

CASE REPORT

Aorta, the Innocent Bystander of Bariatric Banding

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Introduction: Laparoscopic gastric banding (LAGB) is a common bariatric operation performed for obesity. Complications of LAGB commonly evolve around device malfunction and physiological changes secondary to the gastric banding. Complications of LAGB involving the aorta are rare. A case of gastric band misplacement around the aorta and subsequent successful retrieval of the misplaced device is reported.

Report: A 45 year old obese woman presented as an emergency with food bolus obstruction secondary to gastric banding inserted 10 years previously. Investigations revealed that her gastric band was misplaced around both the oesophagus at the level of the gastro-oesophageal junction and the descending thoracic aorta at the level of T12. Successful and safe retrieval of the misplaced device is reported electively via a two staged approach: first covering the segment of supra-coeliac aorta at the level of the gastric band with a thoracic aortic stent graft (TAG), and, second, assessing for any oesophageal injury via endoscopy and finally extracting the misplaced device via laparoscopy. A Gore C-TAG device size 26 mm × 100 mm was successfully implanted percutaneously via unilateral femoral access during her first stage procedure. Her gastric band was safely retrieved during her second stage procedure with no complications. She recovered well post-operatively.

Discussion: Complications of LAGB involving the aorta are rare but potentially life threatening. Multidisciplinary pre-operative planning is necessary for safe removal of the gastric band.

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INTRODUCTION

Laparoscopic adjustable gastric banding (LAGB) is commonly performed worldwide to aid weight loss in the morbidly obese.¹ Commonly described LAGB complications relate to band malfunctioning around the banded oesophagus, resulting in severe dysphagia, to rarer complications such as band displacement, in severe cases causing gastric ischaemia.¹ These are rarely fatal complications, which are potentially salvageable when recognised early. Complications involving the aorta are rare and unlikely discussed during the consent process of LAGB, understandably, as the aorta is generally not involved in the procedure.²

A case of LAGB complication is reported involving the aorta, which was successfully managed by a multidisciplinary approach.

CASE REPORT

A 45 year old obese woman presented to emergency services in her local hospital with acute symptoms of dysphagia

to solid food. This was on the background of previous laparoscopic gastric band insertion 10 years previously for bariatric purposes and no other medical conditions. Since her gastric band insertion, her body mass index remained static at 47 kg/m². On admission, computed tomography (CT) revealed acute food bolus obstruction in the oesophagus, at the level above the gastric band. The gastric band was found to be banding both her oesophagus at the level of the gastro-oesophageal junction and her descending thoracic aorta at the level of T12. Her acute food bolus obstruction was dislodged successfully through endoscopic surgery at her local hospital. She was referred to the Scottish Thoraco-abdominal Vascular Unit for further management of the misplaced gastric band involving her descending thoracic aorta (Figs. 1 and 2).

Due to her young age, and the length of time the gastric band had been in place, valid concerns were raised in regards to possible erosion by the gastric band into the aortic wall, and as a result of primarily removing the gastric band, risking aortic rupture which might be catastrophic.

Multidisciplinary discussions involving vascular surgery, upper gastrointestinal surgeons, interventional radiology and anaesthesia were held with the recommendation of a two stage procedure involving as first stage thoracic aortic stent graft (TAG) to cover the aorta at the level of the gastric band, followed by a second stage endoscopic luminal

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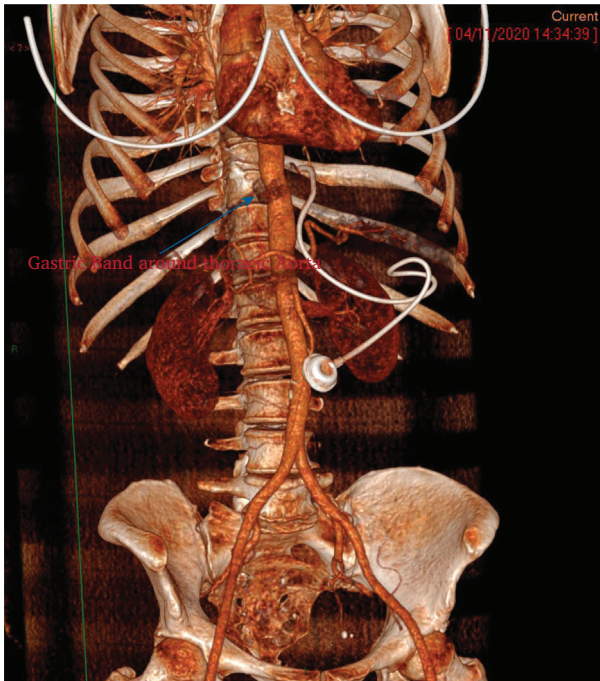


Figure 1. 3 D reconstruction of aortic gastric band pre-removal.

check and gastric band removal through laparoscopy. She proceeded to have routine anaesthesia assessment for fitness for aortic surgery. This involved pulmonary function testing, echocardiogram, and cardiopulmonary exercise testing, which were satisfactory.

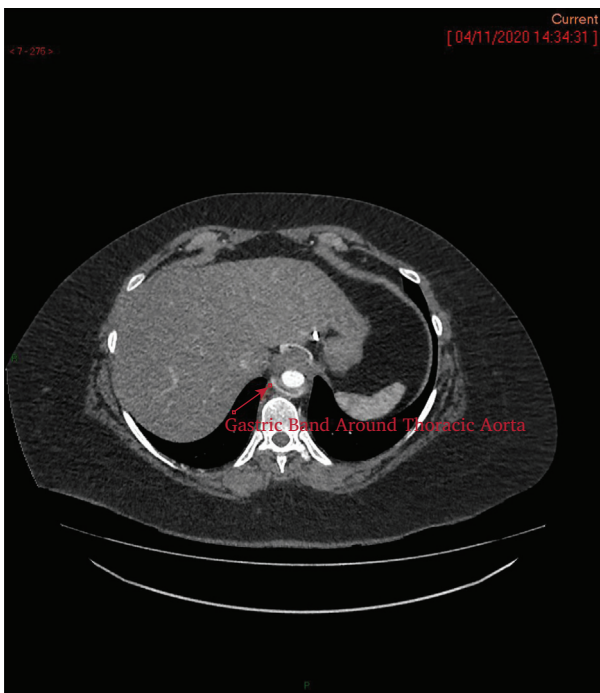


Figure 2. Axial slice computed tomography showing gastric band around the aorta at level of T12.



Figure 3. Completion intraoperative angiogram showing presence of gastric band and satisfactory positioning of thoracic stent graft.

She underwent her first stage procedure successfully. This was performed through unilateral percutaneous femoral access under general anaesthesia. Intra-procedure, a 26 mm × 100 mm Gore C-TAG was implanted to sit in the segment of the supraceliac aorta, which was encircled by

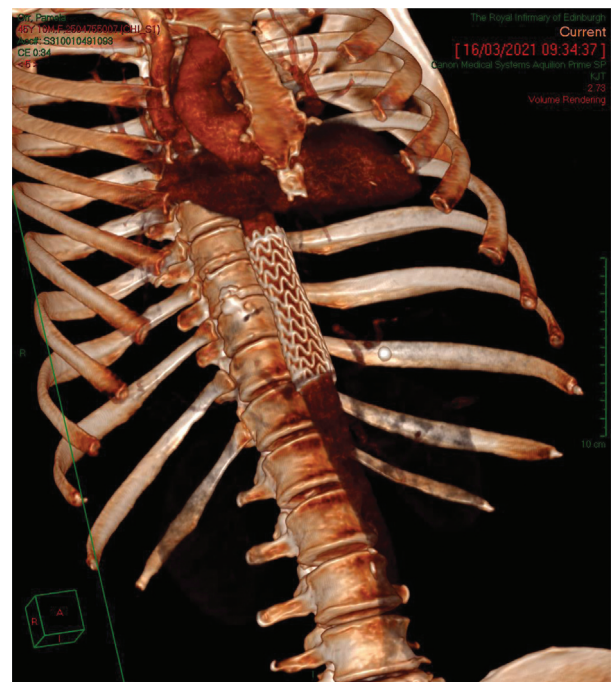


Figure 4. 3D reconstruction post intervention: Thoracic stent graft and laparoscopic removal of gastric band.

the gastric band. The next day, she proceeded to the second stage procedure. This involved initial assessment of the oesophagus via endoscopy, which did not identify any luminal erosion in the oesophagus, followed by laparoscopy and gastric band removal. The misplaced band was taken out smoothly with no obvious erosions or dense adhesions to either structure (Figs. 3 and 4).

Her post-operative period was uneventful and she was discharged the following day. She was followed up in her local hospital and remained well following the procedure. Follow up CT angiogram at one month was satisfactory.

DISCUSSION

Anatomically, the oesophagus exits the thorax at the level of T10 through the diaphragm, where it joins the stomach, while the aorta exits the diaphragm at the level of T12 to form the abdominal aorta. Gastric bands are designed to be placed at the gastro-oesophageal junction, where the aorta is usually not encountered.

Aortic involvement in LAGB represents possible catastrophic consequences and should be addressed seriously. This is fortunately rare, and usually relates to the primary procedure, as a result of iatrogenic injury from trocar laparoscopic port insertion.² Revision surgery involving the aorta poses a high risk of major bleeding. Hostiuc et al. reported their experience of gastric band removal for gastric bleeding, finding dense fibrous tissue requiring extensive dissection, subsequently resulting in inadvertent aortic injury and subsequent death.³ Possible erosion and fibrous scarring secondary to presence of a foreign body around the supraceliac aorta should be considered pre-operatively and steps taken to address the risk of major haemorrhage prior to gastric band removal.

Sahloul et al. reported their experience in managing a patient admitted as an emergency with peritonitis, subsequently found to have a gastric band misplaced around the oesophagus and thoracic aorta.⁴ This was also complicated by full length small bowel herniation and strangulation by the band. The patient required emergency laparotomy, where major small bowel resection was performed for non-viable small bowel. The misplaced gastric band was also removed primarily in the process with no reported complications. By contrast, the patient was well enough to undergo elective treatment.

A safe, low risk approach of a covering aortic stent graft as an insurance to prevent major haemorrhage was

selected, allowing safe removal of the gastric band. Other treatment approaches were considered. These approaches included primary removal of the gastric band or a possible hybrid approach of primary laparoscopic gastric band removal with vascular access for emergency TAG in a hybrid operating theatre should this be required. The team selected a two stage treatment approach, mainly in consideration of the potentially fatal consequences of dealing with supra-coeliac aorta rupture as an emergency. Also, a hybrid approach is logistically unrealistic in consideration of multi specialty involvement in a hybrid operating suite, involving anaesthetist, upper gastrointestinal surgeons, vascular surgeons, an interventional radiologist, and associated allied healthcare staff, not to mention the required specialist equipment and the unnecessarily chaotic environment should such an emergency situation arises. Primary TAG negates such risk and provides a safe environment for planned removal of the malpositioned device.

CONCLUSIONS

Complications of LAGB involving the aorta are rare but potentially life threatening. Multidisciplinary pre-operative planning is necessary for safe removal of the gastric band.

FUNDING

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CONFLICT OF INTEREST

None.

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