

Laparoscopy-assisted trans-hiatal endoscopic removal of an intragastric balloon after placement-related esophageal perforation

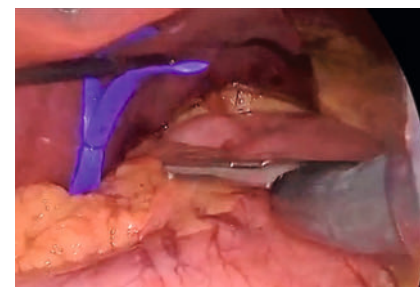
OPEN
ACCESS

Intragastric balloon placement is a minimally invasive endoscopic procedure for the treatment of obesity [1,2]. Severe adverse events such as gastric perforation, migration, and intestinal obstruction, albeit rare, may occur [3,4]; esophageal perforation due to balloon insertion has been reported in only a handful of cases [5].

A 29-year-old man (body mass index [BMI] 44 kg/m²) presented with acute chest pain and abrupt onset respiratory failure during the endoscopic placement of an intragastric balloon (BioEnterics intragastric balloon [BIB]) in another hospital. He was initially treated with pleural drainage before emergent referral to our center. Computed tomography revealed the presence of the 12-cm intragastric balloon in the apex of the left pleural cavity (► Fig. 1), with evidence of pneumothorax and pneumomediastinum next to the lower third of the esophagus. Because of his life-threatening condition, a damage-control two-stage surgery was planned. During the first stage, a laparoscopy-assisted trans-hiatal endoscopic removal of the balloon was performed. After the abdominal cavity had been accessed, a standard gastroscope (Olym-



► Fig. 1 Preoperative computed tomography scan showing the intragastric balloon in the left pleural cavity.



► Fig. 2 Laparoscopic view of the gastroscope entering the abdominal cavity through a 12-mm surgical port.

pus GIF-1100) was guided through the esophageal hiatus into the mediastinum (► Fig. 2), where a wide esophageal laceration was observed. After the balloon had been located at the apex of the left pleural cavity (► Fig. 3a), balloon deflation was performed by needle puncture (► Fig. 3b). The deflated balloon was then grasped with a rat-toothed alligator forceps (► Fig. 3c) and dragged through the hiatus; the definitive trans-hiatal removal being performed with the help of surgical forceps (► Video 1).

After this, esophageal transection was performed under endoscopic control and a gastrostomy tube was placed. Once the patient had been discharged from the intensive care unit and was receiving total enteral nutrition, second-stage surgery was scheduled after a 3-month interval and a totally mini-invasive laparoscopic/thoracoscopic esophago-gastric anastomosis was subsequently performed (BMI 31 kg/m² at the time of surgery).

At 6-month follow-up, the patient was in good condition and asymptomatic.

Endoscopy_UCTN_Code_CPL_1AH_2AG

Conflict of Interest

The authors declare that they have no conflict of interest.

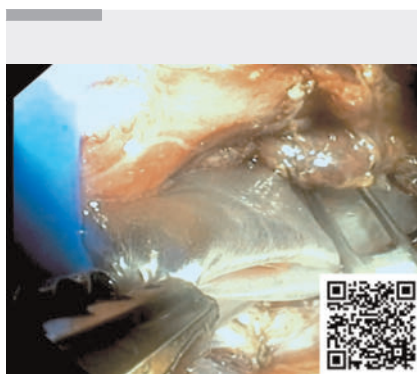
The authors

Pablo Cortegoso Valdivia¹, **Giorgio Dalmonte**², **Marina Valente**², **Lucia Ballabeni**², **Federica Gaiani**^{1,3}, **Gian Luigi de' Angelis**^{1,3}, **Federico Marchesi**²

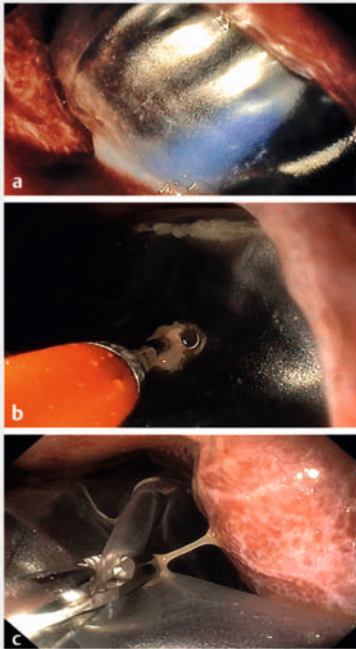
- 1 Gastroenterology and Endoscopy Unit, University Hospital of Parma, Parma, Italy
- 2 Unit of General Surgery, University Hospital of Parma, Parma, Italy
- 3 Department of Medicine and Surgery, University of Parma, Parma, Italy

Corresponding author

Pablo Cortegoso Valdivia, MD
University Hospital of Parma,
Gastroenterology and Endoscopy Unit, Viale
A. Gramsci 14, 43126 Parma, Italy
cortegosopablo@yahoo.it



► Video 1 Laparoscopy-assisted endoscopic removal of an intragastric balloon from the pleural cavity, after esophageal rupture during its placement.



► **Fig. 3** Endoscopic views showing: **a** the intragastric balloon located at the apex of the left pleural cavity; **b** the balloon being deflated by needle puncture; **c** the deflated balloon being grasped by foreign-body forceps.

References

- [1] Klinger MJ, Kroh M. Endoscopic balloon therapy. *Surg Clin N Am* 2021; 101: 355–371
- [2] Abu Dayyeh BK, Maselli DB, Rapaka B et al. Adjustable intragastric balloon for treatment of obesity: a multicentre, open-label, randomised clinical trial. *Lancet* 2021; 398: 1965–1973. doi:10.1016/S0140-6736(21)02394-134793746
- [3] Ribeiro IB, Kotinda APST, Sánchez-Luna SA et al. Adverse events and complications with intragastric balloons: a narrative review (with video). *Obes Surg* 2021; 31: 2743–2752
- [4] Lee KG, Nam SJ, Choi HS et al. Efficacy and safety of intragastric balloon for obesity in Korea. *Clin Endosc* 2023; 56: 333–339. doi:10.5946/ce.2022.14336510655
- [5] Nijhof HW, Steenvoorde P, Tollenaar RAEM. Perforation of the esophagus caused by the insertion of an intragastric balloon for the treatment of obesity. *Obes Surg* 2006; 16: 667–670. doi:10.1381/09608920677694488716687040

Bibliography

Endoscopy 2023; 55: E1137–E1138

DOI 10.1055/a-2183-5963

ISSN 0013-726X

© 2023. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited.

(<https://creativecommons.org/licenses/by/4.0/>)

Georg Thieme Verlag KG, Rüdigerstraße 14,
70469 Stuttgart, Germany



ENDOSCOPY E-VIDEOS

<https://eref.thieme.de/e-videos>



E-Videos is an open access online section of the journal *Endoscopy*, reporting on interesting cases and new techniques in gastroenterological endoscopy. All papers include a high-quality video and are published with a Creative Commons CC-BY license. Endoscopy E-Videos qualify for HINARI discounts and waivers and eligibility is automatically checked during the submission process. We grant 100% waivers to articles whose corresponding authors are based in Group A countries and 50% waivers to those who are based in Group B countries as classified by Research4Life (see: <https://www.research4life.org/access/eligibility/>).

This section has its own submission website at
<https://mc.manuscriptcentral.com/e-videos>