Guideline

Variceal haemorrhage

1 Scope

Patients with bleeding oesophageal and/or gastric varices.

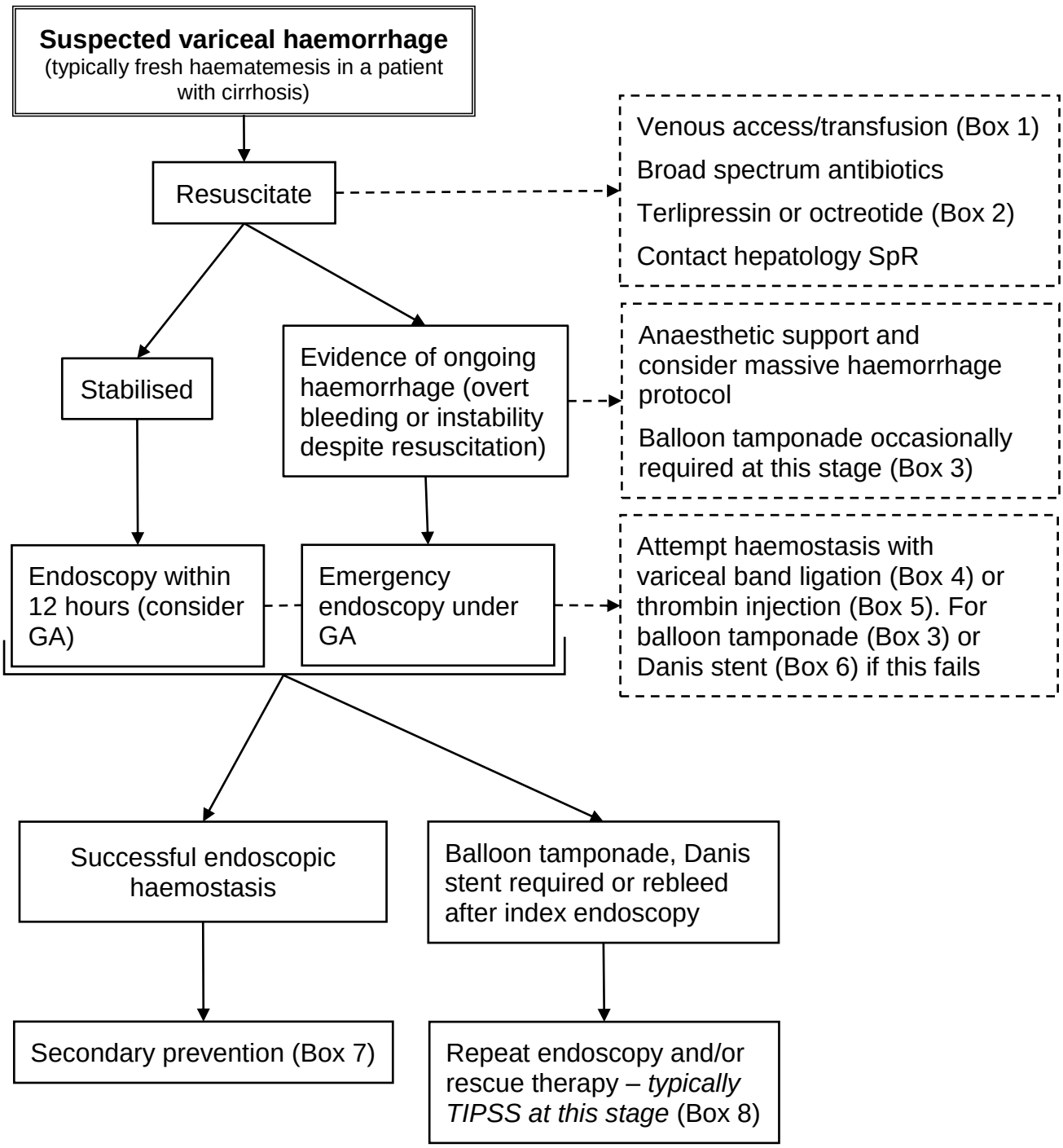
2 Purpose

To help the clinician treating a patient with bleeding oesophageal and/or gastric varices.

3 Abbreviations used

BP	blood pressure
CP	Child Pugh
CVP	central venous pressure
FFP	fresh frozen plasma
GOJ	gastro-oesophageal junction
HCC	hepatocellular carcinoma
IHD	ischaemic heart disease
IV	intravenous
IVI	intravenous infusion
NSBB	non selective beta blocker
PHG	portal hypertensive gastropathy
PPI	proton pump inhibitor
PV	portal vein
RBC	red blood cells
RRT	rapid response team
SBT	Sengstaken Blakemore tube
TIPSS	transjugular intrahepatic portosystemic shunt
US	ultrasound

4 Variceal haemorrhage algorithm



Box 1: Initial resuscitative measures after acute variceal haemorrhage
Maintain patency of airway

- Intravenous access / G&S
- Initial colloid or crystalloid to improve BP then transfuse with packed RBC to Hb 8 g/dl
- Warm blood if large volume infusion
- Platelet infusion if <50 x 10^9/L
- FFP 15mg/kg if prothrombin time >18 seconds
- Cryoprecipitate if fibrinogen < 0.25 g/l
- Pharmacological therapy – see box 2
- Prophylactic antibiotics for 5 days after blood cultures +/- ascitic tap (order decompensated cirrhosis bundle order set in Epic)

Box 2: Pharmacological therapy for acute variceal haemorrhage

Use decompensated cirrhosis bundle or upper GI haemorrhage order set in EPIC:

- Terlipressin (Glypressin or Variquel) first line: 2 mg 6 hrly as IV bolus
- Octreotide: 50 µg bolus and 50 µg /hr (500 µg in 50 ml Sodium Chloride 0.9%at 5ml/hr) - use if contraindication to terlipressin (recent angina or significant coronary artery disease, pregnancy)
- Continue treatment for at least 72 hours
- If using terlipressin, examine daily and stop if signs of peripheral ischaemia

Box 3: Use of balloon tamponade during acute variceal haemorrhage

1. Only use balloon tamponade if experienced in their insertion
2. Balloon tamponade should be undertaken under intubation and anaesthetic support
3. Keep tamponade balloons in fridge to keep stiff (newer tubes have an inner stylet to maintain stiffness)
4. Prepare clamps and water/contrast solution for gastric balloon.
5. Follow manufacturer instructions aiming to fill gastric balloon initially
6. Pull back firmly and ensure ongoing pressure on GOJ (ideally tape, with gauze to protect mouth, avoiding excessive traction)
7. Stomach and oesophageal ports should be on free drainage
8. Keep in place for minimum time before undertaking definitive therapy (removal within 24 hours is recommended to reduce risk of oesophageal ischaemia/ulceration)

Box 4: Variceal band ligation

1. Whenever possible, undertake complete endoscopy first, noting PHG, gastric varices and their site and position of GOJ
2. Apply band at GOJ and then spiral up for 5 cms. Ensure mucosal 'red-out' before deploying band
3. Hold suction on after band deployed for 10 secs. Average number of bands 5-8 in first session then 3-5; usually takes three to four sessions to obliterate
4. Start intravenous PPI
5. NBM, clear fluids or soft diet depending on the likelihood of rebleeding
6. Schedule next OGD in 7 to 14 days (depending on initial band adequacy)
7. For deranged clotting follow CUH interventional radiology protocol for ‘low risk’ procedures ie FFP 15ml/kg if INR>2 / PT>6 secs prolonged and/or platelets <40 x 10^9/L

Box 5: Thrombin injection for gastric varices

Endoscopic technique is the same as for cyanoacrylate glue. FloSeal is available on the emergency endoscopy bleed trolley or in theatre (using the endoscopy cost code 3508).

1. Reconstitute the thrombin vial of FloSeal with 5 mls sodium chloride 0.9% provided
2. Transfer the thrombin solution (2500 units thrombin in 5 mls) into a luer-lock syringe
3. Discard the activator gel (syringe with 'FloSeal' on barrel)
4. Load injector needle with thrombin solution and have a 2 ml (injection needle volume) sodium chloride 0.9% "chaser" syringe prepared
5. Aim to inject 1-2 mls thrombin per varix using a combination of the thrombin syringe and sodium chloride 0.9% "chaser"

Box 6: Danis stent

- Danis stent can be considered as an alternative to balloon tamponade for oesophageal variceal haemorrhage failing endoscopic therapy
- Clinical settings where Danis stent may be preferred include when tamponade is required for more than 24 hours (e.g. when TIPSS is contraindicated or impossible) and when mechanical ventilation is to be avoided
- The technique for insertion and removal is found here: https://www.ukmedical.com/products/danis-stent/
- A chest x-ray should be taken on day one to ensure that the stent has not become displaced. The stent is usually removed by one week after insertion, but in some circumstances a longer placement period can be reasonably considered (for example in a palliative setting)

Box 7: Secondary prophylaxis of variceal haemorrhage

1. Start carvedilol 3.125 mg bd and work up to 6.25 mg bd target dose
2. For oesophageal varices, institute a band ligation programme – this should be undertaken 2-4 weekly, with proton pump inhibitor cover, until variceal obliteration and then at 3, 6 and 12 month intervals according to response. For patients established on carvedilol with well banded varices, it is reasonable to cease the programme at one year
3. Elective TIPSS should be considered if these measures fail, or, if TIPSS contraindicated and appropriate, liver transplant assessment

Box 8: Transjugular portosystemic shunt (TIPSS) and other rescue therapies

1. For variceal haemorrhage failing endoscopic therapy, TIPSS improves survival, except when CP score C14 or 15
2. Can consider TIPSS pre-emptively (pTIPSS) for patients post endoscopy with CP B cirrhosis, actively bleeding at endoscopy, and CP10-13 cirrhosis (some evidence to support improved outcomes)
3. Portal vein imaging is required pre-TIPSS (Doppler ultrasound scan +/- triple phase CT liver)
4. There is a likely additional benefit of variceal embolisation at same time as TIPSS
5. TIPSS is often effective in the context of *acute* portal vein thrombosis
6. Rarely surgical shunt, oesophageal transection or splenectomy/splenic artery embolisation (gastric varices from splenic vein thrombosis) may be considered

5 Management steps

1. Initial resuscitation is critically important, as patients with chronic liver disease tolerate hypotension poorly due to low systemic vascular resistance (Box 1). Consult the "Management of adult patients with major haemorrhage" document in Merlin if emergency transfusion is required.
2. If there is massive life-threatening haemorrhage then call RRT/anaesthetists, as airway protection and intubation may be required to allow for safe endoscopy. Consider balloon tamponade (Box 3) if there is good evidence for gastro-oesophageal variceal haemorrhage and immediate endoscopy is not available.
3. As soon as possible start pharmacological therapy, endoscopic treatment and associated measures as per algorithm (page 2). Use the Epic order sets "Decompensated cirrhosis care bundle" and/or "Adult acute GI bleed".
    - Terlipressin given early reduces bleeding and improves survival so is preferred but may be contraindicated (Box 2). If contraindicated, use octreotide.
    - Band ligation is the preferred option for management of bleeding oesophageal varices (Box 4). Thrombin has replaced cyanoacrylate glue injection for isolated gastric varices, due to recent concerns with intermittent batch failure of the latter (Box 5).
    - All patients require US liver with Doppler studies to assess for HCC and PV patency.
    - If ascites is present, for diagnostic tap and consider total paracentesis if tense to reduce portal pressure.
    - Take blood cultures and give broad spectrum antibiotics (improves survival).
4. If endoscopic haemostasis achieved, start secondary prophylaxis (Box 7).
5. If there is uncontrolled haemorrhage at endoscopy then consider balloon tamponade or Danis stent insertion, with a plan for either follow up endoscopy or rescue therapy (usually TIPSS insertion) as the next step.
6. If there is a rebleed after endoscopy then consider repeat endoscopy, if felt that initial treatment may be inadequate, or rescue therapy – with bridging tamponade as required (Box 3/6).
7. For reference, primary prophylaxis of variceal bleeding is included in this document (box 9).

6 Primary prophylaxis of variceal haemorrhage in the outpatient setting

1. Patients with chronic liver disease and any of the following criteria should be offered index OGD:
    a) imaging evidence of portal hypertension,
    b) transient elastography score >20 kPa,
    c) platelet count <150 x 10^9/L

2. If varices are present patients should be considered for primary prophylaxis (for oesophageal varices either grade 1 with red signs or grade 2/3)
3. First line prophylaxis is carvedilol titrating from 6.25 mg to 12.5 mg total dose – if contraindicated or there is additional clinical concern then a band ligation programme should be commenced (oesophageal varices only)
4. If no varices are seen then repeat endoscopy in 2-3 years, if grade 1 without red signs then annually
5. If patients are commenced on carvedilol at therapeutic dose no further endoscopy is required
6. Consider recruitment to national clinical trials such as BOPPP and CALIBRE if/when running

7 Monitoring compliance with and the effectiveness of this guideline

Breaches of this guideline will be identified by the incident reporting system.

8 Associated documents

- Management of adult patients with major haemorrhage
- Prophylaxis of varices during the COVID-19 outbreak

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