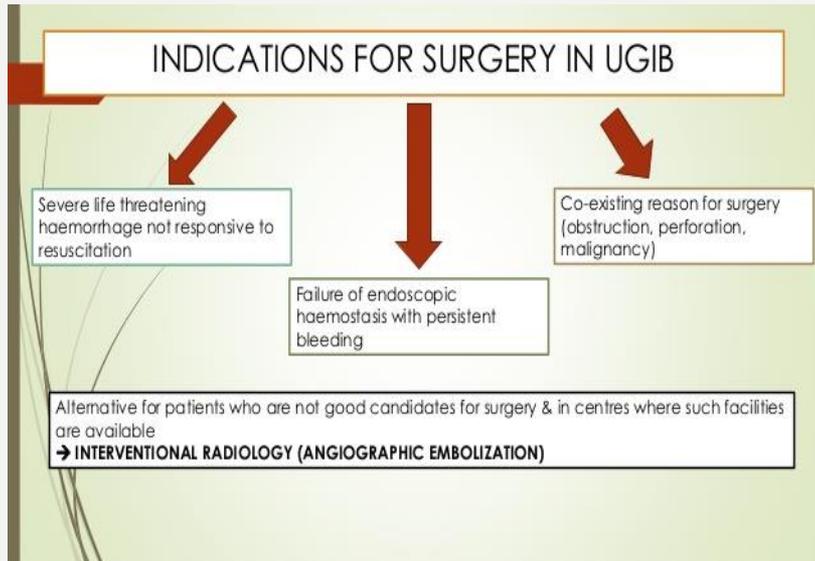
- Good prognosis: 80% stop spontaneously.
- Low mortality (2%) unless rebleeding occurs (25% of patients, 10% mortality).
- Endoscopic predictors of rebleeding (Forrest Classification): Spurt or ooze, visible vessel, fibrin clot.
- Patient can be sent home, if clinically stable, bleed is minor, no comorbidities, endoscopy shows clean ulcer with no high risk predictors of rebleeding.
- Esophageal varices have a high rebleeding rate (55%) and mortality (29%).

Forrest Prognostic Classification of Bleeding Peptic Ulcers

Forrest Class	Type of Lesion	Risk of Rebleed (%)
I	Arteria bleeding (oozing / spurting)	55-100
IIa	Visible vessel	43
IIb	Sentinel clot	22
IIc	Hematin covered flat clot	10
III	No stigmata of hemorrhage	05

SURGICAL ASPECTS IN TREATMENT

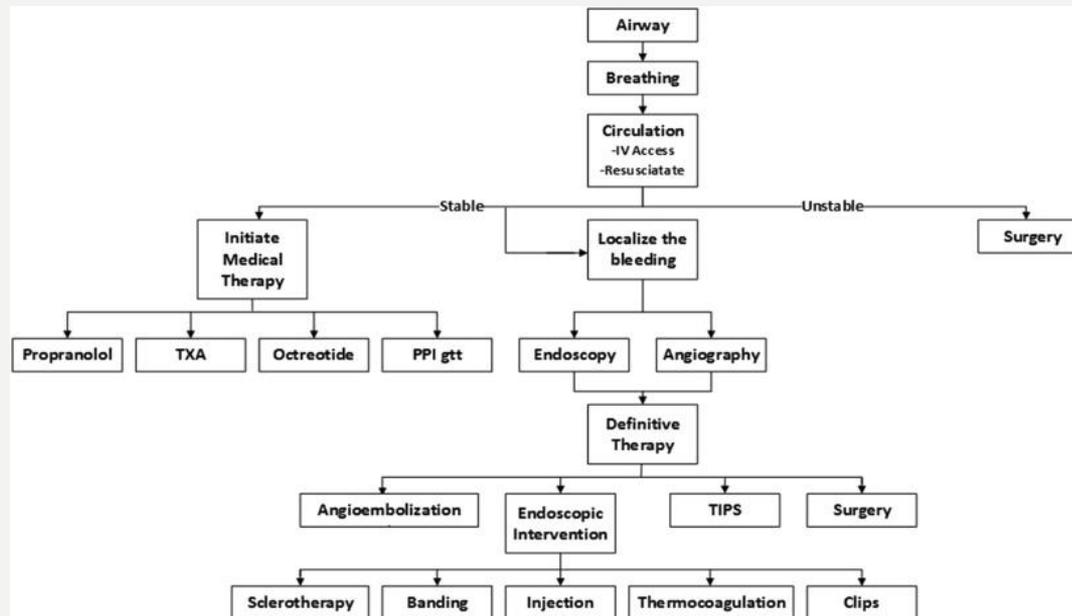
- Due to advances in medications and therapeutic endoscopy techniques and angiographic therapy, UGIB is now usually treated without surgery.
- Surgery is indicated if endoscopic therapy or embolization failed.
- DU is treated by **vagotomy + pyloroplasty + undersewing** of the bleeding ulcer.
- If DU is large and pyloroplasty is difficult, **polya gastrectomy** should be done.
- For bleeding GU → **Billroth I gastrectomy**.
- If the bleeding site is not recognized at endoscopy → the operation should be initiated by gastrotomy.

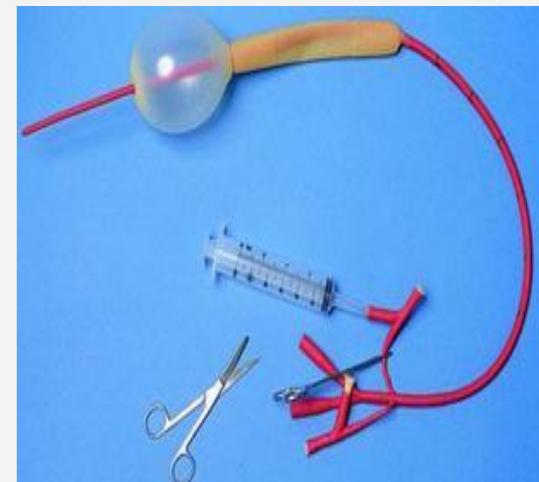
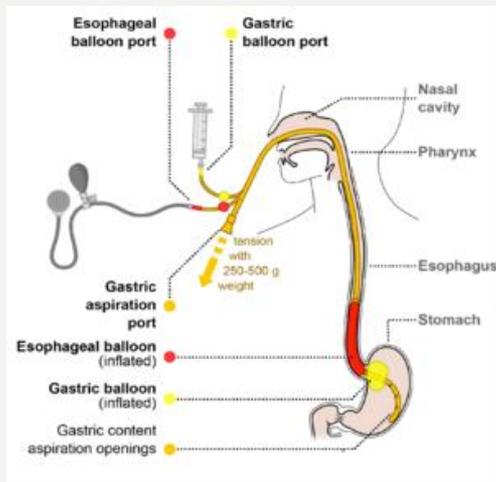
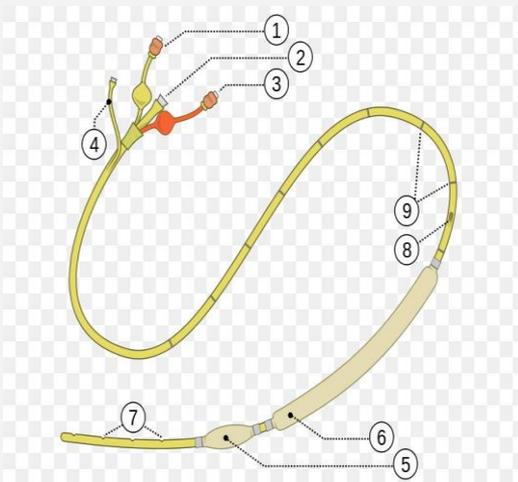
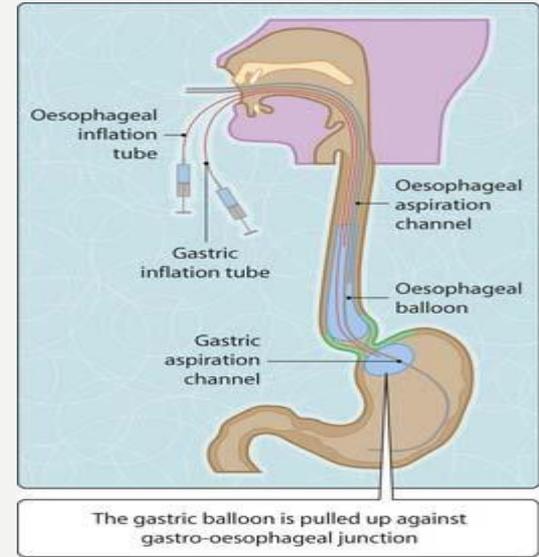
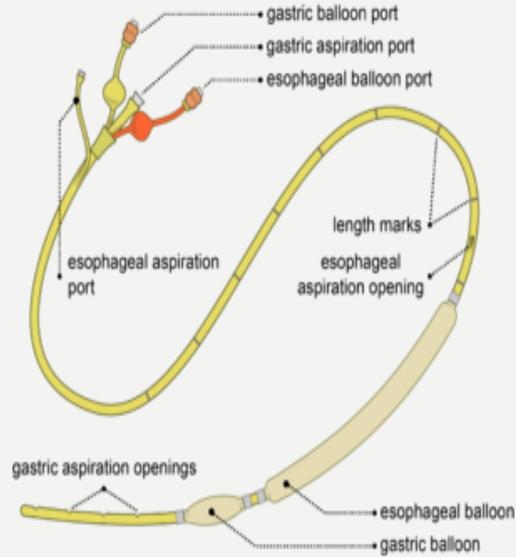


MANAGEMENT OF SPECIFIC CONDITIONS

2. ESOPHAGEAL VARICES

- High mortality and morbidity and high recurrence rate.
- Initial treatment: Rubber band ligation or Injection sclerotherapy “ethanolamine or polidocanol.” And: vasopressin infusion “vasoconstrictor” should be tried.
- If failed → Blakemore-Sengstaken tube should be tried.
- If failed → TIPS
- If failed → Esophageal transection + gastric devascularization “Sugiura procedure”.





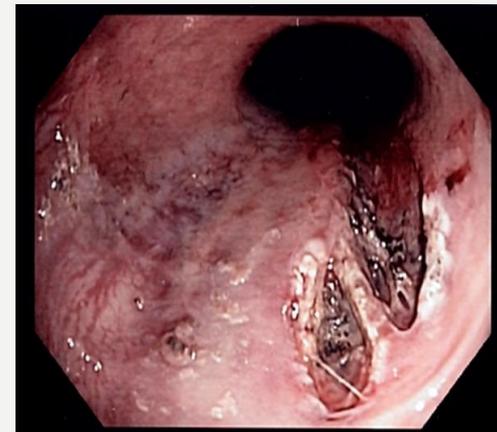
MANAGEMENT OF SPECIFIC CONDITIONS

3. GASTRIC EROSIONS

- IV proton pump inhibitor.
- Endoscopic hemostasis procedures.
- Total gastrectomy for persistent bleeding “high mortality”

4. MALLORY-WEISS TEAR

- Treatment is usually supportive as persistent bleeding is uncommon because in most cases the bleeding stops spontaneously. However **cauterization** (Endoscopic application of thermal probes) or **local injection of adrenaline** to stop the bleeding may be undertaken during the index endoscopy procedure. If all other methods fail, high gastrotomy can be used to ligate the bleeding vessel (**direct suturing**). Wide wedge resection of the artery and bleeding site is preferable to oversewing the artery in the area of the mucosal defect. Patients who are poor surgical candidates may respond to angiographic embolization. Very rarely embolization of the arteries supplying the region may be required to stop the bleeding. The tube will not be able to stop bleeding as here the bleeding is arterial and the pressure in the balloon is not sufficient to overcome the arterial pressure.



Mallory–Weiss tear affecting the esophageal side of the gastroesophageal junction

MANAGEMENT OF SPECIFIC CONDITIONS

5. ESOPHAGITIS

- IV proton pump inhibitor in severe cases.

6. Tumors

- Hemostasis then elective surgery.

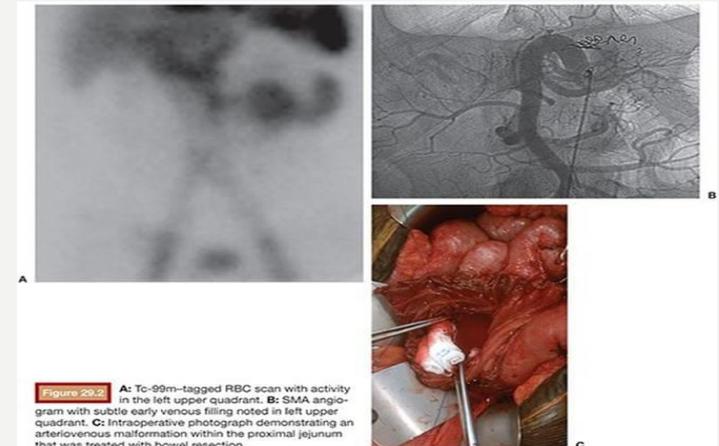
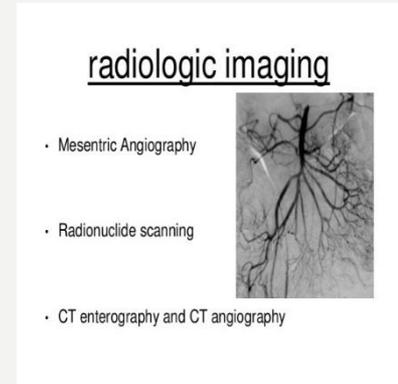
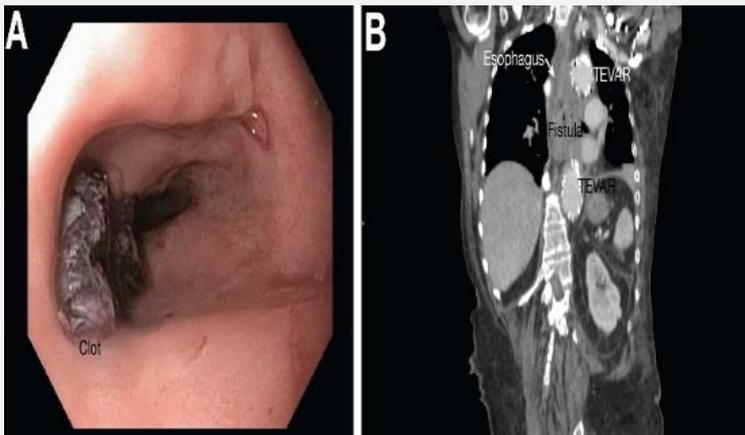
7. Vascular malformations “Dieulafoy lesion”

- Endoscopic hemostasis.

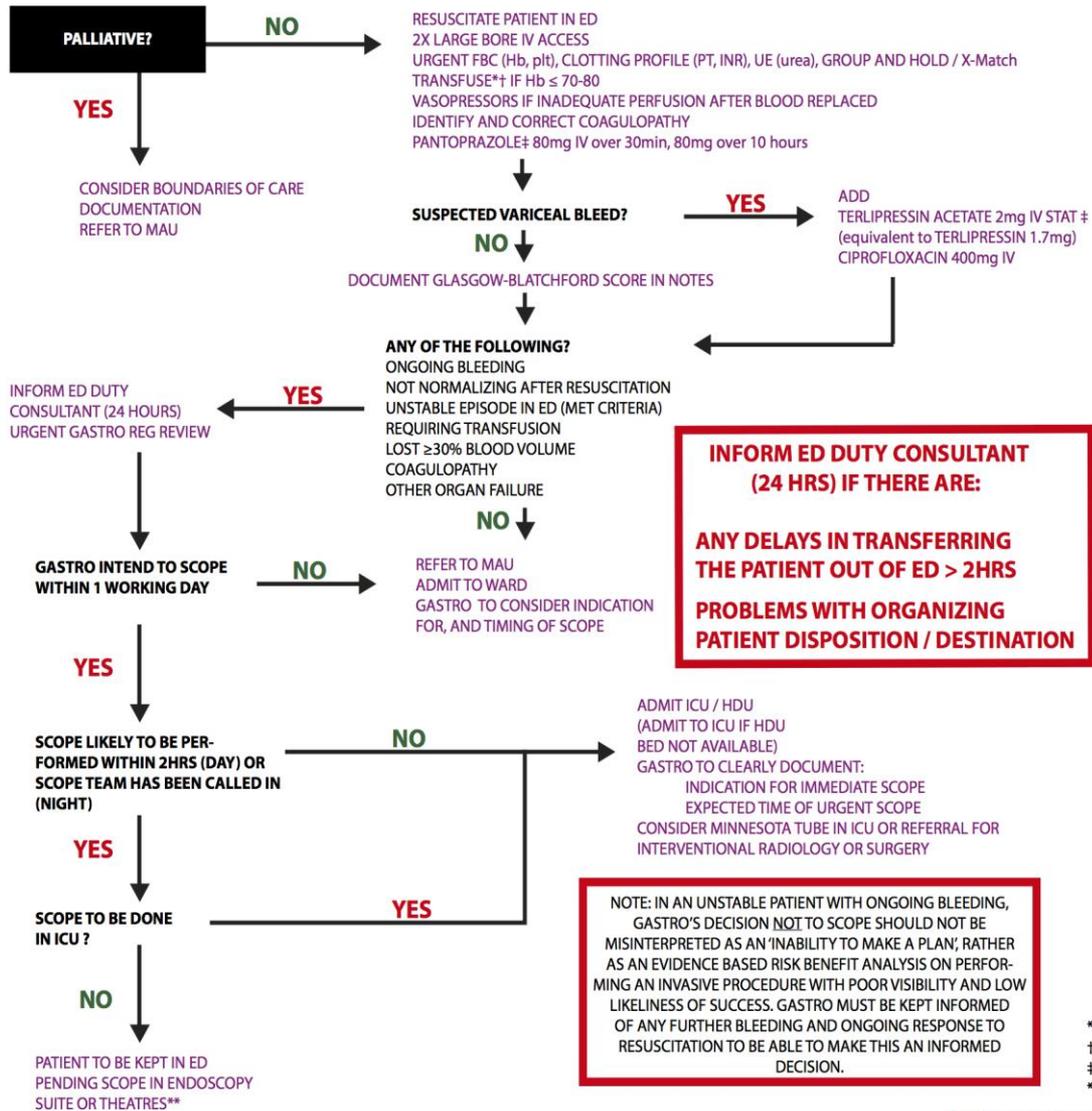
8. Angiodysplasia:

- Usually apparent at endoscopy, at which time therapy with laser or thermal probes may be applied. Bleeding that is refractory to endoscopic or medical therapy is an indication for surgical resection.

9. Aortoenteric fistula:



UPPER GI BLEED PROTOCOL SCGH ED



GLASGOW-BLATCHFORD SCORE (severity index for non-variceal bleeds)

Haemoglobin	<10	≥10	<12	≥12	<13	≥13
M	0 points	1 point	2 points	3 points	4 points	5 points
F	0 points	1 point	2 points	3 points	4 points	5 points
BUN	>25	≤25	>10	≤10	≥8	≤6.5
	0 points	1 point	2 points	3 points	4 points	5 points
Initial Systolic BP	<90	90	99	100	109	>109
	0 points	1 point	2 points	3 points	4 points	5 points
Pulse	≥100	<100				
	0 points	1 point				
Presentation with melæna	Yes	No				
	0 points	1 point				
Recent syncope	Yes	No				
	0 points	1 point				
Hepatic disease history	Yes	No				
	0 points	1 point				
Heart failure history	Yes	No				
	0 points	1 point				

Score >5: >50% risk for intervention (or death)

MET CRITERIA

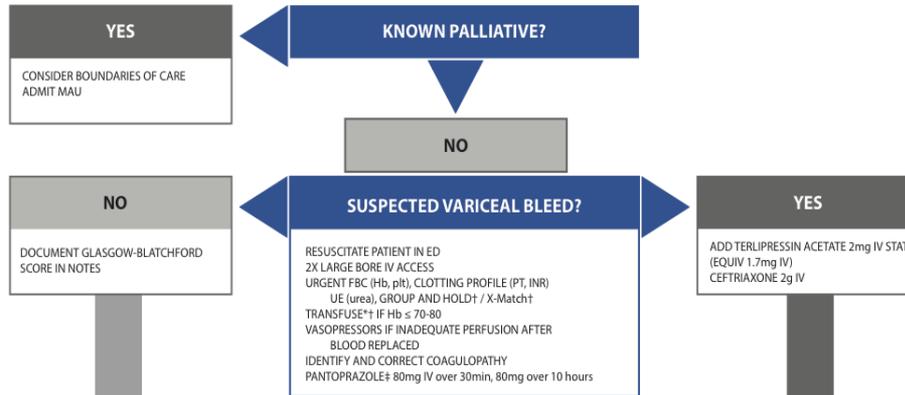
AIRWAY	THREATENED
BREATHING	36 < RR < 5
CIRCULATION	140 < HR < 40 SBP < 90
NEUROLOGY	GCS FALL > 2 SEIZURE REPEAT / PROLONGED

* Consider higher value if underlying comorbidities or suggestions of ongoing bleeding
 † Check Jehovah's Witness status
 ‡ Guideline MM002
 ** Consider theatres if anaesthetics involved / airway issues



UPPER GI BLEED PROTOCOL SCGH ED v2.1

Role	Name	Signature	Position
Author	Dr Benedita Baker / Jeffrey		ED / ICU / GASTRO
Updated by	Dr T Eckel		ED
Checked by	Dr T Eckel		ED
Approved by	Dr J Akola		Chair and Therapeutics Committee
Approved date	10/10/2017		Dr J Akola
Review date			10/10/2019



GLASGOW-BLATCHFORD SCORE (severity index for non-variceal bleeds)

Haemoglobin

>16	15-16	14-15	13-14	12-13	11-12	10-11
3 points	2 points	2 points	2 points	2 points	1 point	0 points

BUN

>25	20-25	15-20	10-15	5-10	<5
2 points	1 point	1 point	1 point	0 points	0 points

Initial Systolic BP

>100	90-100	80-90	70-80	60-70	<60
1 point	1 point	1 point	1 point	0 points	0 points

Pulse

>100	<100
1 point	0 points

Presentation with melena

Yes	No
1 point	0 points

Recent syncope

Yes	No
1 point	0 points

Hepatic disease history

Yes	No
1 point	0 points

Heart failure history

Yes	No
1 point	0 points

Score >5 = >50% risk for intervention (or death)

MET CRITERIA

AIRWAY	THREATENED
BREATHING	36 < RR < 5
CIRCULATION	140 < HR < 40
	SBP < 90
NEUROLOGY	GCS FALL > 2
	SEIZURE REPEAT / PROLONGED
URINE	<100ML IN 3 HRS

NOTE: IN AN UNSTABLE PATIENT WITH ONGOING BLEEDING, GASTRO'S DECISION NOT TO SCOPE SHOULD NOT BE MISINTERPRETED AS AN INABILITY TO MAKE A PLAN, RATHER AS AN EVIDENCE BASED RISK BENEFIT ANALYSIS ON PERFORMING AN INVASIVE PROCEDURE WITH POOR VISIBILITY, IN AN UNSTABLE PATIENT. GASTRO MUST BE KEPT INFORMED OF THE ONGOING RESPONSE TO RESUSCITATION TO BE ABLE TO MAKE THIS AN INFORMED DECISION.

YES

CALL DUTY CONSULTANT (24HRS)
URGENT GASTRO REVIEW
GASTRO TO REVIEW AND DECIDE ONE OF THE OPTIONS BELOW

ANY DELAYS OR PROBLEMS WITH DISPOSITION SHOULD BE URGENTLY ESCALATED TO ED DUTY CONSULTANT (24 HRS)

DISPOSITION TO BE DETERMINED BASED ON GASTRO REG / GASTRO CONS URGENCY OF SCAN

SCOPE NOT URGENT

REFER TO MAU
ADMIT TO WARD
0800-2200 MAU TO INFORM GASTRO
2200-0800 MAU INFORM GASTRO AT 0800

SCOPE TO BE DONE >1 WORKING DAY

REFER TO MAU
ADMIT TO WARD
GASTRO TO DOCUMENT CLEARLY
REASON FOR NOT DOING MORE URGENTLY
ALTERED MET CRITERIA / TARGETS
CRITERIA TO ESCALATE TO URGENT SCOPE
EXPECTED TIME OF SCOPE / REASON FOR NOT SCOPING / BLUE FORM

SCOPE TO BE DONE WITHIN 1 WORKING DAY

REFER TO ICU (ICU CAN DELEGATE TO HDU IF MORE APPROPRIATE)
GASTRO TO DOCUMENT CLEARLY
REASON FOR NOT DOING MORE URGENTLY
ALTERED MET CRITERIA / TARGETS
CRITERIA TO ESCALATE TO URGENT SCOPE
EXPECTED TIME OF SCOPE

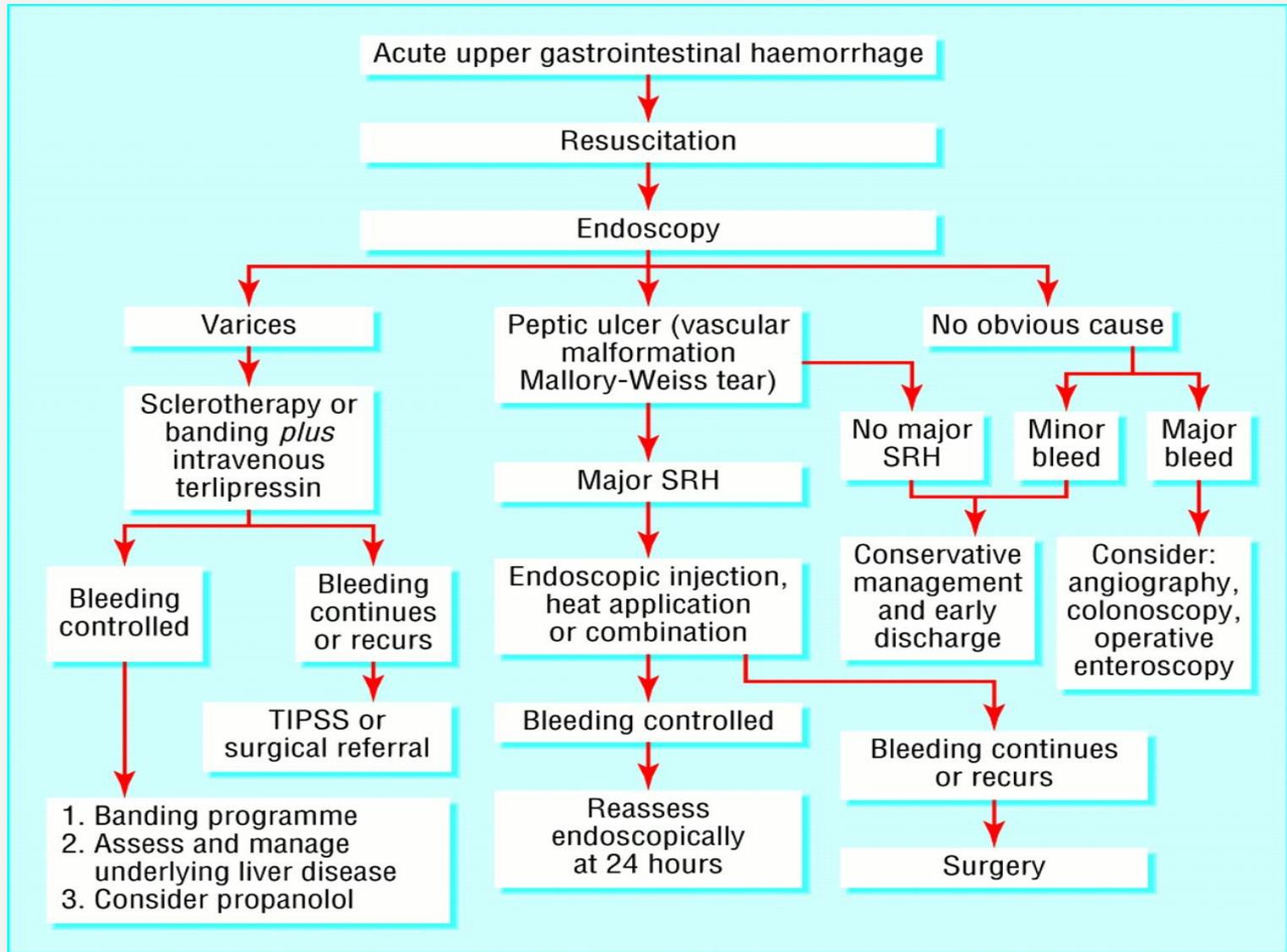
SCOPE LIKELY TO BE DONE WITHIN 2HRS (DAY) OR SCOPE TEAM HAS BEEN CALLED IN (NIGHT)

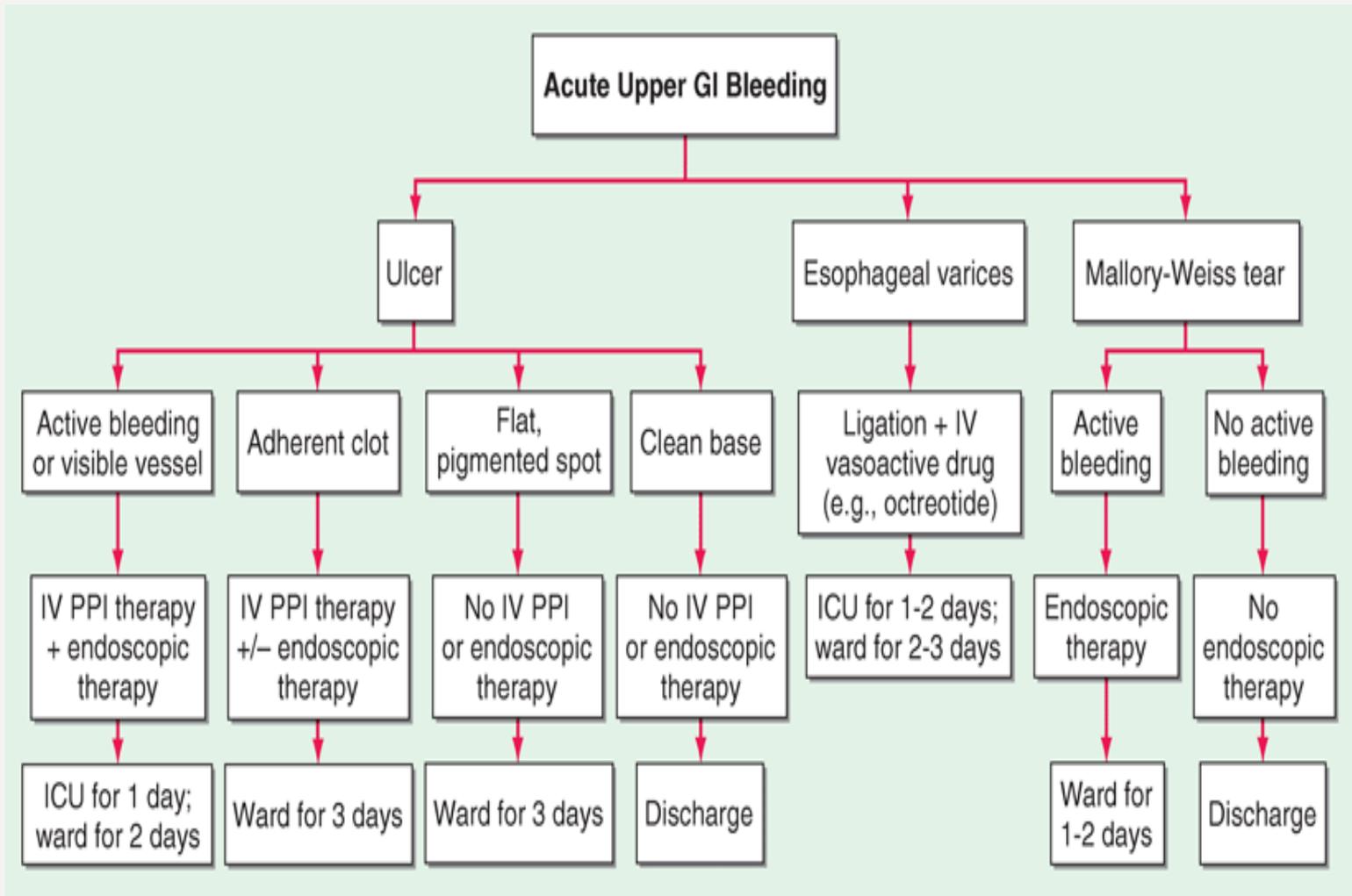
SCOPE TO BE DONE IN ICU
REFER TO ICU (ICU CAN DELEGATE TO HDU IF MORE APPROPRIATE)
GASTRO TO DOCUMENT CLEARLY
INDICATION FOR IMMEDIATE SCOPE
EXPECTED TIME OF URGENT SCOPE
CONSIDER MINNESOTA TUBE IN ICU OR REFER TO INTERVENTIONAL RADIOLOGY / SURGERY

SCOPE TO BE DONE IN ENDOSCOPY SUITE OR THEATRES

KEEP IN ED UNTIL ENDOSCOPY SUITE OR THEATRES READY **

* Consider higher value if underlying comorbidities or suggestions of ongoing bleeding
† Check Jehovah's Witness status (some JW may consent to blood products)
‡ Gastroenterology Therapeutics Guidelines 2014
** Consider theatres if anaesthetics involved / airway issues





Source: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine, 18th Edition*: www.accessmedicine.com

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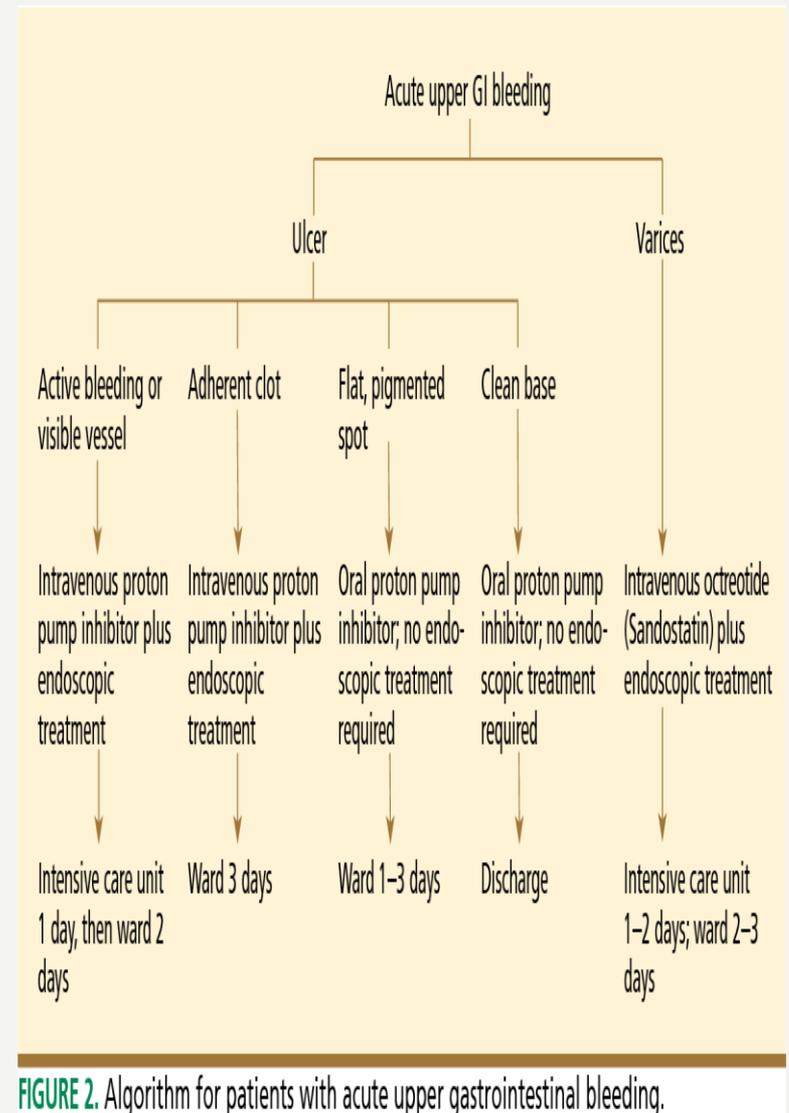
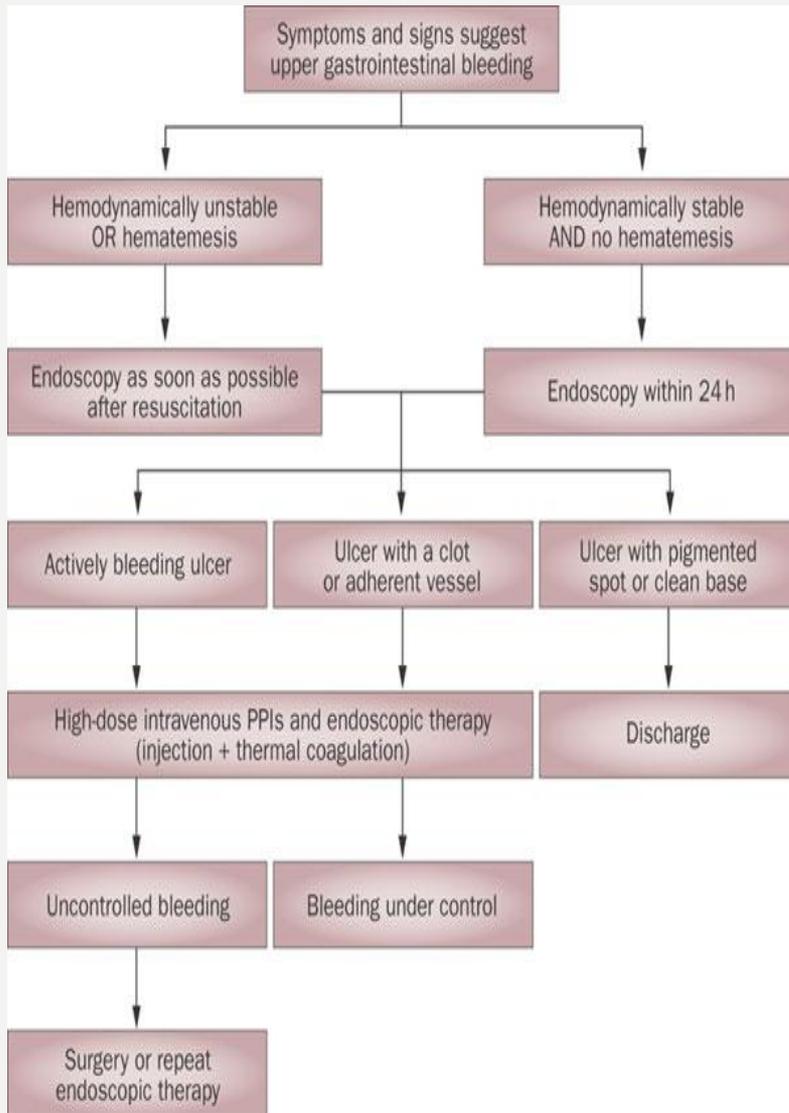
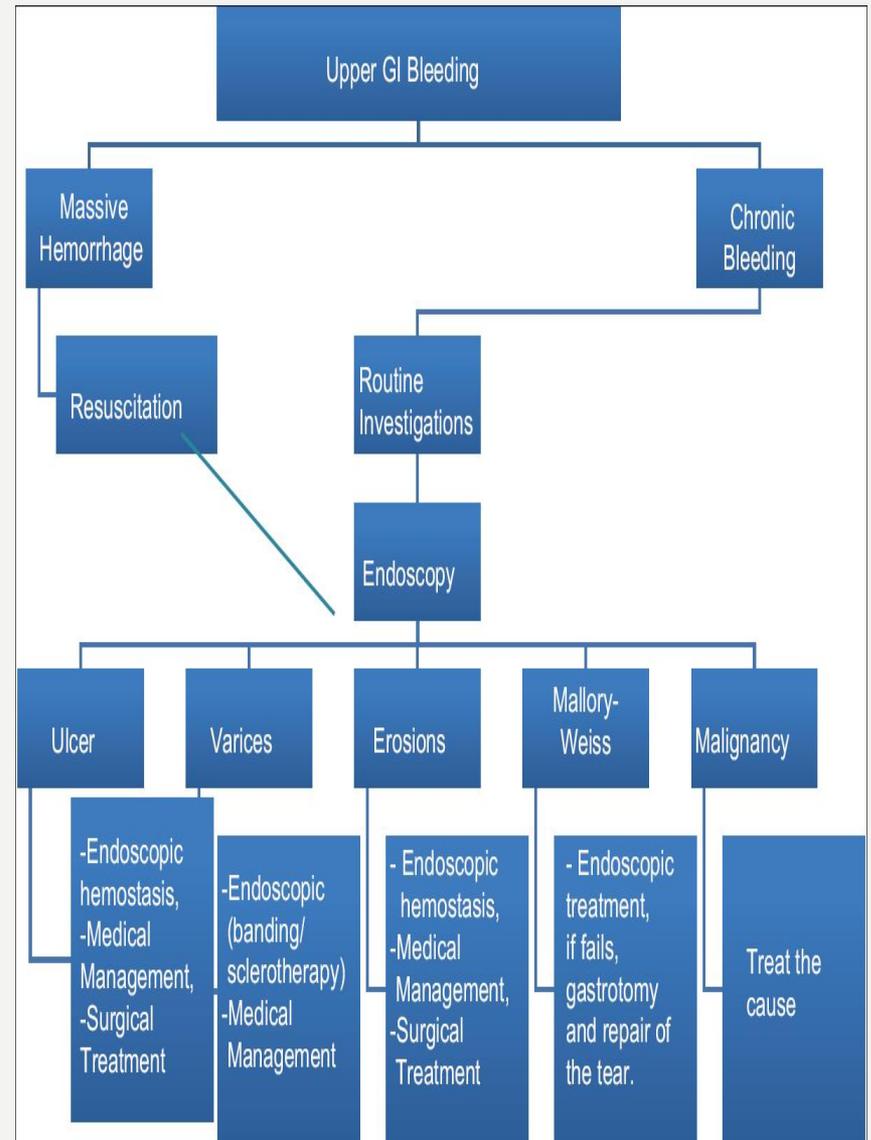
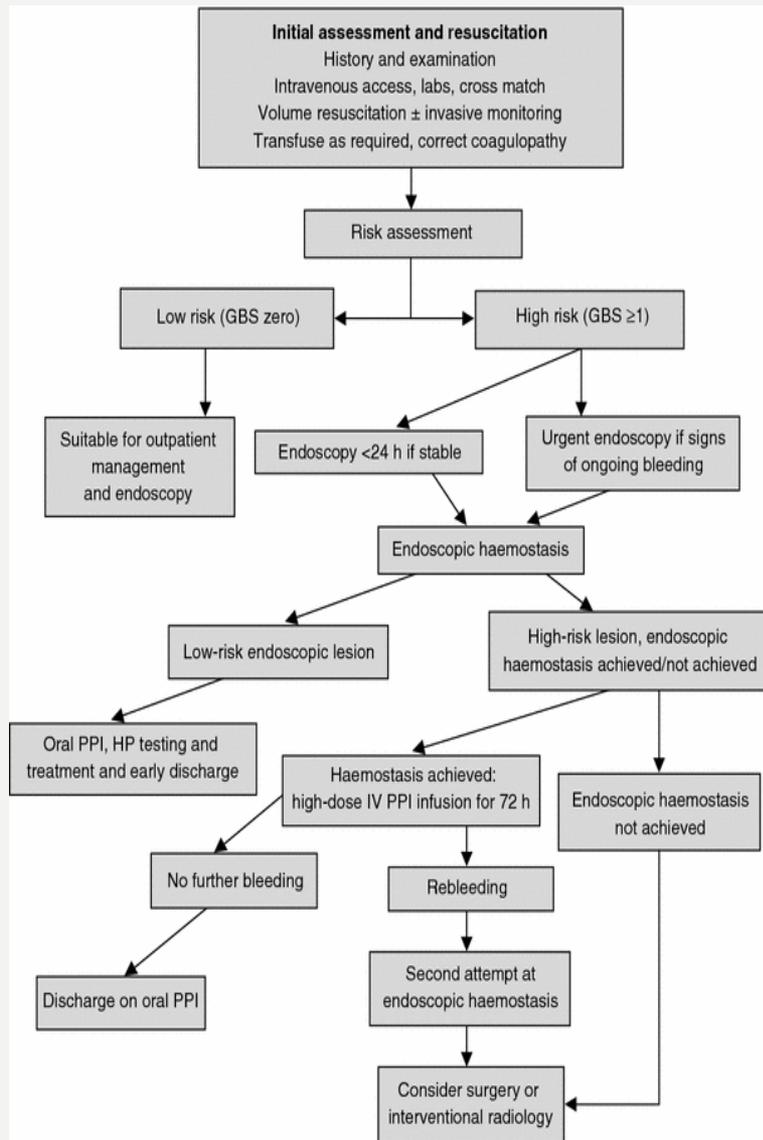


FIGURE 2. Algorithm for patients with acute upper gastrointestinal bleeding.



PREVENTION

- Stop smoking, avoid exposure to secondary smoke
- Avoid alcohol, caffeine
- Avoid Aspirin, heavy or regular use of medications.
- The approach for primary prevention of NSAIDs related mucosal injury has included avoiding the agent, using NSAIDs that are theoretically less injurious, and/or the use of concomitant medical therapy to prevent NSAID-induced injury. Prophylactic therapy may include: Misoprostol and PPI. Several nonselective NSAIDs that are associated with a lower likelihood of GI toxicity include diclofenac, aceclofenac, and ibuprofen.