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

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 (Olympus 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 esophagogastrectomy 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.
References


Bibliography

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▶ 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.

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