

# Gastrointestinal Bleeding

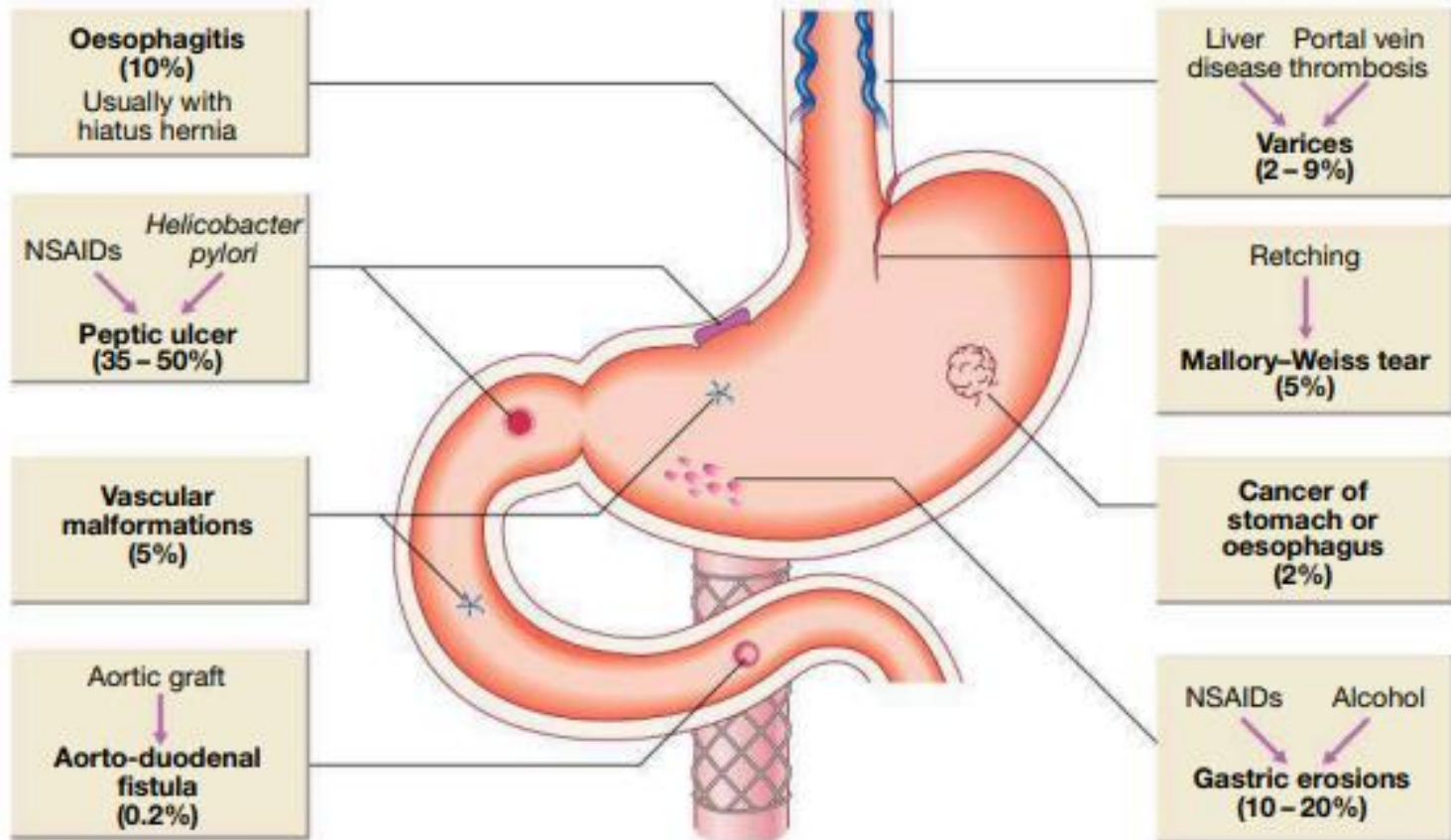
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# Upper Gastrointestinal Bleeding

- 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%

# Etiology



# 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

# 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

## The following factors affect the risk of rebleeding and death

- Age
- 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

- 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

# Urgent steps should include

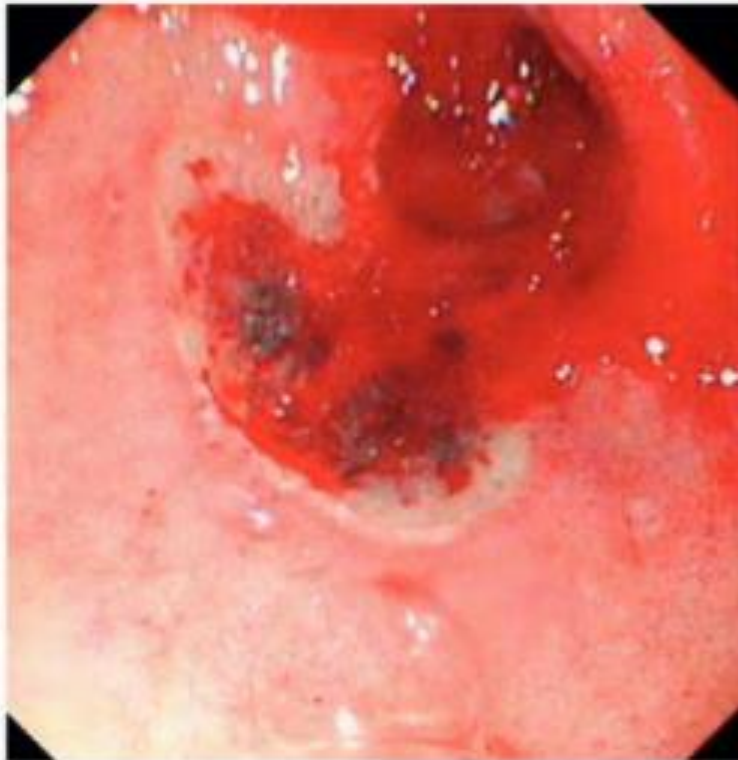
- History and examination
- Monitoring the pulse and blood pressure (Q 30 minutes)
- Take blood for hemoglobin, urea, electrolytes, liver biochemistry, coagulation screen, blood grouping and crossmatch (2 units initially)
- Establish intravenous access – 2 large bore i.v. cannulas; central line if brisk bleed or multiple comorbidities
- Start IV fluids
- 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

A



B



# 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
- H<sub>2</sub>-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

- **Chronic peptic ulcer.** Eradication of *H. pylori* is started as soon as possible. A PPI is continued for 4 weeks to ensure ulcer healing
- 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
- **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

- **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

# 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 sclerotherapy 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

## 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 inflow 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 are contraindications to terlipressin



## 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 inflow is reduced by two mechanisms: by a decrease in cardiac output ( $\beta_1$ ), and by the blockade of  $\beta_2$  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 and rarely strictures
- Combined medical and endoscopic therapy is often used in practice
- **Transjugular intrahepatic portosystemic stent shunts.** 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

# 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

# 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

Thank You