

Gastric perforation as a complication of an intragastric balloon

We report a patient who presented with an acute abdomen 7 months after the insertion of an intragastric balloon (IGB) and discuss the current literature.

Introduction

Obesity is a serious disease, with substantial morbidity and mortality. Insertion of an IGB is an approved method of achieving weight loss in patients who do not meet the criteria for bariatric surgery. However, numerous complications have been documented. Gastric perforation after IGB treatment is a rare but serious complication.

Case report

An obese 46-year-old woman was referred from a secondary hospital with acute-onset, severe upper abdominal pain of 2 days' duration, which started at the epigastrium and became generalised. On clinical examination she was apyrexial, tachycardic, and tachypnoeic, and had generalised abdominal percussion tenderness. A 5 cm well-defined, spherical, firm mobile mass could be palpated on the right side of the umbilicus. No guarding or abdominal rigidity could be elicited. Other findings were non-contributory.

The patient had previously undergone surgery on many occasions, including an appendicectomy, caesarean section, hysterectomy, cholecystectomy and excision of a neck lipoma. She also has a 23 pack-year history of cigarette smoking.

She admitted to having undergone a bariatric procedure 7 months before, which involved an IGB being inserted endoscopically at a private health care institution. At the time she weighed 106 kg. She currently weighs 78 kg (her BMI decreased from 42 kg/m² to 31 kg/m²) and is 1.58 m tall. According to the patient, she was told by the private clinic doctor that she must have the balloon removed after 2 years unless it perforates, which would be indicated by her urine turning blue. No follow-up visits, further medication or dietary modification were initiated.

On further investigation initial blood examination (full blood count, urea, creatinine and electrolytes, liver function

tests and arterial blood gas) was normal, except for a leucocytosis of 14.8x10⁹ cells/l and a high C-reactive protein of 250.3 mg/l. Abdominal radiographs did not reveal a foreign object but there was free air under both hemidiaphragms.

The patient then underwent an exploratory laparotomy for an acute abdomen, during which a small amount of pus was found in the abdomen. The anterior surface of the stomach was perforated (a defect of 1x1 cm), from which a small amount of methylene blue was oozing. An IGB was found *in situ*, which was further deflated with incision by a scalpel. The gastric perforation was debrided and closed using an omental patch. The patient recovered well in a high-care unit and was placed on broad-spectrum intravenous antibiotic cover. A re-look laparotomy was performed the next day and the findings were reassuring.

Subsequent recovery was uneventful and the patient was referred to a secondary hospital for further care. She was discharged home fully functional some days later.

Discussion

Obesity has become a First World epidemic and is also rapidly increasing in the Third World. Obesity, particularly abdominal obesity, is associated with an increased risk of hypertension, diabetes, hyperlipidaemia, sleep apnoea, coronary heart disease and stroke.¹

Various surgical procedures have been described to reduce the caloric intake by modifying the anatomy of the gastrointestinal tract. These procedures are classified as restrictive and malabsorptive. Further discussion is beyond the scope of this case report.

IGBs have been used for the past 20 years. The rationale for use is to create an artificial bezoar and a premature feeling of satiety, thus reducing the caloric intake. The IGB is designed to move freely inside the stomach after it is filled with saline.

According to the BioEnterics Intragastric Balloon (BIB) (BioEnterics Corporation, Carpinteria, California), the most widely used balloon, the indications for placement include the temporary use for weight loss therapy for obese patients who have significant health risks related to their obesity.

It must not be left *in situ* for longer than 6 months to prevent potential complications. IGBs may therefore play an essential role in a multimodal weight loss programme until a more definitive surgical procedure can be performed.

There are usually few complications, but major ones have been reported. These include deflation and migration of the balloon, either into the oesophagus or into the small bowel – leading to bowel obstruction. The largest meta-analysis (12 studies, 3 429 patients) found an obstruction rate of 0.8% and a gastric perforation rate of 0.1%.²

Gastric perforation is not mentioned as a complication in the BIB system pamphlet or the *Cochrane Database of Systematic Reviews*.³ Of the 4 gastric perforations reported in the above-mentioned meta-analysis, 2 resulted in death.²

In conclusion, an IGB within a multidisciplinary weight management programme is an effective short-term method in the management of obesity. The indications and limitations of IGBs should be discussed with patients if unrealistic expectations and tragedies are to be avoided.

References

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