

CASE REPORT | ESOPHAGUS

Transjugular Intrahepatic Portosystemic Shunt Prior to Endoscopic Mucosal Resection for Barrett's Esophagus in the Setting of Varices

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Abstract

Patients with Barrett's esophagus (BE) and cirrhosis who develop high-grade dysplasia (HGD) or adenocarcinoma in the setting of esophageal varices present a unique therapeutic dilemma. There is limited literature regarding the optimal management of varices prior to invasive procedures or surgery involving the distal esophagus. We present a case of variceal decompression with a transjugular intrahepatic portosystemic shunt (TIPS) allowing for successful endoscopic mucosal resection (EMR) of BE with HGD overlying esophageal varices.

Introduction

Patients with cirrhosis who need an invasive procedure present a challenge because of contraindications to perform the procedure or an increased risk of complications. A limited number of studies suggest that preoperative transjugular intrahepatic portosystemic shunt (TIPS) placement may be effective in reducing portal pressure prior to surgery, resulting in decreased perioperative complications.^{1–7} Endoscopic mucosal resection (EMR) is used for the staging and treatment of superficial neoplasms of the gastrointestinal tract,⁸ and bleeding is the most common complication.⁹

Case Report

A 66-year-old white male with Child-Pugh class A hepatitis C (HCV) cirrhosis and esophageal varices was referred for management of Barrett's esophagus (BE) with high-grade dysplasia (HGD). A surveillance esophagogastroduodenoscopy (EGD) showed large esophageal varices and BE with a nodule 38 cm from the incisors; biopsies demonstrated intestinal metaplasia with HGD. Repeat EGD with endoscopic ultrasound (EUS) was notable for 3 columns of large esophageal varices 20–36 cm from the incisors, and BE 30–36 cm from the incisors with 2 nodules at 36 cm. No abnormal lymph nodes were noted on EUS. There was thickening of the mucosal layer at 36 cm, which correlated with the nodules seen endoscopically, but no penetration into or beyond the submucosal layer. Band ligation for management of esophageal varices was not performed given concerns that scarring may affect the pathologic staging of the lesion and inhibit further EMR.

His initial exam was significant for several spider angiomas and trace lower extremity edema. Labs were significant for hemoglobin 10.7 g/dL, platelets 84 K/mm³, international normalized ratio (INR) 1.57, creatinine

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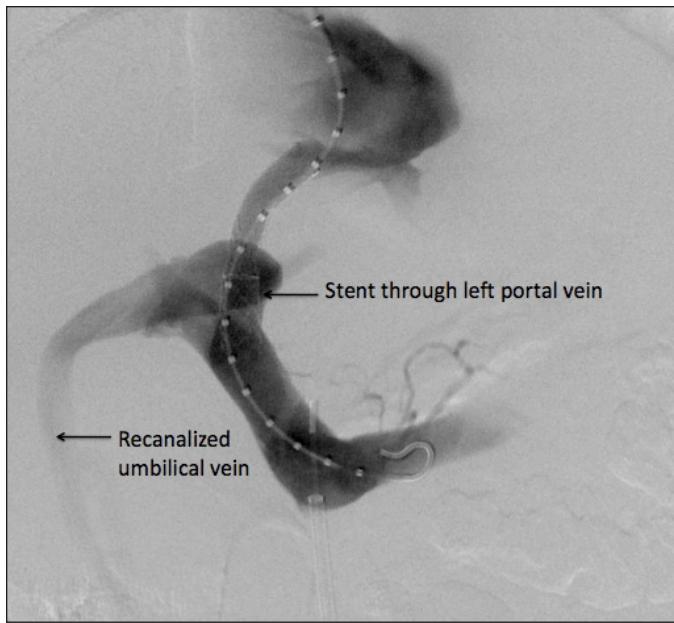


Figure 1. TIPS procedure with reduction in the HVPG from 16 mm Hg to 6 mm Hg.

0.67 mg/dL, total bilirubin 1.0 mg/dL, and albumin 3.9 g/dL, with a calculated MELD score of 11. An abdominal computed tomography (CT) showed splenomegaly and no enlarged lymph nodes. Given that his cirrhosis was well compensated with preserved liver function, we pursued treatment of the dysplastic Barrett's esophagus. A TIPS was planned for decompression of esophageal varices prior to attempted endoscopic treatment of his BE.

The patient underwent a successful TIPS procedure with reduction in the hepatic venous pressure gradient (HVPG) from 16 mm Hg to 6 mm Hg (Figure 1). Six days later, an EGD established that there were no visible distal varices in the region of his Barrett's esophagus (Figure 2). EMR was per-

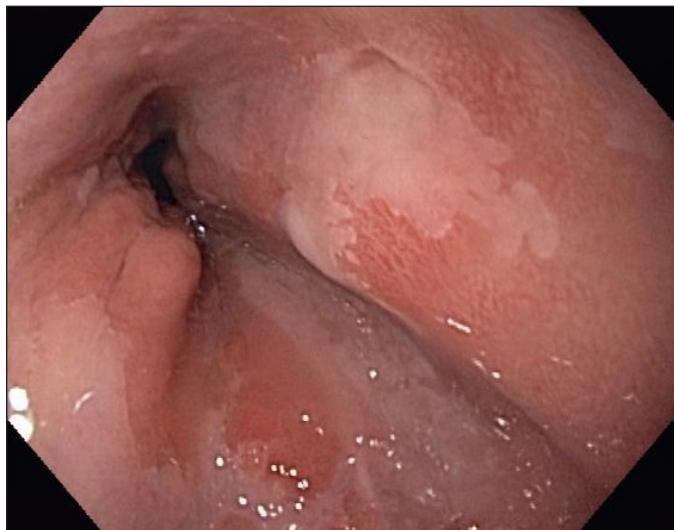


Figure 2. EGD showing no visible distal varices in the region of his BE.

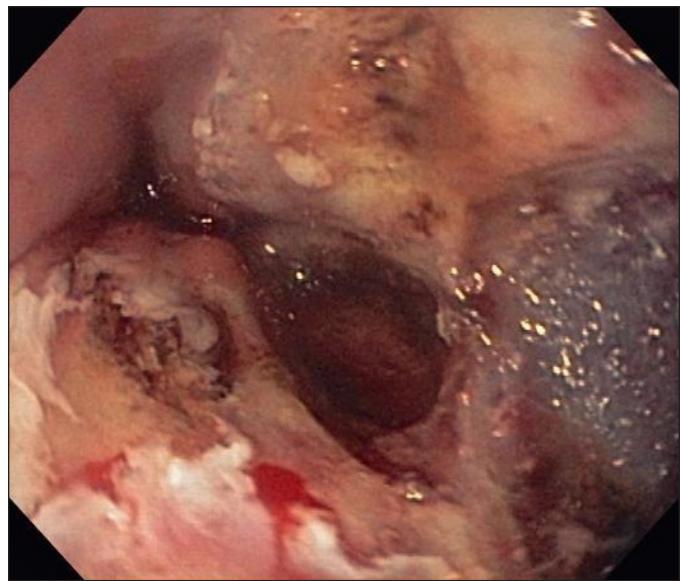


Figure 3. EMR in which oozing from the margins was treated with focal argon plasma coagulation therapy.

formed, and oozing from the margins of his EMR was treated with focal argon plasma coagulation therapy, with minimal estimated blood loss (Figure 3). Pathology confirmed HGD with negative margins. A repeat EGD at 2 months showed continued resolution of esophageal varices, scattered BE segments 35–41 cm from the incisors without nodules, and extensive re-epithelialization of the area of prior EMR (Figure 4). The residual BE was treated with radiofrequency ablation (RFA). The patient is doing well 15 months after EMR without dysphagia or odynophagia.

Discussion

We report the first case of TIPS placement for reduction of

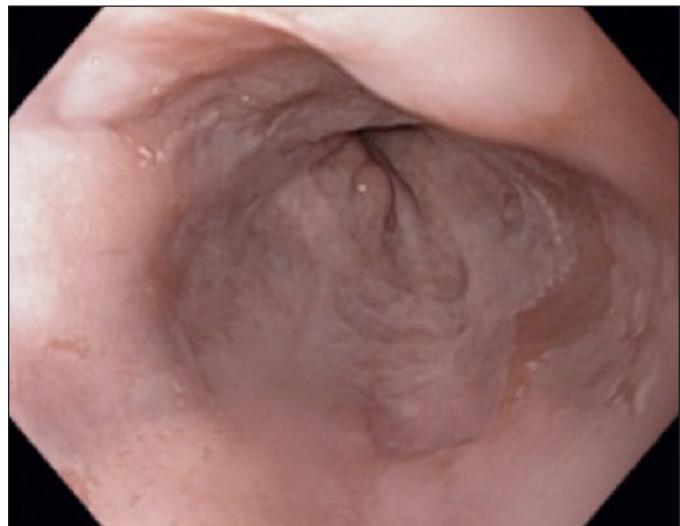


Figure 4. Repeat EGD at 2 months showing resolution of esophageal varices, scattered BE 35–41 cm from the incisors without nodules, and extensive re-epithelialization of the area of prior EMR.

portal pressure to facilitate EMR for BE with HGD. A literature search revealed a case report describing TIPS prior to successful EMR of a gastric adenocarcinoma in a cirrhotic with severe portal hypertensive gastropathy.¹⁰

Perioperative complications in patients with cirrhosis may be secondary to severe portal hypertension.^{2-7,11} Several studies have concluded that preoperative TIPS for portal decompression may be beneficial in patients with cirrhosis who have varices in or near the surgical field (Table 1). However, in a retrospective comparative study of patients with

cirrhosis undergoing elective abdominal surgery, preoperative TIPS was not shown to reduce operative blood loss or improve survival at 1 month or 1 year, although the group undergoing TIPS had a statistically significant higher Child-Turcotte-Pugh score.¹¹

In our case, TIPS was successful in decompressing the esophageal varices prior to effective EMR of BE with HGD, which not only ablated the neoplastic segment but also provided accurate staging. A previously reported alternative management strategy is the use of band ligation to eradicate

Table 1. Previously Published Studies of TIPS Placement in Patients with Cirrhosis Prior to a Procedure or Surgery

Study	No. of Patients	Procedure	Child-Pugh Score	MELD Score	Time from TIPS to Procedure	TIPS Parameters	Patient Outcomes
1 ¹	1	Abdominal surgery	Unknown	Unknown	Unknown	Unknown	Alive at 17-mo follow-up
2 ¹³	1	Endoscopic laser resection	Child B	Unknown	>3 mo	Reduction of HVPG from 25 to 8 mm Hg	Alive at 1-y follow-up
3 ¹⁰	1	EMR	Child B 8	Unknown	30 d	Reduction of HVPG from 32 to 22 mm Hg	Moderate oozing from area of EMR; Alive at 6-mo follow-up
4 ²	7	Abdominal surgery	3-12; mean 6 ^a	Unknown	1-5 mo; mean 2.9 ± 1.3 mo	Reduction of HVPG from 18±5 to 9±5 mm Hg	Intraoperative transfusion in 2 patients with 2 units of blood or less; 4 patients alive at 33-mo follow-up; 1 death from operative mortality at 36 d after surgery; 1 death from cancer recurrence 2 y after surgery; 1 death at 1 y secondary to terminal disease
5 ³	2	Abdominal or retro-peritoneal surgery	Child C	Unknown	Case 1: 3 wk; Case 2: 8 wk	Case 1: reduction of HVPG from 17 to 8 mm Hg; Case 2: 26 to 14 mm Hg	Case 1: Transfused 2 units of blood perioperatively. Alive at 10 month follow up; Case 2: Transfused 2 units of blood perioperatively. Received orthotopic liver transplant 2 y later
6 ⁴	1	Abdominal surgery	Child A	Unknown	7 d	Reduction of HVPG from 16 to 12 mm Hg	Alive at 6-mo follow-up
7 ⁵	3	Abdominal surgery	Child A-B	Unknown	14-45 d	Mean reduction of HVPG of 18 mm Hg	1 patient received 1 unit of blood intraoperatively; 1 patient received 2 units of blood postoperatively; 1 patient received 5 units of blood postoperatively
8 ¹¹	18 ^b	Abdominal surgery	mean 7.7 ^a	Unknown	Mean 72 ± 21 d	Reduction in HVPG from 21.4 ± 3.9 to 8.4 ± 3.4 mm Hg	Operative blood transfusions required in 6 patients (1-4 units per patient); 83% survival at 1 mo, 54% survival at 1 y
9 ⁶	7	Abdominal or pelvic surgery	Child A-B mean 6.7	7-16	1-32 d; mean 13 d	Mean reduction of HVPG of 7.8 mm Hg	2 patients required a blood transfusion of 2 units or less intra- or postoperatively. 1 patient death due to liver failure 14 mo after surgery; 1 patient with mild, intermittent encephalopathy despite medication; 5 patients doing well at follow-up
10 ⁷	6 ^c	Cardio-thoracic and abdominal surgery	Child A-C 6-10	7-15	6-46 d	Unknown for subset of patients with prophylactic TIPS placement	No 1-y mortality during median follow-up of 16.8 mo

EMR=endoscopic mucosal resection; HVPG=hepatic venous pressure gradient; MELD=model for end-stage liver disease; TIPS=transjugular intrahepatic portosystemic shunt.

^aChild-Turcotte-Pugh (CTP) score.

^bIn a retrospective comparative study.

^cIn subset undergoing prophylactic TIPS placement.

dysplastic BE in the setting of esophageal varices, although in that setting, the accuracy of staging would be lost.¹² Additional studies are needed to further delineate this potential role of TIPS and to optimize patient selection for this combined approach.

Disclosures

Author contributions: M. NeSmith is the primary author. All authors contributed to the manuscript. J. Ahn is the article guarantor.

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Informed consent was obtained for this case report.

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