

Received: 2017.11.26  
Accepted: 2018.02.14  
Published: 2018.05.09

e-ISSN 1941-5923  
© Am J Case Rep, 2018; 19: 545-548  
DOI: 10.12659/AJCR.908232

# A Rare Case of Complete Esophageal Obstruction Following Esophageal Variceal Band Ligation (EVBL) for Esophageal Varices Performed by Esophagogastroduodenoscopy (EGD)

Authors' Contribution:  
Study Design A  
Data Collection B  
Statistical Analysis C  
Data Interpretation D  
Manuscript Preparation E  
Literature Search F  
Funds Collection G

EF 1 **Muhammad Aziz**  
EF 2 **Beth Floyd**  
BDEF 2 **Tuba Esfandyari**

1 Department of Internal Medicine, University of Kansas Medical Center, Kansas City, KS, U.S.A.  
2 Department of Gastroenterology and Hepatology, University of Kansas Medical Center, Kansas City, KS, U.S.A.

**Corresponding Author:** Tuba Esfandyari, e-mail: [tesfandyari@kumc.edu](mailto:tesfandyari@kumc.edu)  
**Conflict of interest:** None declared

**Patient:** Female, 69  
**Final Diagnosis:** Complete esophageal obstruction  
**Symptoms:** Nausea • vomiting  
**Medication:** —  
**Clinical Procedure:** —  
**Specialty:** Gastroenterology and Hepatology

**Objective:** Rare disease  
**Background:** Esophageal variceal band ligation (EVBL) performed by esophagogastroduodenoscopy (EGD) is a routinely performed procedure for the treatment of esophageal varices that is undertaken to control bleeding and prevent further complications. This report is of a case of a rare complication of complete esophageal obstruction following EVBL.

**Case Report:** A 69-year-old woman underwent EVBL for esophageal varices. She subsequently presented with complete obstruction of the esophageal lumen with ulceration, which was seen on repeat EGD. Following conservative management, EGD demonstrated scarring around the ulcerated region and a patent esophagus.

**Conclusions:** This case report serves to remind physicians of the potential complications that may arise with the use of EVBL treatment for bleeding esophageal varices and to consider the use of a loop cutter, to grasp and remove the esophageal band to improve patient recovery.

**MeSH Keywords:** Endoscopy, Digestive System • Esophageal and Gastric Varices • Esophagus

**Full-text PDF:** <https://www.amjcaserep.com/abstract/index/idArt/908232>



1266



1



3



8



## Background

Esophageal varices are a major complication of cirrhosis, together with ascites, and hepatic encephalopathy, and portal hypertension leading to cardiac and renal disturbances [1]. Portal hypertension is associated with esophageal varices, which can result in fatal hemorrhage. The major modalities for managing bleeding varices are endoscopic variceal band ligation (EVBL) and endoscopic injection sclerotherapy (EIS) [2].

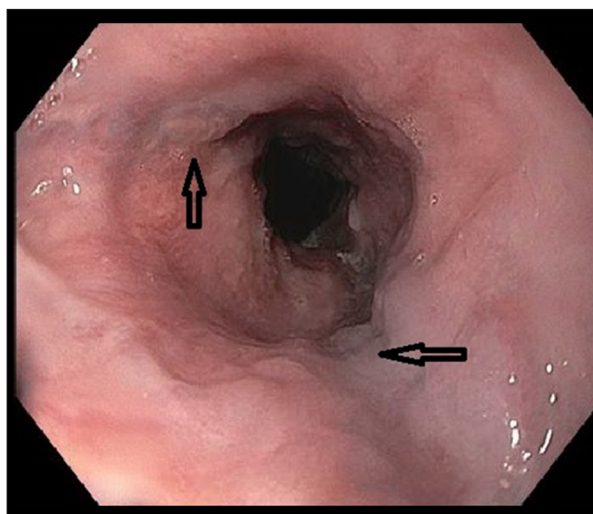
This case report describes a rare complication encountered with the use of EVBL in a woman with esophageal varices.

## Case Report

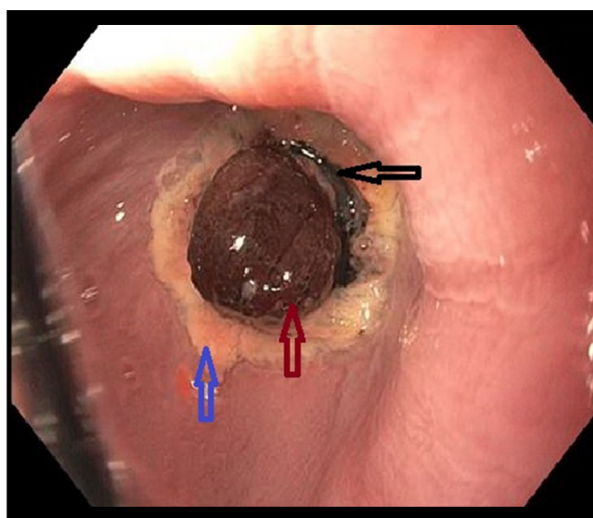
A 69-year-old woman with a past medical history of cirrhosis secondary to hepatitis C virus (HCV) infection, with a Model for End-Stage Liver Disease (MELD) score of 8, pericardial effusion, depression, chronic back pain, and osteoarthritis presented for a follow-up outpatient esophagogastroduodenoscopy (EGD). The objective of the EGD was to complete esophageal variceal band ligation (EVBL) until resolution of the bleeding, six weeks after initial banding of large esophageal varices (Figure 1). During the surveillance EGD, three columns of remaining esophageal varices (5 mm in size) were noted and three bands were placed successfully, with complete occlusion, resulting in deflation of the varices. No signs of recent bleeding were evident. Mild portal hypertensive gastropathy was also seen on EGD but without any gastric varices. There was no bleeding at the end of the EVBL procedure.

The patient complained of chest pain and nausea while in the recovery area, and she regurgitated one variceal band. She was then transferred to the emergency department on the same day with chest pain and nausea, and felt better after symptomatic medical treatment, using the opioid, fentanyl, and the anti-nausea agent, ondansetron (Zofran). A computed tomography (CT) scan showed no visceral injury, but esophageal varices were noted, with a distended esophagus, possibly due to reflux. She had normal vital signs and was admitted for observation due to frequent small-volume blood-tinged emesis. Physical examination was otherwise unremarkable. Due to persistent nausea, and inability to swallow, she remained in hospital.

A computed tomography (CT) scan on day 3 following EVBL showed moderate to marked esophageal distension with a fluid layer, indicating obstruction at the gastroesophageal junction. A repeat EGD on day 5 following EVBL showed a variceal band obstructing the esophageal lumen, with some ulceration around the band (Figure 2). The banding procedure was terminated at this stage.

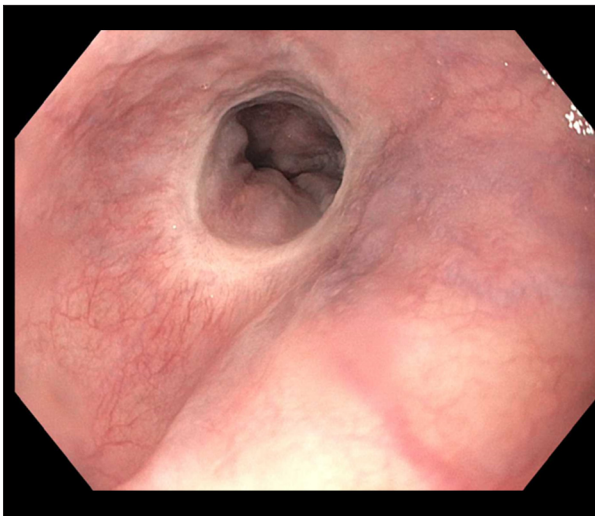


**Figure 1.** Follow up surveillance esophagogastroduodenoscopy (EGD) before esophageal variceal band ligation (EVBL). The endoscopy image shows two columns of remaining varices (black arrows) with no evidence of bleeding. Only two out of three varices are visualized here.



**Figure 2.** Esophagogastroduodenoscopy (EGD) following esophageal variceal band ligation (EVBL). The endoscopy image shows total esophageal lumen obstruction secondary to ulceration and necrosis (blue arrow) around one of the esophageal bands (black arrow) with shows protruding esophageal mucosa (red arrow).

Oral feeding and oral fluids were restricted and the patient was given total parenteral nutrition (TPN) and was treated with an intravenous (IV) proton pump inhibitor. She reported clinical improvement and no blood was observed in her feces in the days following EVBL. A subsequent EGD showed a circumferential ulcer at the gastroesophageal junction (GEJ), with a narrowed, but patent lumen. A gastrografin swallow was performed two days later, which showed a patent esophagus with



**Figure 3.** Esophagogastroduodenoscopy (EGD) at the time of hospital discharge following esophageal variceal band ligation (EVBL). The endoscopy image shows a patent, narrow, and scarred esophagus on follow-up esophagogastroduodenoscopy (EGD) at the time of hospital discharge.

no perforation. The patient's diet progressed from sips of oral fluids to a regular solid diet over the next few days. She was then commenced on sucralfate, a sucrose sulfate aluminium complex that protects the gastrointestinal tract.

The patient was discharged from the hospital and a repeat EGD was performed as an outpatient procedure. The EGD performed on discharge showed a circumferential esophageal ulcer with no ongoing bleeding and no evidence of recent bleeding. The patient underwent a follow-up EGD two weeks later, which showed esophageal scarring at 34cm from the incisors (Figure 3). There was no evidence of ulceration or bleeding, and the EGD scope easily traversed through the esophagus.

## Discussion

Esophageal variceal band ligation (EVBL) is one of the most common procedures performed in patients with esophageal varices. Review of the published literature shows that the common complications associated with the procedure of EBVL as published in the literature include re-bleeding, ulceration, perforation, and recurrence of varices [1–3]. The mechanism underlying total obstruction is not completely clear but it is possible that the banding procedure results in cessation of the blood supply to the lumen resulting in swelling, inflammation, and necrosis of the affected area, resulting in esophageal obstruction, as seen in this patient.

A literature review identified five previously reported cases that were similar this case, and where patients had complete

esophageal obstruction due to the band following an EVBL. The first case was described by Saltzman et al. in a 58-year-old man with cirrhosis secondary to hepatitis C, who underwent two sessions of EVBL three weeks apart, and who later had chest pain and hypersalivation [4]. A repeat EGD, in this case, showed a variceal band completely occluding the lumen of the esophagus, and the authors hypothesized the swelling associated with the band was the reason for esophageal obstruction [4].

Nikoloff et al. described the case of 67-year-old woman who underwent two sessions of EVBL for esophageal varices, secondary to primary biliary cirrhosis (PBC), that was refractory to medical management [5]. The patient had chest pain while in the recovery room and had vomiting when she was given aluminium hydroxide, magnesium hydroxide, simethicone, and lidocaine for symptomatic relief [5]. A gastrografin swallow study was performed that showed complete obstruction at the level of distal esophagus. The patient was started on partial parenteral therapy and her diet was progressed on the seventh day following her EGD [5].

A similar case of esophageal obstruction due to variceal banding was previously described by Chahal et al. [6]. The patient was a 54-year old woman who presented to the emergency department with a one-day history of chest pain, nausea, vomiting, and dysphagia following a surveillance EGD and band ligation of varices [6]. Obstruction was diagnosed on EGD and an attempt was made to reopen the esophageal lumen using biopsy forceps, but the procedure was terminated following a small amount of bleeding and failure to recanalize the lumen [6]. The patient was subsequently discharged from the hospital after she began to tolerate food [6]. However, she was readmitted again with similar symptoms on the day following hospital discharge. A barium swallow was performed that showed the formation of a stricture and intramural dissection of 6 cm in length to the level of the gastro-esophageal junction [6]. This patient was again restricted from oral food intake at that point and her diet was carefully advanced over the next several days and was discharged after she became stable and tolerated her oral diet [6].

Elizondo-Rivera et al. reported the case of 64-year-old woman who developed occlusion of her esophagus after her fourth EVBL [7]. She presented to the emergency department following her last procedure with dysphagia, chest pain and emesis. A barium swallow showed total esophageal blockage, which was confirmed with an EGD [7]. She was managed conservatively and was discharged from hospital after 11 days, when she was able to tolerate an oral diet [7].

Recently Kwiatk et al. reported a similar case at the Mayo Clinic in the USA, of a 67-year old woman who had varices secondary

**Table 1.** Important key points when managing a patient with esophageal obstruction.

Key points
Complete esophageal obstruction is an unusual but potential complication of esophageal variceal band ligation (EVBL) and can present as early as few hours after the procedure
A good history, clinical suspicion, and imaging such as barium swallow or computed tomography (CT) scan is important in making a diagnosis
An esophagogastroduodenoscopy (EGD) should be performed to confirm the diagnosis and to exclude other reasons for esophageal blockage (e.g., food impaction, bezoar, etc.)
Although patients can be managed conservatively with observation alone, the use of loop cutter can hasten the recovery process and shorten the hospital stay

to primary biliary cirrhosis (PBC), developed occlusive symptoms two hours after her EVBL, performed at another hospital [8]. Initial attempts at removing the band using toothed forceps and hot biopsy forceps were unsuccessful [8]. A re-usable loop cutter was successfully employed to remove the occluding band, and the patient was able to tolerate a soft diet [8].

## Conclusions

Esophageal variceal band ligation (EVBL) is the most commonly utilized procedure for the treatment of bleeding esophageal

varices and has now almost replaced injection sclerotherapy. This case report serves to remind physicians of the potential complications that may be associated with esophageal varices and with the use of the EVBL procedure and to consider the use of a loop cutter to remove the variceal bands to hasten the recovery process (Table 1).

## Conflicts of interest

None.

## References:

1. Fukui H, Saito H, Ueno Y et al: Evidence-based clinical practice guidelines for liver cirrhosis 2015. *J Gastroenterol*, 2016; 51: 629–50
2. Svoboda P, Kantorova I, Ochmann J et al: A prospective randomized controlled trial of sclerotherapy vs ligation in the prophylactic treatment of high-risk esophageal varices. *Surg Endosc*, 1999; 13: 580–84
3. Sarin SK, Guptan RKC, Jain AK, Sundaram KR: A randomized controlled trial of endoscopic variceal band ligation for primary prophylaxis of variceal bleeding. *Eur J Gastroenterol Hepatol*, 1996; 8: 337–42
4. Saltzman JR, Arora S: Complications of esophageal variceal band ligation. *Gastrointestinal Endoscopy*, 1993; 39: 185–86
5. Nikoloff MA, Riley TR, Schreiberman IR: Complete esophageal obstruction following endoscopic variceal ligation. *Gastroenterol Hepatol*, 2011; 7: 557–59
6. Chahal H, Ahmed A, Sexton C, Bhatia A: Complete esophageal obstruction following endoscopic variceal band ligation. *J Community Hosp Intern Med Perspect*, 2013; 3(1)
7. Elizondo-Rivera R, González-González J, Garcia-Compean D, Maldonado-Garza H: Complete esophageal obstruction after endoscopic variceal band ligation. *Endoscopy*, 2014; 46(Suppl.1 ) UCTN: E457-8
8. Kwiatt JT, Merchant P: Successful removal of an esophageal band causing complete esophageal obstruction after variceal ligation. *Gastrointest Endosc*, 2016; 83: 1030–31