

Introduction

Obesity is a global pandemic on the rise, affecting about 40% of adults in the United States

There is a need for minimally invasive methods to aid current *Standard of Care (SOC) practices*

The intragastric balloon (IGB) is a temporary therapy for weight loss. FDA approved several devices including the Obalon[®] in the recent years

Serious adverse events are rare and include:

- Perforation (0.3%)
- Esophageal mucosal injury (0.8%)
- Gastric ulcer/bleeding (0.76%)
- Gastric outlet/bowel obstruction (0.12%)

2021 AGA IGB Guideline Highlights¹:

- Use of IGB therapy with lifestyle modification over lifestyle modification alone. RCT show amount of weight loss decreases over duration of IGB

Pooled Data from Randomized Control Trials (RCT)	Duration of IGB (months)	Average weight loss compared to Standard of care/lifestyle modifications (Confidence Interval)
7 RCT	6	15.46 lbs (95% CI, 10.42–20.51 lbs)
3 RCT	9	13.12lbs (95%CI, 10.53–15.70lbs)
2 RCT	12	9.76 lbs (95% CI, 6.38–13.14 lbs)

- Similar findings present in Brazilian consensus study encompassing 41,863 IGBs, with a mean % total weight loss of $18.4\% \pm 2.9\%^2$
- Fluid-filled balloons may be associated with greater weight loss, lower tolerability and a less favorable safety profile than air fluid balloons
- Prophylaxis with proton pump inhibitors suggested
- Perioperative laboratory screening for nutritional deficiencies *not recommended*
- Once IGB removed, subsequent weight-loss or maintenance therapies *are suggested*, including: dietary interventions, pharmacotherapy, sequential IGB, or bariatric surgery



Figure 1: (A) Coronal view of CT scan showing dislodged Intragastric Balloon in the distal ileum (red arrow); (B) XR Abdomen showing radiopaque density overlying the left hemisacrum (red arrow) and dilated small bowel loops (white arrow); (C) XR Abdomen showing radiopaque foreign body in the right mid abdomen and second foreign body in the stomach (red arrows) - Image (C) was the first Xray of the hospitalization

Case Report:

A 47-year-old female presents with severe acute abdominal pain, more than one year after *two Intragastric Balloon placements (Obalon[®])* were placed

Routine labs were unremarkable and vitals were stable. Patient's BMI was 28 kg/m², unchanged from prior year. Initial CT Abdomen/pelvis with contrast showed gastric and duodenal thickening; however, imaging failed to comment on a foreign object and location, although present as per Image (C)

Endoscopy was performed subsequently showing *only one Obalon[®] balloon* found in the gastric fundus. The balloon was cut with a needle knife, collapsed and withdrawn with rat tooth forceps

Upon further imaging to locate second IGB, dilated bowel loops with a deflated Obalon[®] lodged in the distal ileum were noted, 7 centimeters proximal to ileocecal valve, resulting in mechanical small bowel obstruction

A colonoscopy was deferred due to concern for risk of perforation given the small bowel obstruction. Subsequently, the patient underwent laparoscopic enterectomy with approximately 5 cm of bowel on either side of the enterotomy with creation of anastomosis and foreign object retrieval

Discussion

We present a rare (risk of about 0.12% of bowel obstruction), yet crucial case report of IGB complication resulting in small bowel obstruction and subsequent need for surgical intervention

Several case reports have been reported regarding mechanical obstruction within small bowel, including a case of endoscopic antegrade single balloon-assisted enteroscopy removal of IGB^{3,4}

IGBs are meant to be a short term, temporary tool for weight loss in obese patients generally BMI ≥ 30 . This effect may not be seen in maintenance of weight loss

It is unknown at which point in our patient, the second IGB migrated and if this was a result based on prolonged duration of IGB, placement technique, or other factors

Conclusion

- IGBs are a minimally invasive therapy for weight loss in conjunction with lifestyle modifications
- We highlight importance of a timely removal, risk of severe complications, emphasis on the importance of assessing proper indication for placement and joint discussion of weight loss modalities available
- Evidence gaps exist in regards to long-term efficacy of IGB therapy beyond 1 year
- Further studies needed to assess nutritional deficiencies and micronutrient monitoring associated with IGB

References:

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3. Ruggiarodorn M, et al. Endoscopic management of small bowel obstruction caused by intragastric balloon using antegrade single-balloon enteroscopy. *Endoscopy*. 2022 Jan 26; doi: 10.1055/s-01724-7016. Epub ahead of print. PMID: 35081640.
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