Internal Medicine

UPPER GI BLEEDING

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Upper Gastrointestinal Bleeding

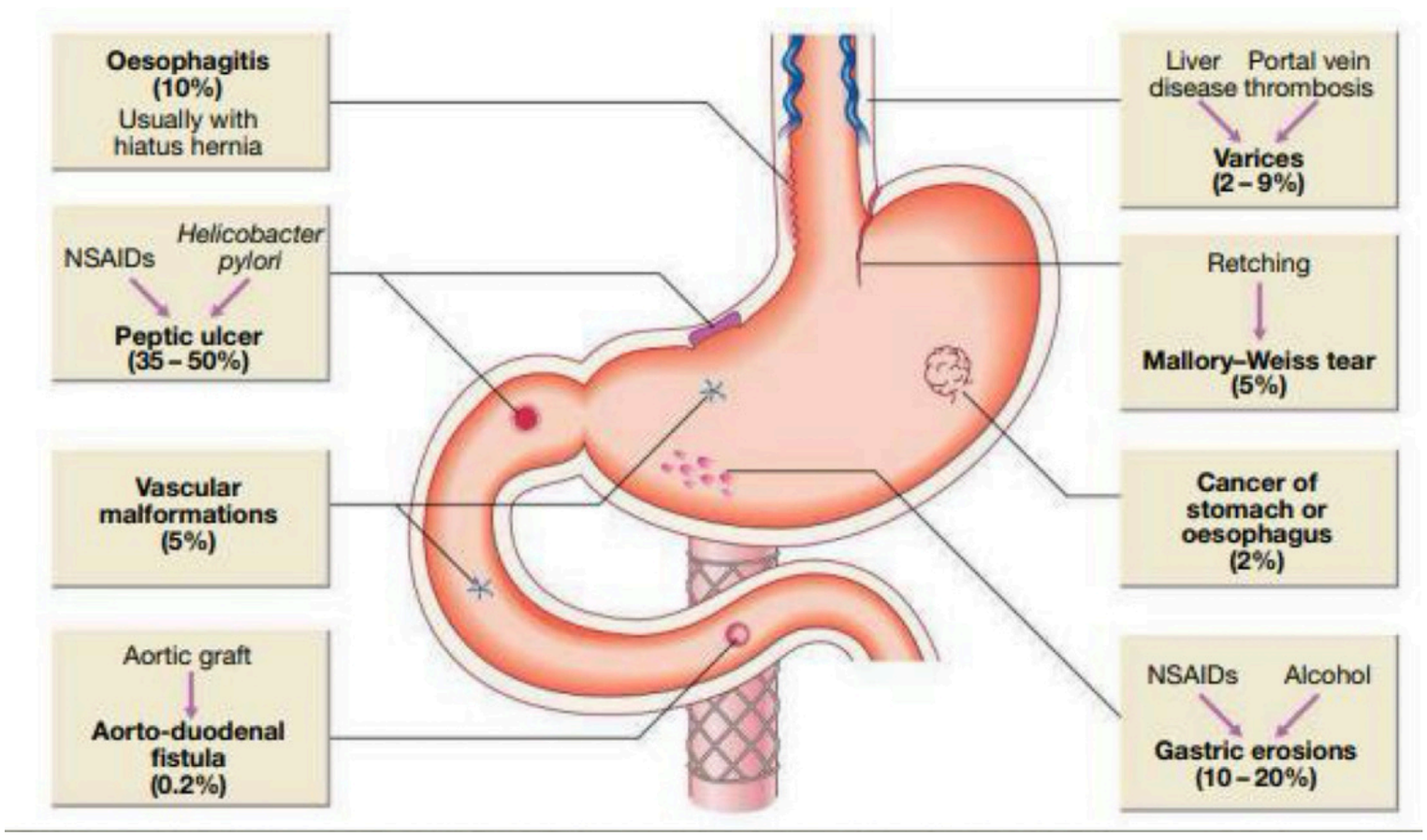
- The major features are hematemesis and melena, which are the appearance of altered blood due to its passage through the GI tract
- Fresh blood can be passed through the rectum, but is usually associated with a massive bleeding, which could be associated with shock
- This is the most common gastrointestinal emergency, with an estimated incidence of 134 per 100 000 of the population in the UK; the mortality of patients admitted to hospital is around 10%

GIB is divided into two types:
- Upper gastrointestinal bleeding (UGIB).
- Lower gastrointestinal bleeding (LGIB).

In medical practice, the focus is mainly on UGIB, as LGIB is more commonly managed surgically. Approximately 60% of LGIB cases are surgical in origin (e.g., tumors and perianal conditions). The remaining 40% are due to medical causes, such as angiodysplasia, colon polyps, and inflammatory bowel disease (IBD). IBD is primarily considered a medical condition, except in cases of complications that require surgical intervention.

Melena:
- Melena occurs due to bleeding from a high position in the gastrointestinal tract, commonly descending from the stomach. The dark, tarry appearance of the stool indicates altered blood, suggesting the source of bleeding is proximal.
- It may be accompanied by vomiting fresh blood in certain conditions, such as massive bleeding.
- Fresh blood in the rectum is usually indicative of LGIB, except in cases of massive upper GIB, when patient in state of hymodynamic instability

Etiology



1. Peptic Ulcer Disease (PUD):
• The most common cause of UGIB, typically associated with NSAID use and H. pylori infection.
2. Gastric Erosion:
• The second most common cause, related to NSAID use, alcohol consumption, and smoking.
3. Esophagitis and Esophageal Erosion:
• Caused by severe, untreated gastroesophageal reflux disease (GERD) or drug ingestion.
4. Varices:
• Resulting from chronic liver disease and portal hypertension.
5. Less Common Causes:
• Aortoenteric fistula (e.g., due to aortic aneurysm repair), malignancy, and others.

Aortoenteric Fistula:
This rare and dangerous condition involves a fistula between the aorta and the duodenum.
• Typically occurs after aortic aneurysm repair with graft placement, where graft inflammation leads to erosion of the duodenum, creating a connection.
• Once the fistula opens, massive bleeding occurs, leading to death within minutes if untreated. Prognosis is poor, with nearly a 100% mortality rate.

Drugs

- Aspirin and other NSAIDs can produce ulcers and erosions These agents are also responsible for GI hemorrhage from both duodenal and gastric ulcers, particularly in the elderly
- They are available over the counter and patients may not be aware they are taking aspirin or an NSAID
- Corticosteroids in small doses probably have no influence on GI hemorrhage, but high doses may aggravate peptic ulcer disease
- Anticoagulants do not cause acute GI hemorrhage, but bleeding from any cause is greater if the patient is on anticoagulation

1. Aspirin:
• As a widely used NSAID, particularly in cardiovascular patients, it significantly increases the risk of UGIB.
2. Steroids and Anticoagulants:
• While not ulcerogenic agents, these drugs can exacerbate existing ulcers and interfere with healing by impairing the coagulation system.

Clinical Approach

- All cases with a recent (within 48 hours) significant GI bleed should be seen in hospital
- In many patients, no immediate treatment is required as there has been only a small amount of blood loss
- Approximately 85% of patients stop bleeding spontaneously within 48 hours
- Bleeding associated with liver disease is often severe and recurrent if it is from varices
- Splenomegaly suggests portal hypertension but its absence does not rule out esophageal varices
- Many factors are associated with rebleeding and a higher mortality

UGIB is a medical emergency requiring immediate treatment:
1. ABCD Approach:
• Focus on vital signs: blood pressure, heart rate, temperature, and oxygen saturation.
• Signs of shock: hypotension (SBP < 90 mmHg or DBP < 60 mmHg) and tachycardia.
2. IV Access:
• Establish two large-bore IV lines for fluid resuscitation and collect blood samples (e.g., KFT, LFT, Hb levels, blood group and cross match).
3. History and Examination:
• Rapid assessment within two minutes.
• Check for:
• Previous GIB episodes.
• History of NSAID or anticoagulant use.
• Liver disease signs (e.g., splenomegaly, jaundice, ascites).

The following factors affect the risk of rebleeding and death

- Age (elderly patients are at higher risk).
- Evidence of co-morbidity, e.g. cardiac failure, ischemic heart disease, renal disease and malignant disease
- Presence of the classical clinical features of shock (pallor, cold peripheries, tachycardia and low blood pressure)
- Endoscopic diagnosis
- Ulcer with active bleeding or endoscopic stigmata of recent bleeding
- Clinical signs of chronic liver disease

Urgent Management

- Urgent Management
- The major principle is to rapidly restore the blood volume to normal.
- This can be best achieved by transfusion of red cell concentrates via one or more large-bore intravenous cannulas
- Plasma expanders or 0.9% saline is given until the blood becomes available Transfusion must be monitored to avoid overload leading to heart failure. The pulse rate and venous pressure are the best guides to adequacy of transfusion
- A central venous pressure line is inserted for patients with organ failure who require blood transfusion, and in patients with severe hypotension
- Hemoglobin levels are generally a poor indicator of the need to transfuse because anemia does not develop immediately as hemodilution has not taken place
- If the Hb is less than 10 g/dL and the patient has either bled recently or is actively bleeding, transfusion is usually necessary In most patients the bleeding stops temporarily so that further assessment can be made

1. Fluid Resuscitation:(for all patient)
• Use normal saline. Avoid colloids as per evidence. Maintain Hb ≥ 7 g/dL.
• For patients with fluid overload risk (e.g., heart failure, CKD, or chronic liver disease), monitor CVP and aim for Hb ≥ 10 g/dL.
2. Vital Sign Monitoring:
• Every 30 minutes.
3. Blood Transfusion: our target : A)in healthy patient >7
B) patient with co morbidity >10
• Required for patients in shock, regardless of Hb levels.

Urgent steps should include

- History and examination
- Monitoring the pulse and blood pressure (Q 30 minutes)
- Take blood for hemoglobin, urea, electrolytes, liver biochemistry,
- coagulation screen, blood grouping and crossmatch (2 units initially)
- Establish intravenous access – 2 large bore i.v. cannulas; central line if brisk bleed or multiple comorbidities
- Start IV f luids Blood transfusion
- Indications for blood transfusion are:
  1.Shock (pallor, cold peripheries, systolic BP below 100 mmHg, pulse > 100/min)
  2.Hemoglobin < 10 g/dL in patients with recent or active bleeding
- Oxygen therapy only when hypoxic
- Urgent endoscopy in shocked patients or patients with liver disease
- Continue to monitor vital signs
- Re-endoscope for continued bleeding or hypovolemia Surgery is the last resort if bleeding persists

Endoscopy

- Endoscopy will usually make a diagnosis and endoscopic therapy can be performed if needed
- Endoscopy should be performed within 24 hours in patients with significant bleeding
- After adequate resuscitation, urgent endoscopy should be performed in patients with shock, suspected varices or with continued bleeding
- Endoscopy can detect the cause of the hemorrhage in 80% or more of cases
- in patients with a peptic ulcer, if the stigmata of a recent bleed are seen (i.e. a spurting artery, active oozing, fresh or organized blood clot or black spots) the patient is more likely to rebleed
- At endoscopy, Varices should be treated, usually with banding
- Bleeding ulcers and those with stigmata of recent bleeding should be treated with two hemostatic methods, usually injection with epinephrine (adrenaline) and thermal coagulation or endoscopic clipping because dual therapy is clearly more effective than monotherapy in reducing rebleeding
- Antral biopsies should be taken to look for H. pylori
- Gastric histology should always be performed

Endoscopy:

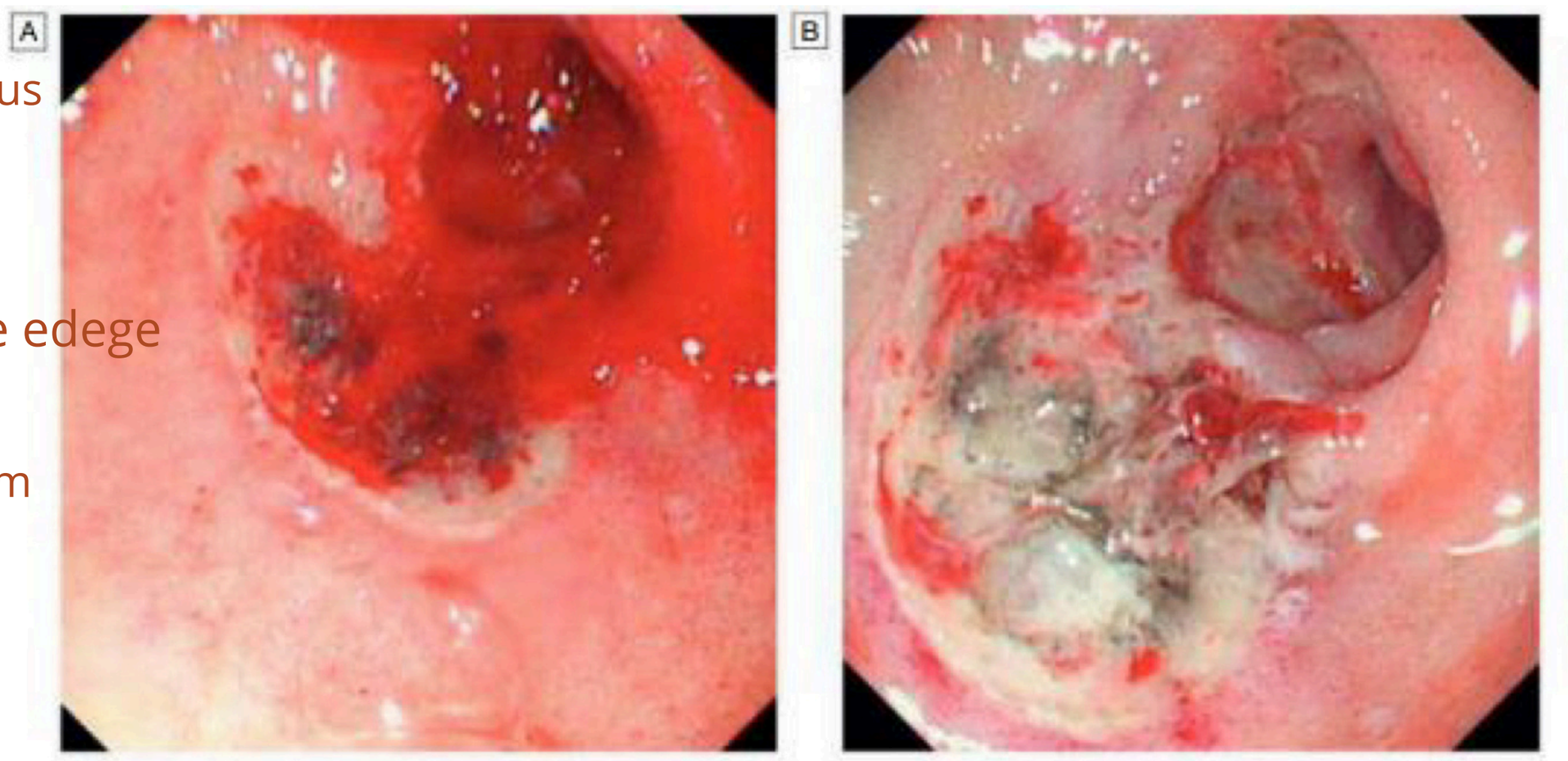
- Perform endoscopy as soon as possible (within 24 hours of stabilization).
- In emergency cases, endoscopy is done immediately.
- Advantages:
- Minimally invasive.
- Few complications.
- Good outcomes.

Pylorus

Ulcer

White edege

Antrum



Ulcer Management:

1. Treatment Options:

• Combine at least two methods:

• Adrenaline injection to stop active bleeding and visualize ulcer margins.

• Thermal coagulation.

• Mechanical clipping to approximate ulcer edges and improve healing.

2. Recurrence Risk:

• 40% if adrenaline injection is used alone.

• <10% if two methods are combined.

Drug therapy

- After diagnosis at endoscopy, intravenous PPI's should be given to all ulcer patients as it reduces rebleeding rates and the need for surgery
- PPI therapy has no effect on mortality in studies in the western world
- H2-receptor antagonists are of no value

Uncontrolled or repeat bleeding

- Endoscopy should be repeated to assess the bleeding site and to treat, if possible
- Surgery is necessary if bleeding is persistent or uncontrollable and should aim primarily to control the hemorrhage

Discharge

- The patient's age, diagnosis on endoscopy, co-morbidity and the presence or absence of shock and the availability of support in the community should be taken into consideration
- In general, all patients who are hemodynamically stable and have no stigmata of recent hemorrhage on endoscopy can be discharged from hospital within 24 hours
- All shocked patients and patients with co-morbidity need inpatient observation

Special Situations

1. Chronic peptic ulcer

- Eradication of H. pylori is started as soon as possible. A PPI is continued for 4 weeks to ensure ulcer healing . May be ppl continued long life
- Eradication of H. pylori should always be checked in a patient who has bled and long-term acid suppression given if HP eradication is not possible
- If bleeding is not controlled, surgery with ligation of the bleeding vessel is performed to control hemorrhage

2. Gastric carcinoma

- Most of these patients do not have large bleeds but surgery is occasionally necessary for uncontrolled or repeat bleeding
- Usually surgery can be delayed until the patient has been fully evaluated. Oozing from gastric cancer is very difficult to control endoscopically

Gastric Cancer:
1. Multiple Bleeding Episodes:
• Endoscopy is diagnostic, but management depends on stage.
2. Early Stage:
• Surgical intervention.
3. Advanced Stage:
• Palliative care.

3. Mallory–Weiss tear

- This is a linear mucosal tear occurring at the gastroesophageal junction and produced by a sudden increase in intra-abdominal pressure
- It often occurs after a bout of coughing or retching but there may be no antecedent history
- Most bleeds are minor and discharge is usual within 24 hours. The hemorrhage may be large but most patients stop spontaneously
- Early endoscopy confirms diagnosis and allows therapy if necessary

1. Causes (Arranged by Commonality):
• Most common cause : hyperemesis gravidarum in pregnancy.
• Alcoholism:
• Frequently associated with recurrent vomiting episodes, so Any condition leading to repeated vomiting cn cause it.
2. Management:
• Conservative treatment:
• Supportive care, such as IV fluids and monitoring.
• Address the underlying cause

4. Variceal hemorrhage

- Approximately 90% of patients with cirrhosis will develop gastroesophageal varices, over 10 years, but only one third of these will bleed from them
- Bleeding is likely to occur with large varices, red signs on varices (diagnosed at endoscopy) and in severe liver disease
- Management can be divided into the active bleeding episode, the prevention of rebleeding, and prophylactic measures to prevent hemorrhage
- Despite all the therapeutic techniques available, the prognosis depends on the severity of the underlying liver disease, with an overall mortality from variceal hemorrhage of 25%, reaching 50% in Child's grade C
- **Urgent endoscopy**. Endoscopy should be performed to confirm the diagnosis of varices. It also excludes bleeding from other sites or portal hypertensive (or congestive) gastropathy
- **Injection sclerotherap**y or variceal banding
- The varices should be injected with a sclerosing agent that may arrest bleeding by producing vessel thrombosis
- Alternatively, the varices can be banded by mounting a band on the tip of the endoscope, sucking the varix just into the end of the scope and dislodging the band over the varix
- Acute variceal sclerotherapy and banding are the treatment of choice; they arrest bleeding in 80% of cases and reduce early rebleeding
- Between 15% and 20% of bleeding comes from gastric varices and here results of sclerotherapy and banding are poor and injection of tissue glue is preferable

Variceal Hemorrhage:

1. Definition:

• Dilation of blood vessels in the lower esophagus due to portal hypertension. May also occur in the stomach (fundic varices).

2. Causes:

• 95% due to cirrhosis.

3. Treatment:

• Follow initial steps as for UGIB.

• Suspected varices require specific treatment:

1. Endoscopy: Identifies bleeding varices.
2. Band ligation: Stops active bleeding and promotes healing or sclerotherapy
3. Fundic varices: Managed with sclerotherapy (less effective, higher complication rates).

Vasoconstrictor therapy

- The main use of this is for emergency control of bleeding whilst waiting for endoscopy and in combination with endoscopic techniques
- The aim of vasoconstrictor agents is to restrict portal inf low by splanchnic arterial constriction
- Terlipressin. This is the only vasoconstrictor shown to reduce mortality. It should not be given to patients with ischemic heart disease
- patients may complain of abdominal colic, facial pallor owing to the generalized vasoconstriction
- Somatostatin. This drug has few side-effects and appears to reduce bleeding, but has no effect on mortality
- It should be used if there contraindications to terlipressin

Vasoconstrictor Therapy:

• Somatostatin and Terlipressin IV (for variceal bleeding). As first choice before endoscopy

• Proton pump inhibitors (PPI) have no role in variceal bleeding.

Long-term measures

- Non-selective beta-blockade. Oral propranolol in a dose sufficient to reduce resting pulse rate by 25% has been shown to decrease portal pressure
- Portal inf low is reduced by two mechanisms: by a decrease in cardiac output (β1), and by the blockade of β2 vasodilator receptors on the splanchnic arteries, leaving an unopposed vasoconstrictor effect
- This decreases the frequency of rebleeding, and is as effective as sclerotherapy and ligation as it also prevents bleeding from portal hypertensive gastropathy
- It is the treatment of first choice, but a substantial number of patients either have contraindications or are intolerant of treatment
- Significant reduction of hepatic venous pressure gradient is associated with very low rates or absence of rebleeding
- Endoscopic treatment. The use of repeated courses of banding at 2- weekly intervals leads to obliteration of the varices
- This markedly reduces rebleeding, most instances occurring before the varices have been fully obliterated
- Between 30% and 40% of varices return per year, so follow up endoscopy with ablation should be performed Banding is superior to sclerotherapy
- Although a reduction in bleeding episodes occurs, the effect on survival is controversial and probably small
- Complications include esophageal ulceration, mediastinitis andrarely strictures
- Combined medical and endoscopic therapy is often used in practice

- Transjugular intrahepatic portosystemic stent shunts . Reduce the pressure in portal circulation by shunt the blood to systemic circulation These reduce rebleeding rates compared to endoscopic techniques, but do not improve survival and increase encephalopathy
- They are used if endoscopic or medical therapy fails

Long-Term Management of Varices:

1. Improve Cirrhosis Management:
   - Treat the underlying cause.
2. Medical Therapy:
   1. Laxatives,
   2. diuretics,
   3. non-selective beta-blockers to reduce rebleeding risk.
3. Endoscopic : Regular band ligation.
4. Transjugular Intrahepatic Portosystemic Shunt (TIPS): Reserved for persistent bleeding.

Prognosis

- The mortality from gastrointestinal hemorrhage has not changed from 5–12% over the years, despite many changes in management
- This is mainly because of a demographic shift to more elderly patients with co-morbidity
- The lowest mortality rates are achieved in dedicated medical/surgical GI units
- Early therapeutic endoscopy has not so far reduced the mortality, although rebleeding episodes are reduced

Prognosis:

- Depends primarily on liver function.
- Mortality is more commonly due to cirrhosis complications than bleeding itself.

Major gastrointestinal bleeding of unknown cause

- In some patients who present with major gastrointestinal bleeding, upper endoscopy, colonoscopy and CT angiography may fail to reveal a diagnosis
- Wireless capsule endoscopy is increasingly used in such patients. The diagnostic yield is highest when performed as close as possible to the bleeding episode, particularly within the first 48 hours of presenting with bleeding.
- Push or double balloon enteroscopy

Chronic occult gastrointestinal bleeding

- Occult means that blood or its breakdown products are present in the stool but cannot be seen by the naked eye. Occult bleeding may reach 200 mL per day and cause iron deficiency anemia.
- Any cause of gastrointestinal bleeding may be responsible, but the most important is colorectal cancer, particularly carcinoma of the caecum, which may produce no gastrointestinal symptoms

MSQ

- The commonest cause of upper GI bleeding among the causes listed below is:
  Select one:

a. Vascular ectasia
b. Mallory-Weiss tear
c. Gastric adenocarcinoma
d. Zollinger-Ellison syndrome
e. Esophageal varices

Answer: e. Esophageal varices•

- A 45 Y/O man with Hx of alcohol excess is diagnosed as having grade 3 esophageal varices, during an outpatient endoscopy. Of the following options, what is the most appropriate management to prevent variceal bleeding?

a) prpeanolol
b) Isosorbide mononitrate
c) Endoscopic sclerotherapy
d) Terlipressin
e) Lansoprazole

Answer : a) Propranolo

• All of the following are initial management strategies in patients with upper GI bleeding, except:
a. Somatostatin
b. Esophagogastroduodenoscopy (EGD)
c. Acid-suppressing medication
d. Gastric lavage
e. Bleeding scan

Answer: e. Bleeding scan

.•Upper GI bleeding secondary to Dieulafoy's lesion is characterized by all of the following except:
a. Presents as massive and recurrent bleeding.
b. Extramural artery present in the submucosa.
c. Most commonly found in the gastric fundus.
d. Easily diagnosed and treated by endoscopy.
e. High mortality.

Answer: d. Easily diagnosed and treated by endoscopy.

2. Which of the following is NOT used for long-term control of variceal bleeding?

a. Non-selective beta antagonists

b. TIPS

c. Banding

d. Sclerotherapy

Answer: d. Sclerotherapy

3. Which is the correct initial management for a patient with non-variceal upper GI bleeding?

a. Beta-adrenergic antagonists

b. Terlipressin

c. PPI

d. Somatostatin

Answer: c. PPI

4. A patient with GI bleeding is alert, conscious, pale, and appears unwell. What is the first step in management?

a. Normal saline

b. Packed RBCs

c. Urgent endoscopy

d. Blood transfusion with blood group O

Answer: a. Normal saline

5. In a case of massive upper GI bleeding with unstable vitals, which of the following is NOT indicated at this point?

a. Transfusion of O negative blood

b. Urgent endoscopy

c. Intravenous fluid resuscitation

d. Somatostatin infusion

Answer: b. Urgent endoscopy

6. A 34-year-old female with alcoholic liver disease presents with frank hematemesis. After resuscitation, what is the most appropriate treatment while awaiting endoscopy?

a. Octreotide

b. Omeprazole

c. Propranolol

d. Tranexamic acid

e. Terlipressin

Answer: e. Terlipressin

7. Which of the following is FALSE about the risk of rebleeding in UGIB?

a. Advanced age

b. HR 130 and BP 80/50

c. Absence of liver disease signs

d. Comorbidities

e. Endoscopic diagnosis reveals bleeding

Answer: c. Absence of liver disease signs

8. All of the following are correct about GI bleeding except:

a. Patients with cirrhosis have a high risk of developing variceal bleeding.

b. Bleeding in cirrhosis is primarily due to portal hypertension.

c. All patients with cirrhosis will develop variceal bleeding.

d. Variceal bleeding is a common complication of advanced liver disease.

Answer: c. All patients with cirrhosis will develop variceal bleeding.

9. Which case of UGIB is associated with the worst outcome?

a. A 45-year-old male with a peptic ulcer.

b. A 55-year-old female with gastritis.

c. A 75-year-old male with liver cirrhosis and variceal bleeding.

d. A 30-year-old male with Mallory-Weiss tear.

Answer: c. A 75-year-old male with liver cirrhosis and variceal bleeding.

10. Which of the following is INCORRECT about upper GI bleeding management?

a. Ligation and sclerotherapy are more effective than medical therapy.

b. Most bleeding stops temporarily without intervention.

c. Somatostatins and terlipressin reduce portal pressure.

d. Balloon tamponade is used routinely before endoscopy.

Answer: d. Balloon tamponade is used routinely before endoscopy.

11. A 32-year-old alcoholic presents with shock due to bleeding esophageal varices. After resuscitation, what is the treatment of choice?

a. Intravenous octreotide.

b. Intravenous glypressin.

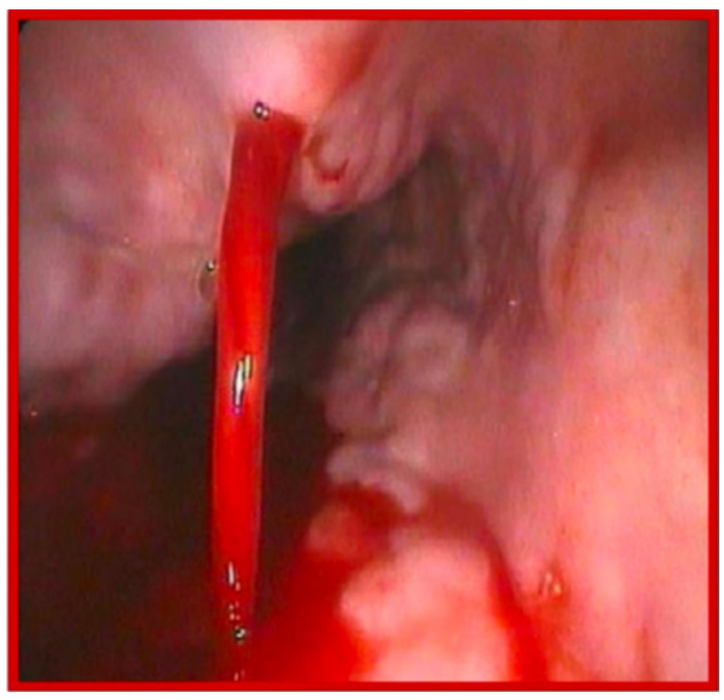
c. Esophageal variceal ligation.

d. Transjugular intrahepatic portosystemic shunt (TIPS).

e. Esophageal variceal sclerotherapy.

Answer: b. Intravenous glypressin.

1. hepatic patient suffer from massive hematemesis, the picture below by endoscopy, what's the most relevant cause ?
   - gastric ulcer
   - Mallory weiss tear
   - Esophageal varices
   - gastritis



Answer : esophageal varices

2- A 3 4 year old male i s admitted through t h e emergency department because Of melena. Upon upper Gl endoscopy, this finding is seen in the first part of the duodenum. What is the best treatment to be applied at this moment ?

a . IV PPI,s infusion

b. Blood transfusion

c. Endoscopic injection with epinephrine metallic clip application

d. Endoscopic band ligation

e. Endoscopic sclerotherapy with tetracycline

Answer: c. Endoscopic injection with epinephrine metallic clip application

3. Q1: Regarding this Upper GI endoscopy, active antral bleeding , all of the following initial to do, EXCEPT ? Then please mention the
Most common cause for this lesion

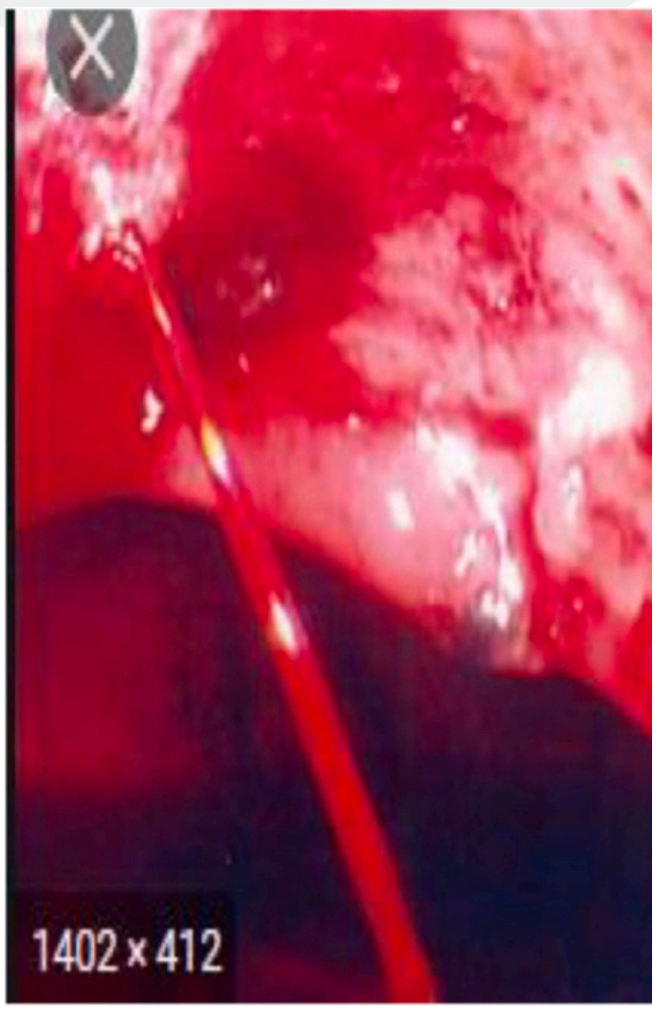
A. IV PPI

B. Thermal therapy

C. Mechanical Clips

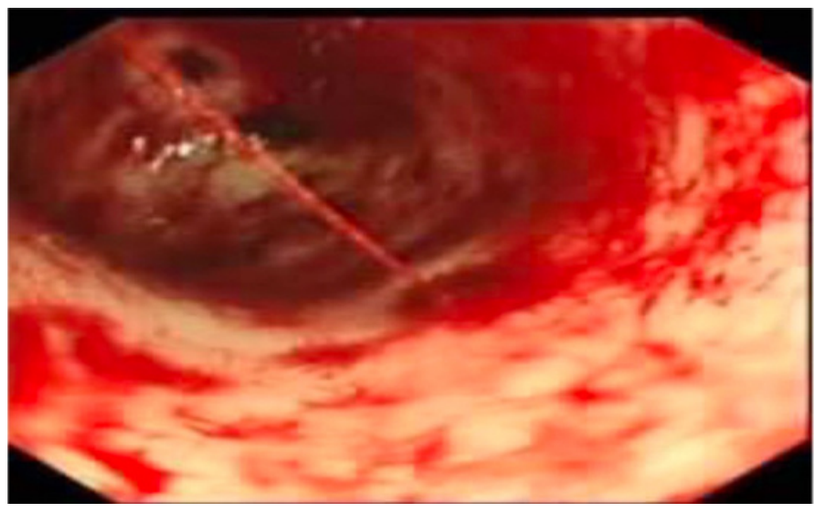
D. Adrenaline Injection

E. Surgery



Answer: E. Surgery + * H Pylori infection is the most common

4. you did an endoscopy to a patient complaining of abdominal pain ,hematemesis and melena. the image above is what you saw during the endoscopy .



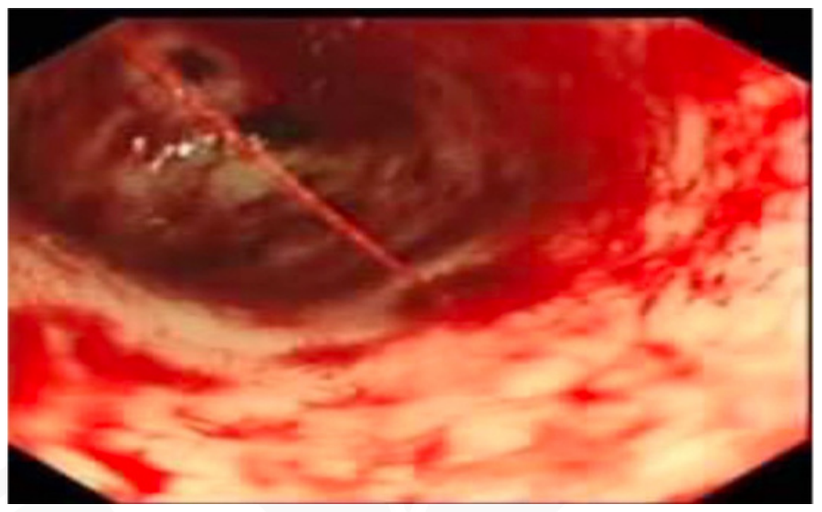
1) Describe what you saw ?

a)Oozing blood from vein

b)Spruting blood from an artery

Answer: b) Spruting blood from an artery

2) What is not important in the management of this patient ?



a) IV corticosteroids

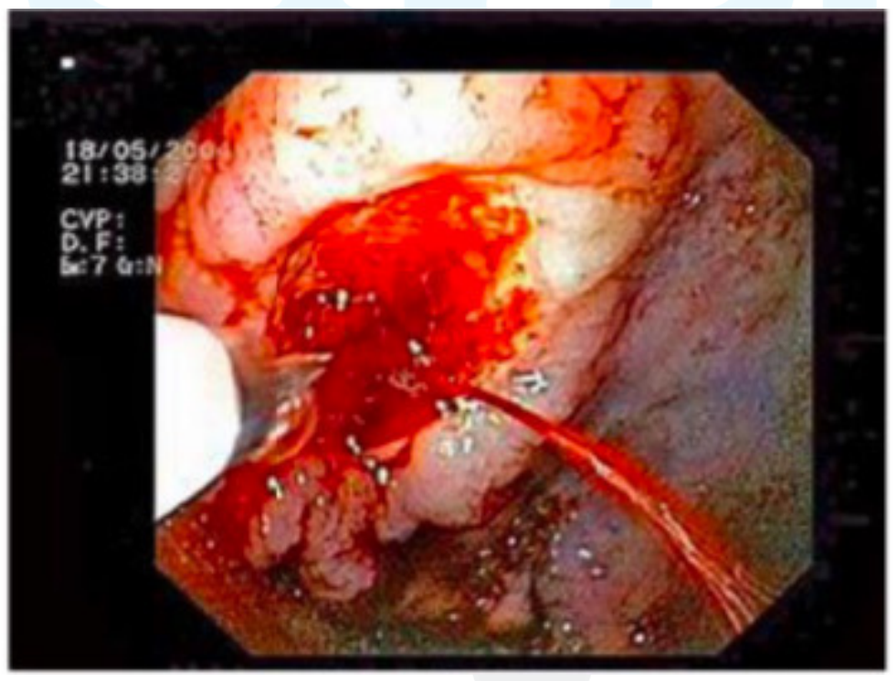
b) endoscopic clipping

c) IV adrenalin

d) thermal coagulatio

Answer : a) IV corticosteroids

5. 1) A case of bleeding peptic ulcer with hemoglobin of 10 g/dL. Which of the following is NOT indicated in the initial management?



1. IV proton pump inhibitors (PPI).
2. Thermal coagulation.
3. Blood transfusion.
4. Metallic clips.
5. Epinephrine injection.

Answer 3. Blood transfusion

2) What advice should be given to a patient with bleeding peptic ulcer upon discharge from the hospital?

1. Eradicate H. pylori if detected.
2. Long-term use of NSAIDs with PPI co-therapy.
3. Take PPI for 8 weeks.
4. Repeat endoscopy after 6-8 weeks for high-risk ulcers.

Answer: 1. Eradicate H. pylori if detected.

"لن يَضيع ثَواب زفرة ألم، أو لحظة سَهر، أو تَنهيدة كرب، ستُفاجِئك يوم الحساب وتُسعَدُ بِها على رؤوس الأشهاد." ✨

-د. خالد أبو شادي.