Bleeding gastric ulcer from a pulmonary artery 20 years post-oesophagectomy: a common presentation with a rare cause

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ABSTRACT

This case presents an unusually late complication of oesophagectomy 20-years post-surgery, with upper gastrointestinal bleeding. Further investigation revealed a gastric conduit ulcer eroding into the lower lobe of the right lung, forming a fistula with a basal branch of the right pulmonary artery. Upon successful embolisation, the HydroCoil® was visible on endoscopy. This case highlights the need for lifetime proton pump inhibitor cover post-oesophagectomy and demonstrates that when approaching uncommon presentations of common problems, careful consideration to treatment technique is essential.

KEYWORDS

Pseudoaneurysm – Gastric ulcer – Oesophagectomy – Complications – Oesophageal cancer

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Background

Oesophageal carcinoma represents a significant global burden, with the sixth-highest mortality and eighth most common among all cancers. It is extremely aggressive with a poor survival rate, with oesophagectomy considered the mainstay curative treatment.¹ The treatment is very invasive with high morbidity,² involving replacing the oesophagus with a gastric conduit. Ulcers are known to present in the gastric conduits in 6.6–19.4% of patients,³ although a 2011 literature review found only 13 cases of perforation into surrounding tissues.⁴

This case involves a 68-year-old woman with an upper gastrointestinal bleed 20 years after oesophagectomy for squamous cell carcinoma of the oesophagus. Further investigations revealed a gastric conduit ulcer which eroded into a pseudoaneurysm of a pulmonary artery branch. Following successful embolisation, the HydroCoil® was visible at endoscopy.

Case history

A 68-year-old woman with a history of Ivor Lewis oesophagectomy with pyloroplasty for oesophageal squamous cell carcinoma 20 years previously presented to emergency

admissions with symptoms consistent with an upper gastrointestinal bleed, including haematemesis, melaena and tachycardia, with no history of smoking or recent non-steroidal anti-inflammatory drug use or infectious symptoms. The patient's haemoglobin levels were 5.4g/dl and an initial chest x-ray revealed no changes other than presumed right-hilar post-radiation fibrosis.

Endoscopic examination revealed a cratered ulcer with a pulsating vessel along the conduit's greater curve. There was no evidence to suggest conduit redundancy and she was not *Helicobacter pylori* positive. Computed tomography angiogram highlighted an 18-mm full-thickness defect in the lateral wall of the mid-conduit penetrating the lower lobe of the right lung. A posterior basal segmental branch of the right pulmonary artery ran through the base of the crater, forming a pseudoaneurysm. The patient underwent successful embolisation, then was discharged after three days with lansoprazole 30mg for six weeks twice daily then once daily for life, and 1g sulphacrate four times daily for seven days post-procedure.

Endoscopy four months later demonstrated a persistent gastric ulcer in the conduit with the coil visible from previous embolisation. Further follow-ups demonstrated ulcer reduction with healing around the coil at 26 months post-presentation. The patient required no further admission and was discharged to her general practitioner.

Discussion

This case highlights a potential complication from oesophagectomy that may manifest many years post-surgery. Gastric conduit is the most frequent reconstructive method after oesophagectomy, but it is susceptible to ulceration due to factors including *H. pylori* infection, gastric stasis, poorer blood supply, bile reflux and radiotherapy treatment. This ulcer is likely to be a chronic manifestation, as there were no recent prior endoscopic evaluations.

The incidence of this complication has increased with improved survival. There is only one previous case in the literature of bleeding secondary to gastric conduit ulceration, which proved fatal.⁵ In that case, endoscopy failed to diagnose the lesion and fatal haematemesis ensued. In our case, endoscopy clearly identified the ulcer and the pulsating vessel with stigmata of recent bleeding. The gold standard for treating conventional bleeding peptic ulcers involves endoscopic therapy using dual or triple modalities including clipping, thermocoagulation or adrenaline injection.

Interventional radiology is a recognised method for controlling bleeding and is often reserved for failure of endoscopic therapy. In this case, endoscopy identified the origin of the bleeding, but despite no active bleeding, given the unusual presentation and anatomy we considered that

angiographic investigation and embolisation was the safest and most effective method of preventing further bleeding from the vessel at the ulcer site.

The patient received radiotherapy as part of her radical cancer treatment, a known risk factor for ulceration. In addition, a chronic cough that developed was thought to be due to reflux and was successfully treated with metoclopramide. It is likely that she may have had a degree of bile reflux and stasis in the gastric conduit, contributing towards ulceration, although other potential aetiologies include *H. pylori* infection and potential ischaemia. In addition, she had not been prescribed a proton pump inhibitor prior to her presentation. While a vagotomy occurs as part of an Ivor Lewis oesophagectomy, it is recognised that the denervated stomach may retain or regain acid production capability. Thus, patients should remain on a proton pump inhibitor for life after this operation. The use of a proton pump inhibitor may have complications such as osteoporosis, hypomagnesaemia, diarrhoea and B12 insufficiencies. While physicians should be aware of these issues, not using a proton pump inhibitor can lead to ulceration as described, potentially alongside symptomatic acid reflux and neo-Barrett's formation.

Figure 1 Selective angiography of the right pulmonary artery demonstrates a pseudoaneurysm at the posterior basal segmental branch, after erosion into gastric conduit lumen

Figure 2 Endoscopy at gastric conduit ulcer presentation (left), post-embolisation of pseudoaneurysm in pulmonary artery branch (middle) and healed embolisation site (right)

This case highlights the long-term risk from oesophagectomy, the need for continued proton pump inhibitor therapy after surgery and that careful consideration of treatment technique is required when encountering an uncommon presentation of a common problem.

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