

## Gastric Perforation After Intra-gastric Balloon Insertion: A Case Report

Amgad H Kamel<sup>1</sup>, Emad Salem<sup>2\*</sup> and Abdulelah Sindi<sup>3</sup>

<sup>1</sup>Gastroenterology Department, Ain Shams University Hospitals, Cairo, Egypt

<sup>2</sup>Gastroenterology Department, New Jeddah Clinic Hospital, Jeddah, KSA

<sup>3</sup>Gastric Surgery Department, New Jeddah Clinic Hospital, Jeddah, KSA

\*Corresponding Author: Emad Salem, Gastroenterology Department, New Jeddah Clinic Hospital, Jeddah, KSA.

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### Abstract

**Introduction:** Intra-gastric balloon therapy is a minimally invasive, temporary method of inducing weight loss however, in some cases it may cause serious adverse events.

**Presentation of Case:** A twenty three years old male, presented by acute gastric perforation six months after insertion of Orbera intra-gastric balloon. The diagnosis done clinically and confirmed by plain x ray erect. The balloon first removed by gastroscopy followed by laparoscopic exploration and repair of the perforation with no postoperative complications.

**Discussion:** Gastric perforation is a rare complication of the Bioenteric intra-gastric balloon. In our case study the possible cause for perforation is the non compliance of the patient to proton pump inhibitor therapy as well as consumption of excessive ulcerogenic diet.

**Conclusion:** Adherence to physician recommendations regarding diet and medications with strict follow up may prevent serious complications of intra gastric balloons.

**Keywords:** Case Report; Intra-gastric Balloon; Weight Loss; Obesity; Complications

### Introduction

Obesity is one of the leading global health problems in the world today. It is considered a major risk factor for many serious diseases [1]. To treat this risk factor, in contrast to bariatric surgery, which has significant cost, invasiveness and potentially lifelong side effects, intra-gastric balloon therapy is a minimally invasive, temporary method of inducing weight loss. These balloons are placed endoscopically in the stomach then inflated with either air or saline and methylene blue. After the procedure, patient is discharged within a few hours and is followed up in outpatient clinic for the next 6 months. After 6 months, the balloon is removed using the same method. We report a case of gastric perforation caused by BioEnterics intra-gastric balloon (Orbera), 6 months after its original insertion.

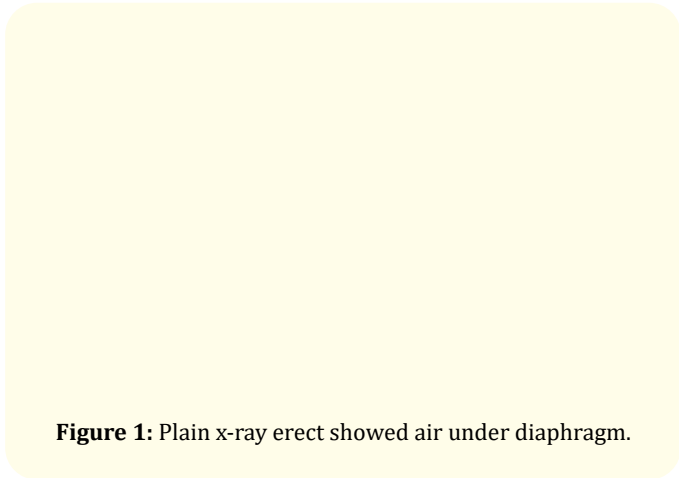
### Case Report

A 23-year-old Saudi male, heavy smoker was brought to emergency department with one day history of severe epigastric colicky pain of 8 hours duration accompanied by anorexia, nausea, and repeated episodes of vomiting containing altered blood. He also added that the pain was started since 1 week but became more severe and

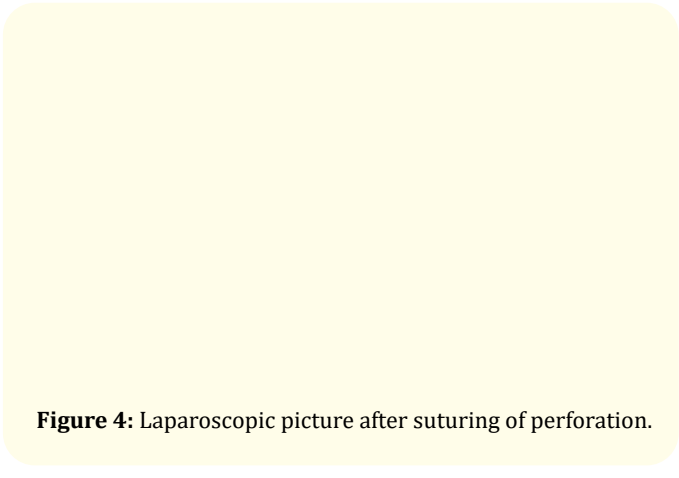
in tolerated in the last few hours and start to radiate to left shoulder. The patient had history of BioEnteric intra-gastric balloon insertion 6 months ago filled with 550 cc of normal saline and methylene blue. The patient weight on insertion was 109 kg, BMI= 35%. On admission, it showed that he had lost 12 kg of his weight, reaching a weight of 97 kg. He also stated that he was not compliant on PPI therapy as well he is heavy smoker and consuming too much coffee and cola. The patient vital signs were as follow bp= 110/70, pulse, 100 temp= 38 mildly dehydrated and in severe pain. On abdominal examination, the abdomen was distended and he had severe tenderness on the epigastric region, with guarding and rebound tenderness. In addition, his bowel sounds were audible.

He was admitted immediately in the hospital and laboratory investigations were done. Full blood count demonstrated leucocytosis (WCC  $13.7 \times 10^9/L$ ) otherwise the rest of his lab work was normal including serum lipase, electrolytes, renal function, liver function and triglycerides.

A formal plain x ray erect showed bilateral air under diaphragm (Figure 1).

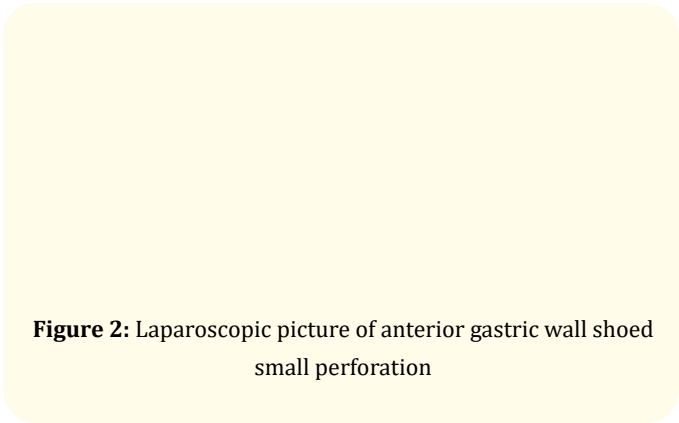


**Figure 1:** Plain x-ray erect showed air under diaphragm.

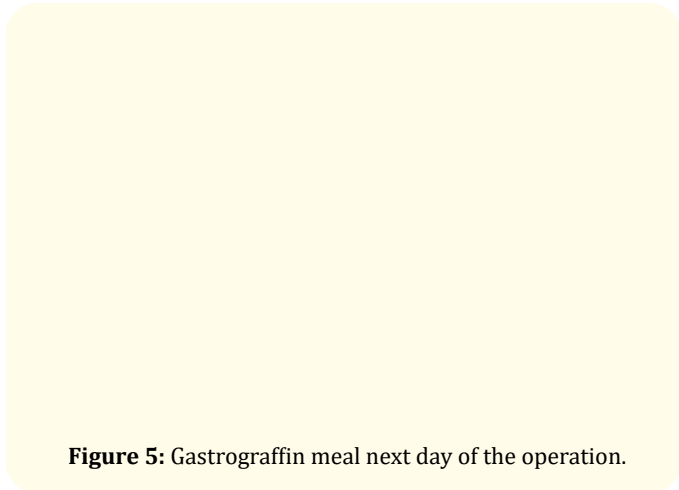


**Figure 4:** Laparoscopic picture after suturing of perforation.

The patient was diagnosed as bowel perforation and transferred immediately to OR where he did first gastroscopy which revealed intact balloon, the balloon was removed with orbera extraction kit followed by Laparoscopic exploration which identified a presence of small rounded perforation of about 1cm diameter on the anterior gastric wall (Figure 2). The site of perforation was confirmed by methylene blue test (Figure 3). Closure and suturing of the perforation were done smoothly (Figure 4). On the first postoperative day, a gastrograffin meal was done to exclude any leak (Figure 5) then one day after, the patient was started on an oral diet.



**Figure 2:** Laparoscopic picture of anterior gastric wall showed small perforation



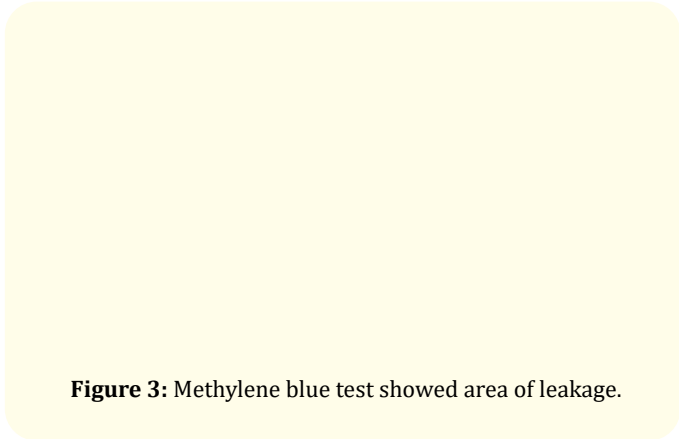
**Figure 5:** Gastrograffin meal next day of the operation.

Postoperative recovery was uneventful. he was discharged on the 3rd post-operative day. One week later, the patient was reassessed in the outpatient clinic where he was completely asymptomatic with normal daily function.

**Discussion**

Intra-gastric balloons have been in practice since the 1980s when it was first introduced. They are a temporary non-operative method in losing weight by filling the stomach and increasing the sense of satiety and reduce oral intake [2]. Due to the easy insertion, modification and retrieval, it was a worthy option for doctors and patients. Throughout the years, a number of complications have been reported with the use of fluid-filled BIB including esophagitis, gastric erosions or ulcerations, gastric perforation, gastric obstruction, balloon rupture and intestinal obstruction [3,4].

The incidence of GERD, gastric ulcers and balloon migration was 18.3%, 2%, and 1.4%, respectively. Serious adverse events with the Orbera balloon are uncommon, with prevalences of small bowel obstruction, perforation, and death as 0.3%, 0.1% and 0.08%, respectively [5].



**Figure 3:** Methylene blue test showed area of leakage.

About 22 cases of Gastric perforation was previously recorded in some studies. Nine cases occurred very early after implantation (2 hours up to 3 days) in patients having a relative contraindication for balloon insertion due to previous gastric or bariatric surgery, which obviously modifies stomach compliance i.e. fundoplication for hernia repair, sleeve gastrectomy or severe abdominal and thoracic trauma[6-10].

In our case study the possible cause for perforation is the non compliance of the patient to PPI therapy as well as consumption of excessive ulcerogenic diet (smoking, coffee and cola).

This agrees with many previous studies [8,11-13] Who stated that the general recommendation for most intra-gastric balloons, is that it should be removed in 6 months, strict follow-up, continue on PPI therapy and avoid bad dietary habits.

### Conclusion

We advise, regular follow up, adherence to PPI therapy and avoid ulcerogenic diet are important tools in preventing serious complications of intra gastric balloons.

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