

Oesophageal emergencies

Richard H Hardwick

Abstract

Oesophageal emergencies are relatively rare but their management leaves little room for error. This article explains the aetiology, diagnosis and management of oesophageal bleeding, obstruction, perforation and caustic injury. The essential role of early flexible endoscopy and specialist multi-disciplinary care is emphasized.

Keywords Boerhaave's syndrome; dysphagia; oesophageal emergencies; varices

Oesophageal emergencies are relatively rare compared with those involving other parts of the gastrointestinal tract. However, they are often life-threatening, especially if misdiagnosed or poorly managed. They fall into four broad groups: bleeding, obstruction, perforation and caustic injury. A detailed history should be obtained from the patient or a witness whenever possible as this will often suggest the likely cause of the emergency. For example, repeated vomiting and retching followed by a small haematemesis in a well patient is likely to result from a Mallory–Weiss tear. In contrast, the shocked patient who has collapsed after a vomit may have an oesophageal rupture (Boerhaave's syndrome). Flexible endoscopy has revolutionized our ability to diagnose and treat many oesophageal conditions and plays a central role in the management of these patients.¹

Bleeding (Table 1)

History and examination

A thorough history is important. This should include whether the patient is known to have liver disease or portal hypertension, whether this has happened before, and if so where and how it was managed, and whether the patient is anticoagulated.

Some basic observations are needed, including:

- oxygen saturation
- blood pressure
- pulse
- conscious level.

Young patients will maintain their blood pressure until significant intravascular volume loss has occurred and then suddenly decompensate. Elderly patients are less tolerant of hypovolaemia, their blood pressure will drop more quickly and their risk of death from bleeding is higher than in younger patients. The pulse rate is usually a good indicator of volume loss except in those who are taking β -blockers. Hourly urine output measurements are a useful secondary indicator of the state of hydration but trends of pulse rate over time are the most

What's new?

- Vasoactive therapy is the initial treatment of choice for bleeding varices
- Novel endoscopic devices for closing gastrointestinal perforations are effective
- Endoluminal vacuum therapy is an exciting new non-surgical option for the treatment of patients with oesophageal perforation and mediastinal abscess formation

practically useful measurement. Measurements of central venous pressure (CVP) can also be useful but trends, again, are more helpful than absolute numbers (the site of the CVP line must also be taken into account).

General management

As with all acutely ill patients, the 'ABC' takes priority over everything else. The administration of 100% oxygen via a re-breathing mask, protection of the airway and insertion of two large-bore intravenous cannulas, one in each arm, are essential. A sample of blood should be sent for urgent assessment of haemoglobin, clotting, kidney and liver function, and for cross-matching. Clearly, the patient who answers questions about what has happened rarely has an airway problem. A calm and reassuring bedside manner will help give the patient confidence during a frightening experience. Hartmann's solution or sodium chloride 0.9% should then be given intravenously as a bolus (10–20 ml/kg). Rockall scoring is useful for predicting the urgency of endoscopy and the likelihood of re-bleeding.² Some patients need endoscopy immediately, preferably in an operating theatre with anaesthetist, endoscopist and surgeon all in attendance. For others, an endoscopy will be needed early the next morning in the endoscopy department. Endoscopying a patient out of hours on the ward with inexperienced assistants is rarely successful and should be avoided.

Varices: as soon as bleeding varices are diagnosed or suspected, vasoactive therapy should be started (Table 2). A Cochrane meta-analysis in 2002 (updated in 2010) included 1146 patients and showed that 83% of variceal bleeding will be controlled by vasoactive drugs alone.³ However, there is some evidence that the combination of medical and endoscopic therapy, such as banding or sclerotherapy, may be even more successful,⁴ although there is only a marginal positive impact of dual therapy on mortality.⁵ The use of balloons to compress the varices should be reserved for patients who continue to bleed despite vasoactive drugs and endoscopic therapy, as they often cause complications. Where available, insertion of a transjugular intrahepatic portosystemic shunt (TIPS) at a specialist centre may be necessary for patients who continue to bleed.⁶

Ulcer/oesophagitis/Mallory–Weiss tear: endoscopy may reveal bleeding from severe oesophagitis with or without ulceration, or from a mucosal tear at the gastro-oesophageal junction (Mallory–Weiss). When technically possible, attempts to stop the bleeding should be made using either adrenaline

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Causes of oesophageal bleeding

- Varices
- Ulcer/oesophagitis
- Mallory–Weiss tear
- Tumour

Table 1

(epinephrine) injections, a heater probe or a clip. Endoscopically placed clips can be an effective ‘one-stop’ strategy for upper gastrointestinal bleeding.⁷ An intravenous proton pump inhibitor (PPI) should be given for 72 hours⁸ and the patient closely monitored for signs of on-going bleeding or re-bleeding. Oral free fluids are usually safe. After stabilization, a high-dose oral PPI should be given. For patients with an oesophageal ulcer, a repeat endoscopy should be arranged in 2–4 weeks for evaluation of healing and for biopsies to be taken to exclude malignancy.

Obstruction

A food bolus obstruction is the commonest cause of sudden oesophageal occlusion and a history of the events leading up to presentation will usually raise this as the likely diagnosis. North Americans refer to the ‘steakhouse syndrome’ when a patient develops sudden-onset complete dysphagia while eating red meat. There may be a preceding history of reflux symptoms or oesophago-gastric surgery, either of which may have resulted in the development of a benign stricture. A less common cause of oesophageal obstruction is ingestion and subsequent impaction of foreign bodies, ranging from false teeth to drawing-pins.

Investigation of sudden-onset complete dysphagia

If a foreign body impaction is suspected, the patient should have a chest X-ray. Food bolus obstruction may resolve spontaneously but, regardless of the likely aetiology, an urgent flexible endoscopy should be arranged for all patients. In the meantime (provided there are no cardiac contraindications), administer hyoscine butylbromide (Buscopan[®]) 20–40 mg intravenously; this may relax the oesophagus sufficiently to allow the bolus to pass. This can usually be done safely in the endoscopy department, but foreign body impaction is probably better tackled in an operating theatre where airway management can be more easily controlled. Food boluses can normally be pushed through into

Management protocol for bleeding varices

- Resuscitate
- Vasoactive therapy; octreotide 50 micrograms IV bolus followed by 50 micrograms/hour IV for 3 days **or** terlipressin 2 mg IV 4-hourly for up to 48 hours
- Intravenous antibiotics (ciprofloxacin 200 mg twice daily)
- Urgent endoscopy ± band ligation or injection sclerotherapy (up to two attempts)
- Balloon tamponade or transjugular intrahepatic portosystemic shunt (TIPS) for uncontrolled bleeding

Table 2

the stomach. Foreign bodies may require ingenious endoscopic solutions to aid their disimpaction, utilizing grasping instruments and snares.⁹ An overtube should be employed for the safe removal of the offending item. Rigid oesophagoscopy is occasionally required under general anaesthesia to get a proper grip on the foreign body but this is rare. Close liaison between upper gastrointestinal surgeon, ENT specialist, gastroenterologist and anaesthetist is needed to deal with the more complex case. Only in the unlikely event of failure to remove the object should open surgery be considered by an experienced oesophageal surgeon. If the relevant personnel are not all available at the admitting hospital, the patient should be transferred to a specialist centre. Following successful removal of an oesophageal foreign body, the patient should be kept ‘nil by mouth’ until a contrast swallow has excluded perforation. Oesophageal strictures should be biopsied endoscopically as soon as possible to exclude malignancy, and gastro-oesophageal reflux treated aggressively with a PPI.

Oesophageal perforation (Table 3)

Diagnosis

This may be immediately obvious at the time of an oesophageal dilatation for example, but may not become apparent for days while the patient is on a ventilator in intensive care. The usual reason for perforation being missed is that it has not been considered as a possible diagnosis. Prompt and correct treatment will usually result in a live patient. Oesophageal perforation should be suspected after endoscopy if the patient complains of severe retrosternal pain that may radiate into the neck. Surgical emphysema is a give-away but may not be present. An urgent water-soluble contrast swallow should be performed on all patients with suspected oesophageal perforation (Figure 1). Alternatively, an unconscious patient may require a computed tomography (CT) scan to look for mediastinal air. A senior gastrointestinal radiologist should review all images where there is significant clinical concern about a perforation, even if the study appears normal. Small leaks are easily missed.

Management of oesophageal perforation

Oesophageal perforations are best managed by a specialist multidisciplinary team consisting of an oesophageal surgeon, a gastrointestinal interventional radiologist, a gastroenterologist, a dietitian, a microbiologist and an intensivist. If this level of care cannot be provided locally the patient should be transferred to a Regional Centre. Experience in the USA has shown that this approach can reduce mortality to less than 5%.¹⁰

Perforations following endoscopy

Here, the size of the defect, the cause of the injury, the time to detection and the co-morbidities of the patient will dictate management. Balloon dilatation of a benign stricture or for achalasia resulting in a small leak confined to the mediastinum can usually be managed conservatively with ‘nil by mouth’, intravenous broad-spectrum antibiotics, anti-fungal agents, and parenteral nutrition, although enteral nutrition via a fine-bore naso-jejunal feeding tube should be considered whenever technically feasible. The same is true for a perforated oesophageal tumour; although emergency oesophagectomy may be feasible (Figure 2), it is rarely curative and non-operative management is preferable.¹¹ If

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