Splenic artery pseudoaneurysm causing delayed gastrointestinal bleeding after gastrocolonic fistula following sleeve gastrectomy

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ABSTRACT

Delayed gastrointestinal bleeding in the context of a gastric fistula is a very rare complication of longitudinal sleeve gastrectomy. We report the case of a patient who presented with massive gastrointestinal bleeding from a pseudoaneurysm arising from the splenic artery following complications after a longitudinal sleeve gastrectomy several months previously. The case was successfully managed with angiographic embolisation and we present our experience with recommendations for managing this rare but life-threatening complication.

KEYWORDS

Pseudoaneurysm – Haemorrhage – Bariatric surgery

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Introduction

In 2000, Ren *et al.* first reported longitudinal sleeve gastrectomy (LSG) with biliopancreatic diversion as a bariatric operation and then subsequently LSG alone as an initial procedure. LSG has since become a widely accepted technique popular for its technical ease and weight loss.¹ It is not without serious complications though, notably relating to the staple line. The International Sleeve Gastrectomy Expert Panel Consensus of over 12,000 cases reported a leak rate of 1.06% and subsequent formation of a gastric fistula is rare.² In the context of gastric fistula following LSG, delayed upper gastrointestinal bleeding is a rare sequela only previously reported in a single publication.³ Rebibo *et al.* found that, among the 685 LSG performed at the centre, the incidence of pseudoaneurysm was 0.3%. Of 40 patients treated for gastric fistula post-LSG at the centre, three (7.5%) presented with upper gastrointestinal bleeding secondary to a pseudoaneurysm, suggesting that this complication may be underreported and more common than is represented in the literature.³

With increasing practice of LSG, there needs to be awareness of potential complications, importantly those presenting acutely. We present one such complication, describe its successful management and make recommendations.

Case history

In 2008, a 53-year-old woman underwent laparoscopic gastric banding that was complicated by erosion, necessitating its removal in October 2012. In August 2013, she underwent

a laparoscopic LSG but became septic shortly afterwards from a leak at the gastric staple line which required a return to theatre. This was complicated further by the development of a gastric fistula to the splenic flexure of the large bowel. Although managed conservatively initially, she had continuing problems and a covered stent was inserted endoscopically in January 2014.

Two weeks later, now aged 59 with a body mass index of 28, she presented to her local hospital with two episodes of heavy bleeding per rectum. After initial resuscitation and blood transfusion, oesophagogastrroduodenoscopy (OGD) was performed but did not demonstrate a bleeding site. She was transferred to a tertiary oesophago-gastric unit. A computed tomography (CT) angiogram revealed a 6-mm saccular pseudoaneurysm arising from the distal splenic artery with no active bleeding. This was adjacent to a gas-containing collection between the stomach and splenic flexure at the site of the gastrocolic fistula 5 cm below gastro-oesophageal junction (most likely at the penultimate staple line of the LSG) the gastric component of which was occluded by the stent (Fig 1).

Shortly after admission, the patient had an episode of haematemesis and further bleeding per rectum. Repeat OGD identified a bleeding site below the gastro-oesophageal junction at the proximal aspect of the stent. After detailed discussion with the patient regarding management options with either surgical or radiological intervention, the decision was made to proceed with selective embolisation, recognising the significant risk of splenic ischaemia. The pseudoaneurysm was cannulated and successfully

Figure 1 Contrast computed tomography of the abdomen showing the gastric stent with pseudoaneurysm arising from distal branch of the splenic artery and gas-filled collection at site of gastrocolic fistula.

embolised using multiple microcoils. A good angiographic result was achieved with preservation of the main splenic artery and superior branch (Figs 2 and 3).

During her recovery, the patient required transfusion with a further two units of blood and received parenteral nutritional support. Repeat CT at 2 weeks demonstrated resolution of the fistula and collection. The covered stent was removed endoscopically and a nasojeunal feeding tube was placed for enteral nutrition. She was discharged from hospital five days later, three weeks after admission. At follow-up OGD two months later, there was no evidence of a gastric

Figure 3 Computed tomography angiogram showing splenic artery pseudoaneurysm after angiographic embolisation with microcoils.

fistula tract and full oral nutrition was re-established. She has returned to normal activities and remains well.

Discussion

A pseudoaneurysm should be considered as a cause of upper gastrointestinal bleeding in the context of post-LSG gastric fistula. The formation of these vascular malformations appears to have a highly variable time of presentation; Rebibo *et al.* reported a range from 9 days to 118 days, coinciding with the case presented here.

The life-threatening nature of this rare complication necessitates the need for rapid diagnosis and treatment. In this case, initial oesophagogastrroduodenoscopy did not identify the source of bleeding and the diagnosis was made on CT angiogram. Similarly, Rebibo *et al.*⁵ reported that the source of bleeding was not demonstrated in two patients who had initial investigation with OGD and diagnosis was made in all three patients on arterial and portal phase contrast CT. Of note, they also described a case of upper gastrointestinal bleeding secondary to stent-related gastric ulceration, a differential diagnosis in this presentation. This suggests that if initial abdominal CT is negative proceeding to OGD should be the next step.

The management of these cases has been dictated by their haemodynamic stability. In our patient and in one case reported by Rebibo *et al.*,⁵ both haemodynamically stable, successful management was achieved with prompt angiographic embolisation. The two other cases reported by Rebibo *et al.* were managed surgically; one patient was haemodynamically unstable during embolisation and required left gastric artery ligation and packing, and one patient was haemodynamically unstable post-CT, requiring splenic

Figure 2 Computed tomography angiogram showing splenic artery pseudoaneurysm before angiographic embolisation with microcoils.

artery ligation and splenectomy. In our patient, if treatment with embolisation and nasojejunal feeding had been unsuccessful and further bleeding and/or sepsis had occurred then the management would have been to proceed to laparotomy, splenectomy and T-tube for gastric perforation.

In the Cambridge Oesophago-Gastric Centre, the current practice for the management of upper gastro-oesophageal leak or perforation is with endoscopic vacuum treatment. Very good results have been observed to date. However, this patient had a covered stent inserted in a different hospital and subsequently presented to us with gastrointestinal bleeding and sepsis.

Conclusion

A pseudoaneurysm as a result of a gastric fistula is a separate entity not related to early post-LSG haemorrhage and there is likely to be great variability in the time of onset of symptoms, if they are present. It is therefore important to consider pseudoaneurysm in the presentation of upper

gastrointestinal bleeding patient to ensure rapid diagnosis and treatment.

We recommend that when upper gastrointestinal bleeding presents in the context of gastric fistula post-LSG, initial investigation with urgent CT angiography. Arterial embolisation in haemodynamically stable patients is the preferred treatment choice but surgical ligation may be required in unstable patients or if embolisation has failed. This case emphasises the importance of collaboration with interventional radiologists in the management of vascular complications.

References

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