Handling an unusual adverse event: esophageal perforation after variceal banding

Laura Marta Vivian, MD,[1] Alessandro Gubbiotti, MD, PhD,[2] Giulio Barbiero, MD, PhD,[3] Paolo Feltracco, MD, PhD,[4] Alberto Zanetto, MD, PhD,[1] Erik Rosa-Rizzotto, MD, PhD,[2] Marco Senzolo, MD, PhD[1]

Padova, Italy

A 61-year-old male with Child-Pugh B, hepatitis B virus-related cirrhosis, and clinically significant portal hypertension underwent esophageal endoscopic variceal ligation (EVL) with 6 bands placed, as primary prevention for high-risk varices. The patient was indeed intolerant to nonselective beta-blocker therapy and had large, tortuous varices with red wale signs. After 3 weeks, an urgent endoscopy performed for melena revealed active bleeding with severe spurting from 1 of 2 band ulcers and an underlying visible muscle layer with a suspected perforation (Fig. 1).

Due to profuse esophageal bleeding, a high risk of airway aspiration, and the onset of hemodynamic instability, orotracheal intubation and hemodynamic support were required. Thereafter, 2 over-the-scope clips (OTSCs; Ovesco, Tübingen, Germany) were deployed onto the bleeding ulcer to entirely encompass and close the defect (Fig. 2A). Due to the persistent variceal oozing, a partially covered self-expandable esophageal metal stent (SEMS; 18 mm × 12 cm) was inserted, covering the OTSCs, with immediate hemostasis (Fig. 2B).

A subsequent computed tomography scan confirmed the presence of an inferior paraesophageal extraluminal area (30 × 15 mm) with air and blood collection, as the consequence of the perforation (Fig. 3).

Thus, an urgent transjugular intrahepatic portosystemic shunt with coronary vein embolization was performed, lowering the portosystemic gradient from 16 to 9 mm Hg (normal values <6 mm Hg). The esophageal SEMS was removed during an esophagogastroduodenoscopy (EGD) 4 days after placement, and the site of the esophageal perforation was healing (Fig. 4A).

The clinical course was characterized by severe sepsis, which improved over time, and after 44 days the patient was discharged.

No further episodes of gastrointestinal bleeding occurred, and hemoglobin levels remained stable at approximately 9 g/dL (normal values 14-17.5 g/dL). At the 6-month follow-up EGD after the acute event, only residual low-risk varices and evidence of scarring from prior interventions (Fig. 4B) were observed, with no OTSC in place.

Esophageal variceal perforation secondary to EVL is extremely rare and seldom reported in the literature.[1-4] The reported instances uniformly resulted in death from septic shock, regardless of the therapeutic approach used, most of which were conservative due to the critical severity of the patient's condition.

This case highlights how, in select scenarios, a severe adverse event can be effectively managed through a combination of advanced procedures, including prompt endoscopic treatment of the perforation with an OTSC and successful resolution of portal hypertension, potentially altering its otherwise dreadful course.

PATIENT CONSENT

The patient in this article has given consent to publication of their case details.

DISCLOSURE

All authors disclosed no financial relationships.

Abbreviations: EGD, esophagogastroduodenoscopy; EVL, endoscopic variceal ligation; OTSC, over-the-scope clip; SEMS, self-expandable metal stent.

Current affiliations: Gastroenterology and Multivisceral Transplant Unit, Department of Surgery, Oncology and Gastroenterology, Padova University Hospital, Padova, Italy (1), Gastroenterology and Digestive Endoscopy Unit, Sant'Antonio Hospital, Padova, Italy (2), Interventional Radiology Unit, Department of Integrated Diagnostic Services, Padova University Hospital, Padova, Italy (3), Anesthesia and Intensive Care Unit, Department of Medicine, Padova University Hospital, Padova, Italy (4).

Corresponding author: Laura Marta Vivian, MD, Gastroenterology and Multivisceral Transplant Unit, Department of Surgery, Oncology and Gastroenterology, Padova University Hospital, via giustiniani 2, Padova 35124, Italy. E-mail: lauramarta.vivian@gmail.com.

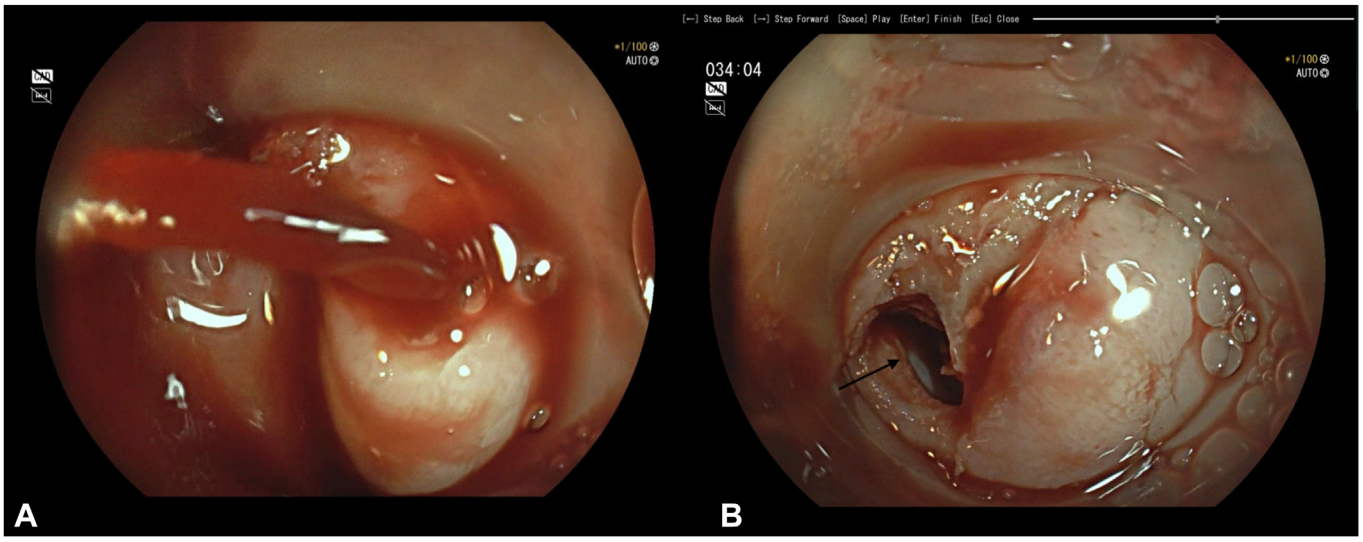

Figure 1. A, Active esophageal bleeding with severe spurting from the ulcer at the site of prior banding. **B,** Visible deep-muscle layer with suspected perforation (*arrow*).

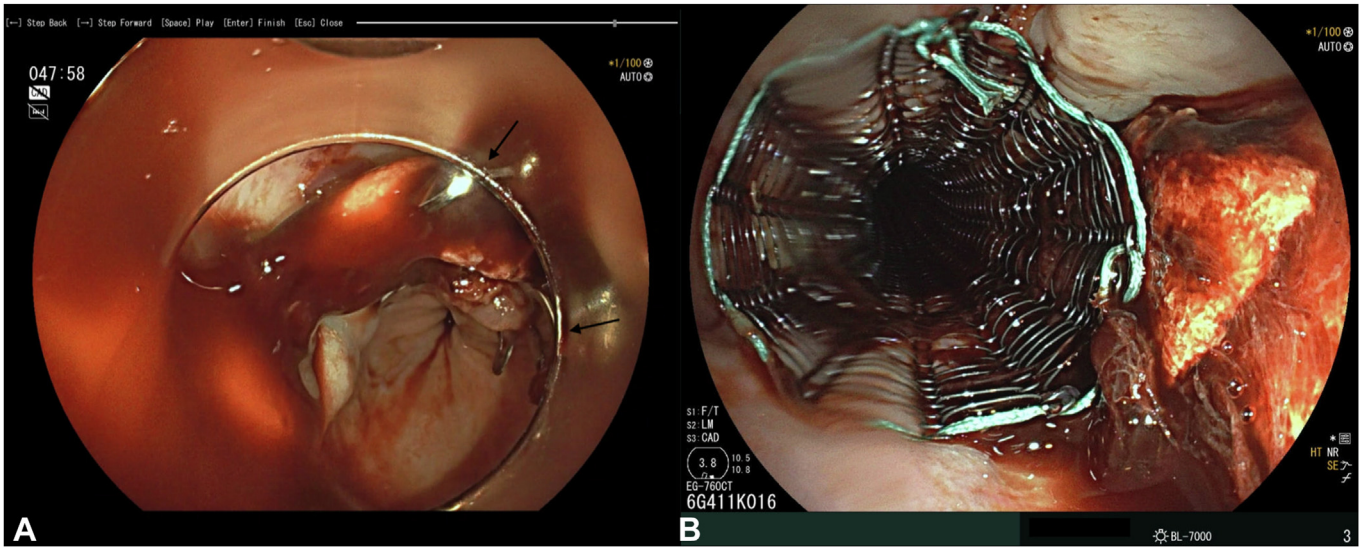

Figure 2. A, Two over-the-scope clips (*arrows*) used to close the perforation. **B,** Esophageal, partially covered metal stent (18 mm × 12 cm) placement with immediate hemostasis.

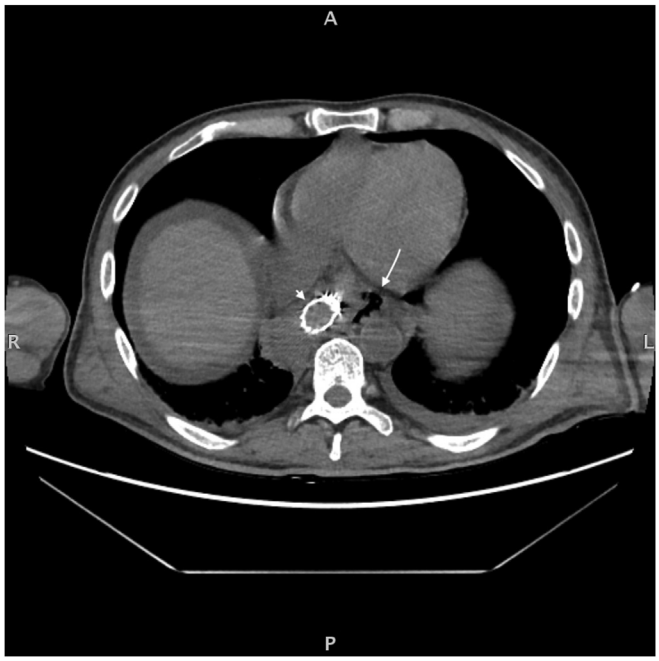

Figure 3. A 30- × 15-mm collection (*arrow*) extraluminal to the esophagus consistent with the perforation adjacent to the esophageal stent (*arrowhead*). *A*, anterior; *P,* posterior; *R*, right; *L,* left.

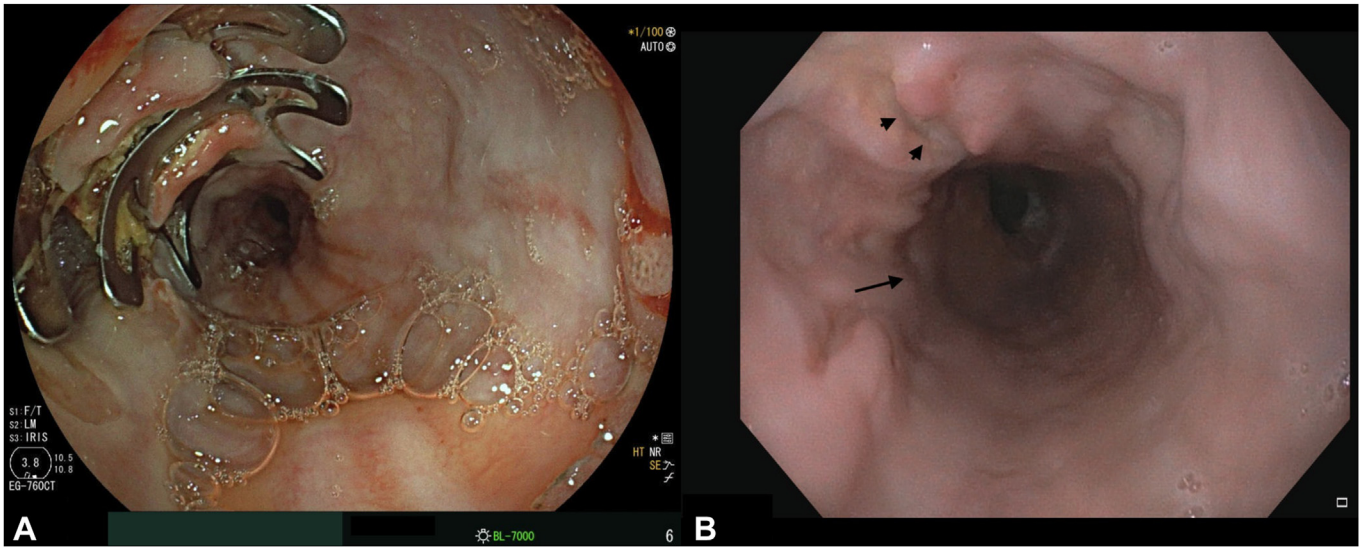

Figure 4. A, Esophageal stent removed with 2 over-the-scope clips in place at the site of the healed esophageal perforation. **B,** On repeat endoscopy 6 months after the acute event, residual low-risk varices (*arrow*) and scarring (*arrowheads*) from prior interventions.

REFERENCES

1. Wu C-M, Ging HL, Lin S-L, et al. Esophageal rupture after endoscopic banding ligation for esophageal varices bleeding. J Intensive Care Med 2002;17:195-8.
2. Schoonbroodt D, Zipf A, Jung M. Local necrosis and fatal perforation of oesophagus after endoscopic ligation. Lancet 1994;344:1365.
3. Hou MC, Lin HC, Chang FY, et al. Oesophageal perforation following endoscopic variceal ligation and balloon tamponade. J Gastroenterol Hepatol 1994;9:659-62.
4. Prakhar V, Kalyan B, Priya G, et al. Delayed esophageal perforation after treatment for recurrent esophageal variceal bleeding: 484. Am J Gastroenterol 2011;106:S188.

https://doi.org/10.1016/j.igie.2025.05.008

Received January 8, 2025. Accepted May 21, 2025.