CASE REPORT

Rare complication of a common obesity procedure

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SUMMARY

Laparoscopic gastric banding has been widely used to treat obesity. Aspiration pneumonia has not been reported as a complication of bariatric surgery. We present a patient who had bariatric surgery and presented with aspiration pneumonia. A 64-year-old woman with a medical history of obesity and laparoscopic gastric banding presented to urgent care with 1 month of dry, continuous cough. A chest CT scan demonstrated a large opacity in the left upper lobe peripherally containing an air bronchogram, and the oesophagus was significantly enlarged and fluid filled. The patient was diagnosed with aspiration pneumonia. She received antibiotics and the gastric band was deflated. A repeat CT scan showed resolution of the pneumonia. To our knowledge, aspiration pneumonia is an unreported complication of gastric banding. Not recognising this complication may cause delay in the correct diagnosis and leads to invasive procedures with increased morbidity.

BACKGROUND

In 2011–2012, the prevalence of obesity in the USA was 34.9% (78.6 million) of US adults, which is more than one-third of the US population.¹ Obesity increases the risk of heart disease, stroke, type 2 diabetes, obstructive sleep apnoea and certain types of cancers, which are the leading cause of morbidity and mortality in our society.

A stepwise approach has been suggested to treat obesity. Diet, exercise and behavioural modification should be included in management of all obesity cases.² The Food and Drug Administration (FDA) has approved medications to treat obese patients with body mass index (BMI) of 27 kg/m² with comorbidities, or those with BMI over 30 kg/m². Bariatric surgery has been used for weight loss in patients with BMI of 35 kg/m² with comorbidities, or in those with BMI over 40 kg/m².³

Laparoscopic adjustable gastric banding is one of the common bariatric surgeries. It has been approved in Europe and Australia since 1993, and in the USA since 2001.⁴ We report an unusual complication of this common procedure that physicians should take into consideration in their treatment decision for obese patients.

CASE PRESENTATION

We present a case of a 64-year-old woman, a non-smoker, with a medical history of controlled type 1 diabetes, sigmoid colon cancer for which she had undergone sigmoid resection with no recurrence, primary hypothyroidism, hypertension and obesity. She had had laparoscopic gastric banding performed 5 years prior. She presented to urgent care

because of a progressive, dry, continuous cough for 4 weeks. The cough prevented her from sleeping and was unresponsive to over-the-counter medications. She reported of chronic vomiting since her gastric band surgery. She denied heartburn, nausea or choking. She denied fevers, sweating, chills or chest pain. She denied recent travel. At urgent care, vital signs were normal. A chest CT scan was carried out. It showed a large opacity in the left upper lobe peripherally containing an air bronchogram, some mild apparent lymphadenopathy in the pretracheal area with a pretracheal lymph node of 1.6 cm and a very large oesophagus, which was 2/3 fluid filled to the top of the chest, as shown in figure 1A.

The patient was referred to the University of New Mexico Pulmonary Clinic to investigate the lung lesion. The differential diagnosis for the lung lesion was broad because of her history of malignancy and the abnormal lymphadenopathy seen on the chest CT scan. Aspiration pneumonia was considered due to her dilated fluid-filled oesophagus.

INVESTIGATIONS

The patient had a negative *Coccidioides* IgM, IgG and TB Quantiferon gold test. No sputum cultures were obtained because the cough was non-productive. The investigation for malignancy required lung biopsy, which the patient declined; she preferred trying conservative management with antibiotics for aspiration pneumonia.

TREATMENT

The patient received amoxicillin/clavulanic acid 875 mg by mouth twice per day for 6 weeks. A repeat chest CT scan showed resolution of the cavity lesion (figure 1B). The patient reported that the cough completely resolved. The gastric band was subsequently deflated at the University of New Mexico bariatric clinic.

DISCUSSION

The prevalence of obesity is increasing, causing a huge health and economic burden. Bariatric surgery has been gaining acceptance as an effective long-term treatment for morbid obesity. A meta-analysis by Buchwald *et al*⁶ reported resolution or improvement of diabetes, hyperlipidaemia, hypertension and obstructive sleep apnoea in more than 50% of patients after surgery.⁵ In obese patients, CT scan is considered the gold standard diagnostic test.⁷

Two types of bariatric surgeries are available: malabsorptive surgical procedures and gastric restrictive procedures. Laparoscopic adjustable gastric banding is one of the common restrictive

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Figure 1 (A) The patient's initial chest CT scan with contrast, both the dilated oesophagus and the aspiration pneumonia cavity are visible. (B) The patient's chest CT scan after antibiotic therapy and band deflation, showing resolution of the dilated oesophagus and pneumonia.

bariatric surgeries. It is a procedure that can be performed in an outpatient setting. It uses a radio-opaque band with an inflatable balloon in its inner aspect. The lumen of the balloon is connected to a reservoir placed subcutaneously. By adding or withdrawing saline, the inner diameter of the band can be adjusted to decrease or increase gastric restriction.⁵

The laparoscopic adjustable band has proved to be safe and effective in Europe, Australia and USA, over the short term. Recently, multiple studies raised concerns about its long-term efficiency. European studies reported a mortality rate <0.1%, early complication rates of 0.4–0.6% and late complication rates of 2.2–13%.⁴ Aspiration pneumonia was not reported in the European experience. Oesophageal dilation was reported as a very rare complication.

In the USA, the first studies to assess the laparoscopic adjustable band system for treatment of morbid obesity were FDA monitored.⁸ The first trial, which was called trial-A, was a prospective, open-label, interventional study, undertaken between 1995 and 1998, with a 3-year follow-up. Complications in the third year were reported to be 46%, which was higher than in the European reports. Trial-A reported oesophageal dilation most commonly during the second and third year of surgeries, predominantly in one centre out of eight centres participating in the study.⁹

The second FDA monitored study was trial-B, a prospective, open-label, expanded access study conducted at 12 centres, with 1-year follow-up. Trial-B reported fewer perioperative and late-term complications than trial-A. One of the concerns about the FDA trials was the lack of experience in the surgical technique used and in band adjustments, which leads to higher rates of complications.⁴ Other concerns were related to the presence of oesophageal dysmotility, which could contribute to the oesophageal dilations; none of the participants underwent oesophageal manometry studies.⁴

Since 1986, when the laparoscopic adjustable band was first introduced, surgeons have been gaining more experience in performing the surgery and researchers have gathered data from patient follow-up. In a 10-year follow-up study, Lanthaler *et al*¹⁰ reported 68.8% long-term complications. Himpens *et al*¹¹ reported 61.0% complications after 12 years of follow-up, and a more recent study reported 86.2% complications with 13 years of follow-up.⁵ Aspiration pneumonia was not reported in any of these studies.

Concerns about the long-term safety of gastric band surgery are increasing. Oesophageal dilation has been reported more as a serious complication causing laboratory band removal. Oesophageal dilation is a consequence of gastric pouch dilation due to an overtightened band. In our patient, aspiration pneumonia was a result of severe oesophageal dilation. To our knowledge, this is the first time aspiration pneumonia has been reported. It is very important that healthcare providers are aware of this complication, to avoid unnecessary radiographic imaging and procedures, which can increase the risk to the patient.

Learning points

- ▶ Laparoscopic adjustable gastric banding is a common bariatric procedure, it has low incidence of short-term complications.
- ▶ Aspiration pneumonia is a concerning long-term complication of laparoscopic gastric banding.
- ▶ It is successfully treated with antibiotics, no need for further procedures that will increase the patient's risks and health costs.

Contributors LKE is the first author. RC is a professor of pulmonology who provided valuable information about the case. He revised the manuscript and approved it. DS is a professor of endocrinology who revised the manuscript and approved it. He guided the first author in writing the manuscript.

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