Review Article

Unusual complications of oesophageal ulcers

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Oesophageal ulceration is usually secondary to reflux oesophagitis and commonly gives rise to stricture formation. Other causes and complications are much less common and are the subject of this review article.

Bleeding from peptic ulcers

Bleeding peptic ulcers of the oesophagus account for about 4% of admissions for acute upper gastrointestinal bleeding.^{1,2} Further bleeding during the same admission will occur in one-third of these patients.² After resuscitation, patients should be given intensive anti-reflux treatment. The ulcer should be biopsied, although carcinoma rarely presents with acute bleeding.^{1,2} Recurrent bleeding or failure of the ulcer to heal are indications for surgery, but the threshold for advising elective surgery should be low for patients who have already demonstrated severe reflux disease with a life-threatening complication.

Penetration/perforation

Deep oesophageal ulcers may penetrate into adjacent organs, or perforate into the pleural cavity. The latter is extremely rare, presumably because of peri-oesophageal fibrosis. Spontaneous perforation into the pleura, itself a rare event, is more common.³ Pericardial perforation has been described on only seven occasions.⁴ Early diagnosis of perforation, within 24 h, should be followed by surgical repair and drainage. Later diagnosis entails pleural drainage, nasogastric aspiration and parenteral nutrition.³ Oesophageal diversion is required rarely, if conservative measures fail.

Penetration into an adjacent viscus is a dramatic event. Of the adjacent vessels, the aorta is the most

likely to be involved, although aorto-oesophageal fistula is usually the result of a thoracic aneurysm eroding into the oesophagus.⁵ Only one of 24 cases of aorto-oesophageal fistula reported by Carter *et al.*⁵ was caused by a peptic ulcer of the oesophagus. Mo *et al.*⁶ reiterate the diagnostic triad of aorto-oesophageal fistula. The third part of the triad, namely exsanguinating haemorrhage, might be averted by early diagnosis and management of the fistula, which should be suggested by the presenting complaints of chest pain and haematemesis.

I know of only one report of successful surgical management of aorto-oesophageal fistula secondary to reflux oesophagitis.⁷ The patient underwent left thoracotomy, and the aorta was controlled above and below the fistula, which was then divided. The aorta was closed by primary suture. The ulcerated oesophagus was resected, with closure of the gastric cardia and creation of a cervical oesophagostomy and a feeding gastrostomy. Subsequently, a colonic interposition was performed. This plan of action, also recommended by others,⁵ seems to be the most likely means of saving the patient with this life-threatening condition. Success depends on early diagnosis and immediate surgery.

Penetration of a peptic ulcer into the airway has not been described. Presumably the trachea and the bronchus are higher than the usual site of ulceration, and, lower down, the pulmonary parenchyma is protected by peri-oesophageal fibrosis.

Colonic interposition

Following oesophageal resection, continuity may be restored by bringing into the chest either stomach, jejunum or colon. All of these are subject to anastomotic stricture, but reflux oesophagitis after colonic interposition is not described. Rarely, the colonic neo-oesophagus may be the site of peptic ulceration or primary colonic pathology. The figure of 10% for troublesome gastrocolic reflux, quoted by Pantelides and Fitzgerald⁸ is at variance with other large series.⁹ The commonest problem after

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colonic interposition is difficulty in swallowing secondary to colonic stasis. This may result from redundancy of intrathoracic colon, or compression at the hiatus.⁹

Gastrocolic reflux may lead to ulceration of the colon, and, as with oesophageal ulcers, these may progress to perforation¹⁰ or penetration into the lung¹¹ or aorta.¹² The case reported by Pantelides and Fitzgerald⁸ adds a fourth possibility, that of penetration into the heart. They are to be congratulated on the successful outcome of their cardiac intervention, which appears to have closed the ventricular component of the fistula. The persistence of leakage from the cologastric component suggests that more radical surgery with resection of the colon and gastro-oesophageal anastomosis might be necessary in such circumstances.

The existence of only four case reports of complicated colonic ulcers after several thousand colonic interposition operations confirms that this procedure has a minimal long-term morbidity.

Inflammatory conditions

Complicated ulcers of the oesophagus, with haemorrhage or fistula, may occur in several inflammatory conditions, of which Crohn's disease is paramount. This condition presents a spectrum of involvement of the oesophagus, which may be affected as the primary site, or may be the site of mild inflammation in a patient with widespread Crohn's disease. Geboes *et al.*¹³ systematically examined 500 patients with Crohn's disease and demonstrated oesophageal involvement in nine (2%). All patients had extensive gastrointestinal and extra-intestinal manifestations, and were extremely ill. All had superficial ulceration of the oesophagus, which resolved rapidly with medical therapy.

In contrast, most of the 40 cases of Crohn's oesophagitis published before that report presented with complications of the oesophageal disease. Franklin and Taylor¹⁴ described three cases, of which two required oesophageal resection for stricture or fistula. Ghahremani *et al.*¹⁵ noted slow progression from superficial lesions to stricture and fistula formation. Intramural sinuses and oesophagobronchial fistula also occurred in two cases reported by Cynn *et al.*¹⁶ The further case reported in this issue¹⁷ emphasizes the difficulty in both diagnosis and management of these complicated cases.

In a patient with Crohn's disease, symptoms of dysphagia should be investigated by both barium swallow and endoscopy with biopsy. The possibility of Crohn's disease of the oesophagus should be considered at every stage. Treatment with steroids

should be effective for early disease. When oesophageal disease is advanced with stenosis or fistula, the patient's nutritional deficit should be corrected by enteral or parenteral feeding. Surgical treatment should then be considered, as for complicated Crohn's disease elsewhere in the gut.

Whenever the possibility of Crohn's disease is considered, tuberculosis must be excluded. This is particularly so when there is no active disease elsewhere in the gut, or if there are changes of tuberculosis visible on the chest X-ray.

Superficial oesophageal ulceration may be seen in Behçet's syndrome.^{18,19} Treatment with systemic steroids is usually effective.

Complications may arise in patients with infective oesophagitis. Massive haemorrhage can occur in herpetic oesophagitis. Successful treatment with acyclovir has been reported.²⁰ Opportunistic infections in patients with depressed immunity can lead to oesophagotracheal fistula.²¹ Investigation of the oesophagus in patients with leukaemia, those receiving chemotherapy and those with the acquired immune deficiency syndrome should include examination of oesophageal biopsies and brushings for viral and fungal pathogens. Therapy should be directed against any organism demonstrated, although the prognosis is poor.

Caustic ingestion

Caustic burns of the oesophagus produce extensive ulceration that heals by fibrosis to form dense fibrous strictures. In the acute phase, haemorrhage may be severe, and transmural burns can lead to severe mediastinitis with tracheal necrosis or aorto-oesophageal fistula. The outcome is usually fatal in these cases.²² Mercury alkali disc batteries may lodge in the oesophagus after accidental ingestion. They rapidly produce deep penetrating ulcers. The muscle coats may be transgressed after only a few hours and the ulceration may extend into the trachea.²³ Complicated caustic injuries are best treated by resection with cervical oesophagostomy, and delayed reconstruction.

Conclusion

The rarity of complicated oesophageal ulcers makes early diagnosis difficult, yet on occasion this may be life saving, if followed by immediate repair of an aorto-oesophageal fistula, for example.

Some conditions, such as Crohn's disease or Behçet's syndrome, may respond rapidly to appropriate medical treatment, and thus surgery may be avoided. Vigilance on the part of the clinician, and

expeditious but complete investigations will lead to early accurate diagnosis. Both contrast radiography

and endoscopy with biopsy will be required in difficult cases.

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