

## Case report

# Small intestinal obstruction due to self-deflated free intragastric balloon

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Morbid obesity has become a severe health problem, especially in Western countries. The prevalence of morbid obesity has been gradually increasing in recent years. Morbidly obese people develop concomitant diseases, in addition to the severity of the obesity itself. Obesity can be treated using several methods—employed individually or combined—such as diet, a change in eating habits, exercise, medical therapy, intragastric balloon implantation, or surgery. Depending on the medical condition and socioeconomic status of the patient, 1 of these methods, or a combination of them, can be used. Each method has its pros and cons. Implanting a balloon device in the stomach is a method that can accelerate weight loss by giving the patient the sensation of satiety. In the present report, we describe patients with an obstructed intestine related to the spontaneous deflation of a free intragastric balloon.

## Case report

A 32-year-old female patient was given a free intragastric balloon implant using endoscopy at another medical center 8 months previously. The patient stated that she had lost weight after implantation of the device but reported that the weight loss had ceased during the past 2 months. She added that the sensation of satiety had also disappeared. She complained of intermittent severe stomach pain that had started 3 days before she came to our hospital. She had experienced no defecation or flatulence in those 3 days, but had vomited 7 times.

Our evaluation of the patient in the emergency room revealed abdominal distension and oversensitivity. The blood test results included hemoglobin 12 mg/dl, hematocrit 39%, and white blood count 12,000/mm<sup>3</sup>. The urea, alanine amino-

transferase, and aspartate aminotransferase values were normal. She informed us of the presence of an intragastric balloon (Heliosphere Intragastric Air Balloon, Helioscopie Medical Implements, Vienne, France). We ordered an abdominal computed tomography scan to investigate the possibility of a relevant complication. The computed tomography scan revealed a hyperdense material measuring 10 × 3.5 cm in the intestines in the right lower segment of the abdomen. The scan confirmed the presence of a dislocated implant. Dilation was present in the proximal intestine segments, which clearly verified the obstruction (Figs. 1 and 2). Thus, the patient was immediately prepared for surgery with the diagnosis of intestinal obstruction due to a deflated intragastric balloon.

The abdomen was explored by way of a vertical right pararectal incision. Serous fluid was detected in the abdomen. The deflated balloon had resulted in complete obstruction in the terminal ileum. No necrosis or perforation was observed. The balloon was removed by way of enterotomy (Figs. 3 and 4). The intestine was sutured primarily. The patient was discharged on the third postoperative day.

## Discussion

The methods of treating morbid obesity include diet, exercise, behavior modification, medical therapy, intragastric balloon implantation in the stomach, and surgery. Balloon implants are less invasive compared with weight loss surgery and more effective than other medical treatment options [1]. However, balloon implants can cause various complications, including acute pancreatitis, bleeding in the gastrointestinal system, intestinal obstruction, gastroduodenitis, ulcer exacerbation, and deterioration of reflux esophagitis [2,3].

In our report, we have presented a case of an obstructed intestine due to a deflated intragastric balloon that had stayed in the stomach for a longer period than had been recommended.

Percival et al. [4] conducted a study of 108 patients and concluded that the optimal duration for balloon use was

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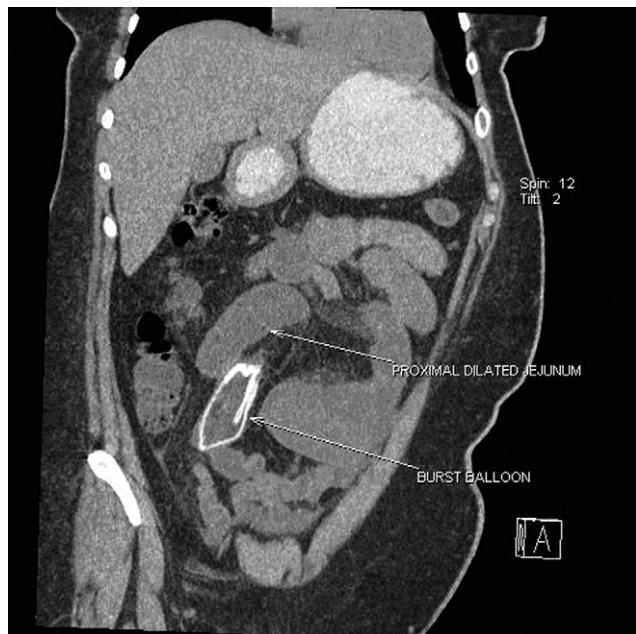


Fig. 1. Computed tomography scan showing dilation of proximal intestine.

10–12 weeks. They underlined that patients who were motivated by the weight loss caused by the balloon could continue to lose weight without the balloon at the end of the 10–12-week period [4].

Sometimes the self-deflated balloon device leaves the gastrointestinal system smoothly by defecation. Nieben and Harboe [5] followed up 5 patients who had undergone

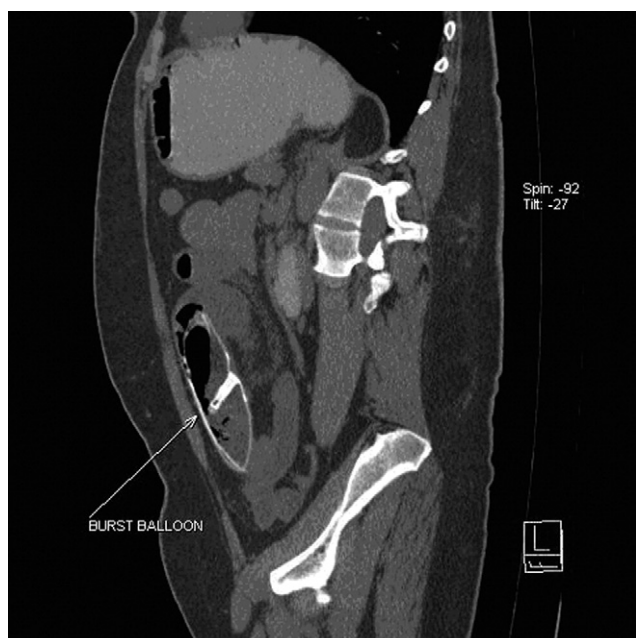


Fig. 2. Computed tomography scan showing balloon obstruction.

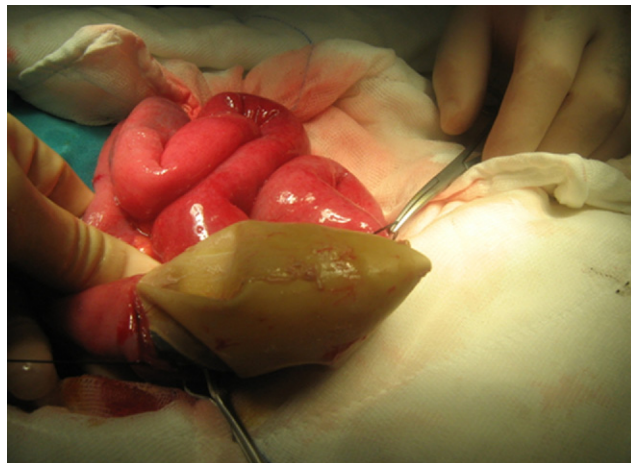


Fig. 3. Intraoperative view during removal of balloon.

placement of a deflated free intragastric balloon and reported that the balloons smoothly left the system through defecation.

Self-deflated intragastric balloons can obstruct the colon or intestine [6–8]. Thus, it has been recommended that the free intragastric balloon be deflated and removed after a maximum of 6 months [9]. Deflated balloons that have obstructed the colon can be removed by way of endoscopy, laparotomy, or laparoscopic surgery [10]. In a series of 85 patients, who were followed up for 12 months, intestinal obstruction due to a deflated balloon was observed in 1 of the patients. The deflated balloon was removed by surgery [3].

To eliminate the deflation risk, a more durable balloon prosthesis has been manufactured [11]. This balloon device has a fixed handle that is placed subcutaneously and enables inflation and deflation control. With the use of this new balloon type, both deflation and displacement risks will be minimized.

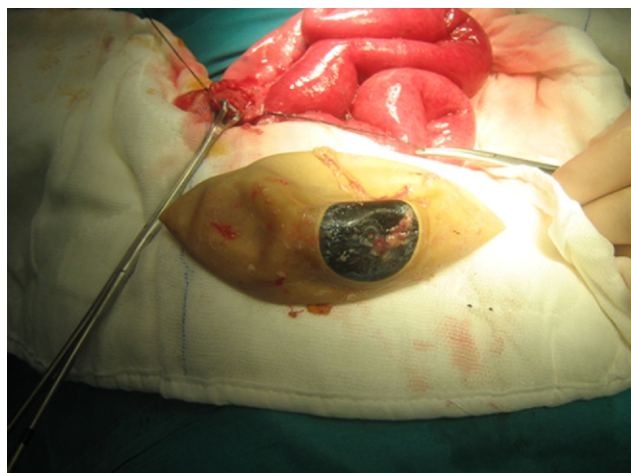


Fig. 4. Intraoperative view after removing balloon.

## Conclusion

The free intragastric balloon should be removed at the recommended time and, if necessary, replaced with a new one. It should be remembered that a balloon that has been kept in the stomach for a longer than recommended period can deflate and lead to obstruction. One should also consider the possibility of obstruction owing to deflation of balloon, if the patient's weight loss stops suddenly, when the patient reports they can no longer feel the balloon, and/or when other symptoms of an obstructed colon are observed.

## Disclosures

*None of the authors of the present report has a conflict of interest with Allergan (LapBand), Optech, Ethicon Endosurgery, or US Surgical.*

## References

- [1] Mathus-Vliegen EM. Intragastric balloon treatment for obesity: what does it really offer? *Dig Dis* 2008;26:40–4.
- [2] Holland S, Bach D, Duff J. Balloon therapy for obesity—when the balloon bursts. *J Can Assoc Radiol* 1985;36:347–9.
- [3] Sallet JA, Marchesini JB, Paiva DS, et al. Brazilian multicenter study of the intragastric balloon. *Obes Surg* 2004;14:991–8.
- [4] Percival WL. “The balloon diet”: a noninvasive treatment for morbid obesity. Preliminary report of 108 patients. *Can J Surg* 1984;27:135–6.
- [5] Nieben OG, Harboe H. Intragastric balloon as an artificial bezoar for treatment of obesity. *Lancet* 1982;1:198–9.
- [6] Kim WY, Kirkpatrick UJ, Moody AP, Wake PN. Large bowel impaction by the BioEnterics Intragastric Balloon (BIB) necessitating surgical intervention. *Ann R Coll Surg Engl* 2001;83:148.
- [7] Benjamin SB. Small bowel obstruction and the Garren-Edwards gastric bubble: an iatrogenic bezoar. *Gastrointest Endosc* 1988;34:463–7.
- [8] Ganesh R, Rao AD, Baladas HG, Leese T. The BioEnteric Intragastric Balloon (BIB) as a treatment for obesity: poor result in Asian patients. *Singapore Med J* 2007;48:227–31.
- [9] Genco A, Bruni T, Doldi SB, et al. BioEnteric Intragastric Balloon: the Italian experience with 2,515 patients. *Obes Surg* 2005;15:1161–4.
- [10] Vanden Eynden F, Urbain P. Small intestine gastric balloon impaction treated by laparoscopic surgery. *Obes Surg* 2001;11:646–8.
- [11] Gaggiotti G, Tack J, Garrido AB Jr, Palau M, Cappelluti G, Di Matteo F. Adjustable totally implantable intragastric prosthesis (ATIIP) Endogast for treatment of morbid obesity: one-year follow-up of a multicenter prospective clinical survey. *Obes Surg* 2007;17:949–56.