ORIGINAL ARTICLE

A novel method for removal of a partially deflated intragastric balloon

Shubham Sood, MBBS, Amrit K. Kamboj, MD, Andrew C. Storm, MD, Nayantara Coelho-Prabhu, MD

INTRODUCTION

Obesity is a pandemic affecting 1.4 billion people worldwide. Projections show that 1 in 2 adults nationwide will likely be classified as obese by the year 2030.[1] Given the association between obesity and cardiovascular diseases, diabetes mellitus, and numerous other chronic health conditions, this pandemic raises serious health concerns.[2] One minimally invasive approach to address obesity is to place an intragastric balloon (IGB), which results in weight loss by exerting gastric pressure, thereby increasing satiety and restricting food intake.[3]

In general, the recommended duration of IGB placement is less than 6 months (Table 1). The risk of adverse events such as IGB deflation and migration, which may further lead to intestinal obstruction, significantly increases if the balloon is left in place for a longer period than recommended.[4] Orbera IGB (Apollo Endosurgery, Austin, Tex, USA) are typically filled with saline and methylene blue. In cases where the balloon ruptures and fluid leaks, methylene blue is absorbed systemically and turns the urine blue. Patients with IGB are therefore counseled that if they notice that their urine is blue in color, they should seek immediate medical care.[5]

TABLE 1. Recommended duration of U.S. Food and Drug Administration–approved balloon placement in situ by balloon type

Balloon type	Time in situ (mo)
Orbera (standard)	6
Obalon	6
Reshape	6
Orbera (365)	12

CASE

A 55-year-old woman presented with a 3-day history of abdominal pain and blue-colored urine. Detailed questioning revealed that the patient underwent IGB placement (Orbera balloon, standard) 16 months prior to presentation and had a delay in the removal of balloon because of the COVID-19 pandemic. On admission, the patient weighed 61.7 kg and had a body mass index of 20.9 kg/m^2. Upon assessment, the patient was hemodynamically stable and in no acute distress. Laboratory studies revealed unremarkable complete blood count, metabolic profile, liver enzymes, and lipase. An abdominal radiograph showed linear gaseous lucencies projecting over the stomach (Fig. 1). A CT scan of the abdomen illustrated a partially deflated intragastric balloon within the cardia and body of stomach without bowel perforation or obstruction (Fig. 2).

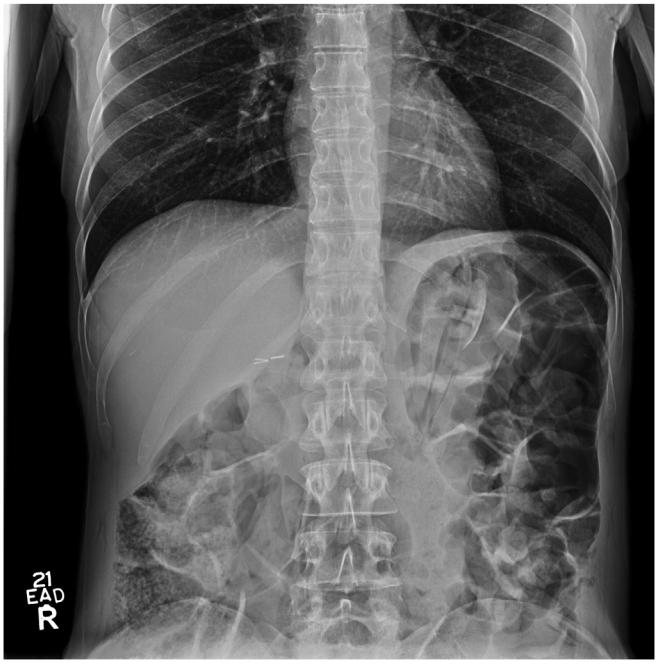

Figure 1. Abdominal radiograph showing linear gaseous lucencies projecting over the stomach.

Abbreviation: IGB, intragastric balloon.

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Division of Gastroenterology and Hepatology, Mayo Clinic, Rochester, Minnesota.

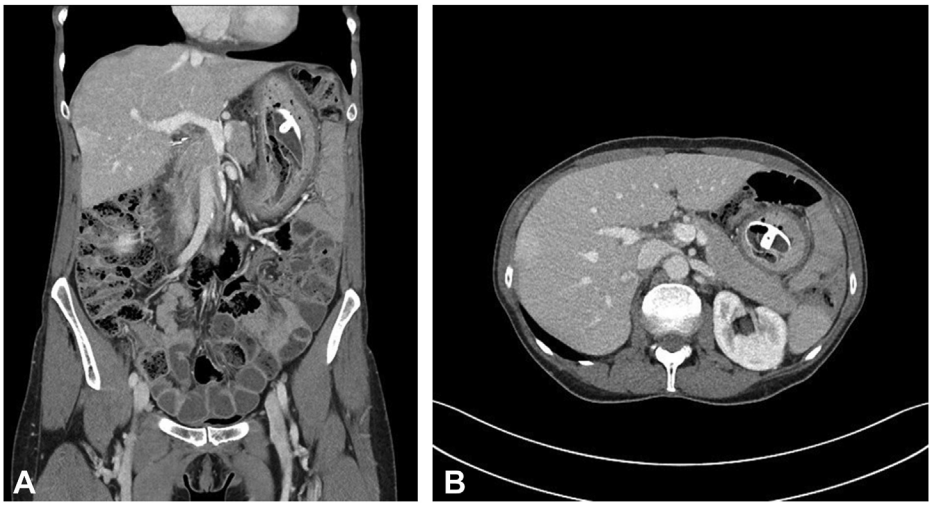

Figure 2. A and B, CT scan of the abdomen showing intragastric balloon present within the stomach.

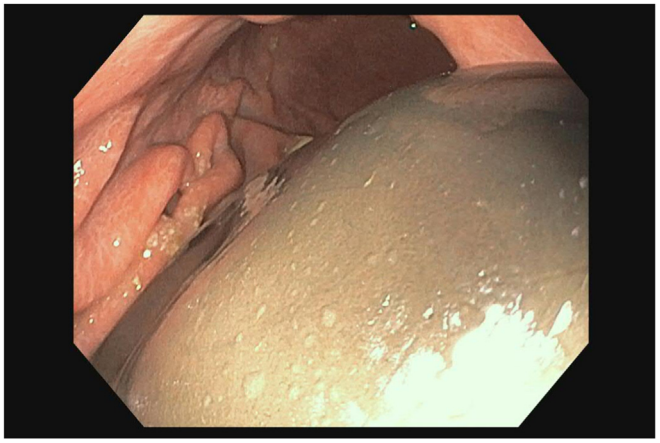

Figure 3. Endoscopic view of partially deflated intragastric balloon.

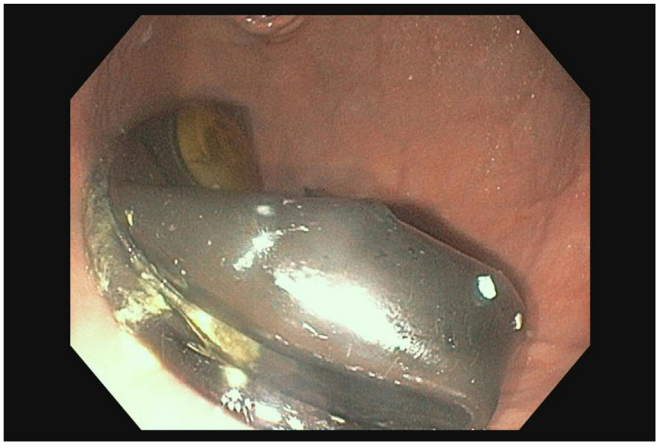

Figure 5. Completely deflated balloon in gastric fundus.

Figure 4. Drainage of intragastric balloon was performed using endoscopic scissors.

Figure 6. Removal of deflated balloon accomplished with an endoscopic retractor.

Figure 7. The intragastric balloon was removed in 1 piece.

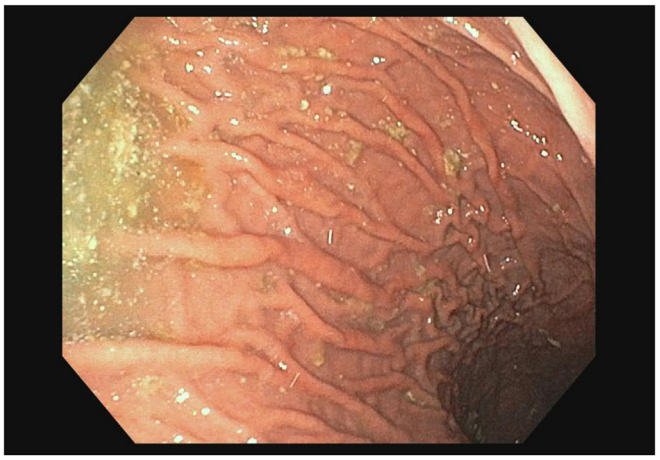

Figure 8. Endoscopic view of stomach after intragastric balloon removal showed no remaining balloon fragments.

PROCEDURE

The patient was intubated and EGD was performed (Video 1, available online at www.videogie.org). Because of the partially decompressed balloon (Fig. 3), puncture with traditional drainage tools was deemed challenging. Instead, disposable endoscopic scissors (Encizor Endoscopic Scissors; Slater Endoscopy, Miami Lakes, Fla, USA) were used to open the silicone balloon wall to permit complete drainage (Fig. 4). An endoscopic retractor (Orbera removal kit, Apollo Endosurgery) was used to grasp the proximal end of the balloon once it was deflated (Figs. 5 and 6), and the balloon was pulled and removed from the oropharynx in one piece (Fig. 7).

OUTCOMES

Post–balloon removal endoscopic examination showed no remaining balloon fragments in the stomach (Fig. 8). The patient did not have any adverse events immediately following the procedure or at the subsequent follow-up.

CONCLUSIONS

Ruptured IGB requires urgent removal to prevent downstream intestinal obstruction. Although intact IGBs are traditionally removed using an endoscopic needle and catheter to puncture the balloon, suction liquid, and deflate the balloon, this approach may not be feasible when the balloon is already ruptured. We describe a novel technique to retrieve a partially ruptured IGB using endoscopic scissors and retractor. We demonstrate an alternative technique for balloon removal in cases where (1) the Apollo suction device is unavailable, or (2) balloon removal is urgently needed but the center does not have the standard tools for balloon removal.

DISCLOSURE

Dr Storm received research support from Boston Scientific, Endo-TAGSS, Enterasense, and Endogenex; is a consultant for and received research support from Apollo Endosurgery; and is a consultant for ERBE, GI Dynamics, and Olympus. The other authors did not disclose any financial relationships.

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