



Mushroom Sign: Complete Esophageal Obstruction After Esophageal Variceal Band Ligation With Successful Removal of Variceal Band

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ABSTRACT

Esophageal varices due to portal hypertension are treated with endoscopic variceal band ligation (EVBL), a minimally invasive procedure with potential complications, such as pain, bleeding, and stricture formation. Rarely, complete esophageal obstruction can occur secondary to edema of the mucosa. Most cases can be managed conservatively, but intervention is necessary for severe symptoms with a risk for aspiration and airway compromise. Since EVBL is such a common procedure, it is important for clinicians to be aware of this rare but severe complication. An 80-year-old woman presented with severe dysphagia and chest discomfort after a recent EVBL. Esophagogastroduodenoscopy revealed esophageal mucosal edema and complete obstruction of the esophageal lumen. The band was removed with a loop cutter with subsequent balloon dilation to relieve the obstruction.

KEYWORDS: mushroom sign; esophageal variceal band ligation; complete esophageal obstruction; esophageal variceal bleed

INTRODUCTION

Esophageal varices are a major complication of portal hypertension caused by liver cirrhosis. Variceal rupture is a fatal cause of hemorrhage, accounting for 10%–30% of upper gastrointestinal bleeding.¹ Variceal hemorrhage occurs at an annual rate of 5%–15%.² Primary preventive strategies for variceal bleeding include pharmacologic prophylaxis with nonselective beta-blockers for small varices and endoscopic variceal band ligation (EVBL) for medium-to-large-sized varices.³ A combination of nonselective beta-blocker and EVBL is the standard therapy for secondary prophylaxis to prevent esophageal variceal rebleeding in patients with cirrhosis.⁴

Although EVBL is a minimally invasive endoscopic procedure with a short recovery time, it is not devoid of some complications such as dysphagia, bleeding, and stricture. We report a rare case of complete esophageal obstruction presenting as a “mushroom sign” after EVBL.

CASE REPORT

An 80-year-old woman was transferred to our hospital with complaints of inability to tolerate oral secretions and severe chest discomfort. She had undergone endoscopic variceal band ligation with 3 bands placed for primary prophylaxis 24 hours before transfer. A chest computed tomography scan showed a dilated esophagus with fluid retention and a 1 cm mass-like lesion in the distal esophagus. Esophagogastroduodenoscopy (EGD) revealed a mushroom-like appearance of mucosa in the distal esophagus with a full circumferential banding of the esophageal lumen, causing complete esophageal obstruction due to suctioning of the opposite wall of the esophageal mucosa. The underlying band was visible. After the initial endoscopic examination, we discussed the risks and benefits of band removal with the patient, the consulted hepatologist, and interventional radiologist in the event of uncontrolled bleeding or need for embolization or transjugular intrahepatic portosystemic shunt. The patient consented to a possible need for transjugular intrahepatic portosystemic shunt placement as rescue therapy after the endoscopic intervention. On repeat endoscopy

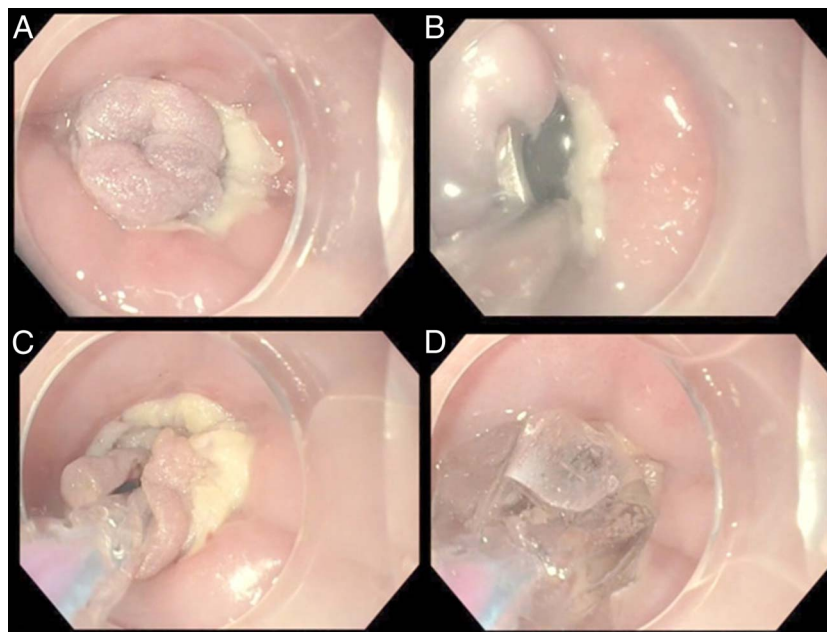


Figure 1. (A) Mushroom sign, (B) band grabbed with a loop cutter, (C) predilated stricture, and (D) balloon dilation.

using a distal attachment cap, the band was grabbed with a loop cutter and gentle pulling pressure was applied, resulting in the successful removal of the band without complications. Subsequent endoscopic examination showed that the esophageal mucosa had circumferential, mushroom-like, edematous mucosa with an ulcerated base measuring 10 mm in length at 30 cm from the incisors. Owing to ongoing obstruction, we performed through the scope gentle balloon dilation (8 mm–10 mm) to relieve the esophageal obstruction. There was no postprocedure bleeding, and the scope easily traversed the stricture. The patient recovered well postprocedure and was discharged home the next day. A week later, the patient had ongoing dysphagia and endoscopy was scheduled for repeat dilation (Figure 1).

DISCUSSION

EVBL is a commonly performed procedure in patients with esophageal varices for both primary and secondary prophylaxis. Commonly encountered complications of EVBL include band-induced ulcer bleeding, worsening of portal hypertensive gastropathy, esophageal stricture, perforation, and complete esophageal obstruction.^{5–7} Complete esophageal obstruction after EVBL is a rare complication. The exact underlying mechanism of obstruction is unclear, but it is postulated that the tissue undergoes ischemia, inflammation, and swelling after banding, leading to obliteration of the lumen.⁸

A review of the literature reveals 7 cases of complete esophageal obstruction after EVBL of varices.^{8–14} The first case was described by Saltzman and Arora⁹ in 1993 in a 58-year-old man with a history of cirrhosis caused by hepatitis C infection. The patient had 2 sessions of EVBL and then presented with chest discomfort and excessive salivation. An EGD revealed complete

obstruction of the esophageal lumen by the variceal band and swelling of the tissue with food stuck above the band. The food was cautiously pushed down around the band into the stomach, and the patient was then managed conservatively with a liquid diet for 24 hours.

Chahal et al¹³ presented a patient with hypertension and hepatitis C-related cirrhosis who suffered from vomiting and dysphagia for a day after undergoing an EVBL. An EGD revealed complete esophageal obstruction due to the band with the entrapped varix. An attempt to open the lumen with biopsy forceps was unsuccessful and resulted in esophageal dissection. The patient ultimately improved with conservative management over 3–4 days. Kwiatt and Merchant¹⁴ reported the successful removal of a variceal band with a reusable loop cutter in a 67-year-old with PBC like our approach after their initial attempts with a rat-tooth and hot biopsy forceps were unsuccessful.

In most reported cases, the obstruction was managed conservatively with nil-per-os, intravenous fluids, and parenteral nutrition. In one case, intervention with biopsy forceps resulted in esophageal dissection. Our case demonstrates successful intervention for this complete esophageal obstruction, with the band being successfully removed with a loop cutter without any complications. We noticed the normal mucosa of the opposite esophageal wall was captured with the band ligation. Thus, we felt gentle and minimal endoscopic dilation of the stricture after band removal was safe. Based on the literature, most cases of complete esophageal obstruction can be managed conservatively, with active intervention to remove the band required in cases with severe dysphagia or impending airway compromise. Since EVBL is such a common procedure, it is important for clinicians to be aware of this rare but severe complication. This

highlights the importance of the spiral banding technique, aiming toward one column of varices at a time and avoiding capturing opposite wall normal mucosa.

DISCLOSURES

Author contributions: M. Gandhi: drafted manuscript and corresponding author. HK Chaur: designed the manuscript and critical revision. E. Daglilar: critical revision of the manuscript. G. Hammoud: conceptualized and designed the manuscript, critical revision, and is the article guarantor.

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