

## case report

# Endoscopic band ligation for transverse colonic variceal bleeding: case report and review of the literature

Shan Xie, Ming Fang Ruan, Jiang Wang, Min Bi Li

From the Department of Gastroenterology, First Affiliated Hospital of Nanchang University, Nanchang, China

**Correspondence:** Prof. Min Bi Li, Department of Gastroenterology, First Affiliated Hospital of Nanchang University, Nanchang, China 2267582610@qq.com ORCID: <https://orcid.org/0000-0002-6896-0206>

**Citation:** Xie S, Ruan MF, Wang J, Li MB. Endoscopic band ligation for transverse colonic variceal bleeding: case report and review of the literature. *Ann Saudi Med* 2020; 40(3): 255-258. DOI: 10.5144/0256-4947.2020.255

**Received:** January 17, 2019

**Accepted:** April 6, 2019

**Published:** June 4, 2020

**Copyright:** Copyright © 2020, Annals of Saudi Medicine, Saudi Arabia. This is an open access article under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-ND). The details of which can be accessed at <http://creativecommons.org/licenses/by-nc-nd/4.0/>

**Funding:** National Natural Science Foundation of China 81503437.

Colonic varices are lesser-known in comparison with gastroesophageal varices in a complication associated with liver cirrhosis. The ideal therapeutic intervention for a colonic varix is still unclear. We report a 42 year-old man with 20 years of alcohol use who presented with hematochezia and abdominal distension. The patient was diagnosed with alcoholic liver cirrhosis. The colonoscopy revealed a dilated and tortuous varix in the transverse colon close to the hepatic flexure with oozing blood, a communicating branch and with "red sign", evidence of acute bleeding. Endoscopic band ligation (EBL), the most useful intervention for esophageal varices, was further successfully performed to arrest the bleeding colonic varices. One month after initial treatment, the colonic varices nearly vanished and were replaced by an ulcer. It is extremely rare for colonic varices to be treated with EBL. There is only one similar case in reported literature, but it seems to be safe and effective as an intervention for EBL for acute colonic variceal bleeding.

**SIMILAR CASES:** Second case treated by endoscopic band ligation.

Portal venous hypertension associated with liver cirrhosis usually leads to gastroesophageal varices.<sup>1</sup> However, ectopic varices secondary to liver cirrhosis are not common, especially colonic varices, which occur at low frequency.<sup>2</sup> Hemorrhage due to colonic varices is usually massive and threatens life or is fatal.<sup>3</sup> Immediate treatment is urgent. Multiple methods have been described for intervention, such as hemicolectomy, vascular intervention, and endoscopic surgery. Nevertheless, the ideal intervention for colonic varices is still unclear, possibly due to the rarity of cases. We report a case of transverse colonic variceal bleeding associated with alcohol liver cirrhosis that we treated by endoscopic band ligation (EBL), which is commonly used to arrest esophageal varices.

## CASE

A 42-year-old man with a 20-year history of alcohol abuse presented with hematochezia and abdominal distension. Upon physical examination, his heart rate was 102 bpm, and his initial blood pressure was 96/62 mmHg, and expiration 26 bpm. Examination revealed a pale body with brownish pigmentation on the skin of the face, not accompanied with spider nevus. The abdomen was soft and flat without abdominal wall varices. Abnormal laboratory data included the following: RBC  $2.37 \times 10^{12}/L$ , Hb 6.7g/dL, ALB 32.6g/L, PT 17.9s, INR 1.39s, and Fb 0.89 g/L. The Child-Pugh score was class B. Liver cirrhosis, characterized by an enlarged caudate lobe, wid-

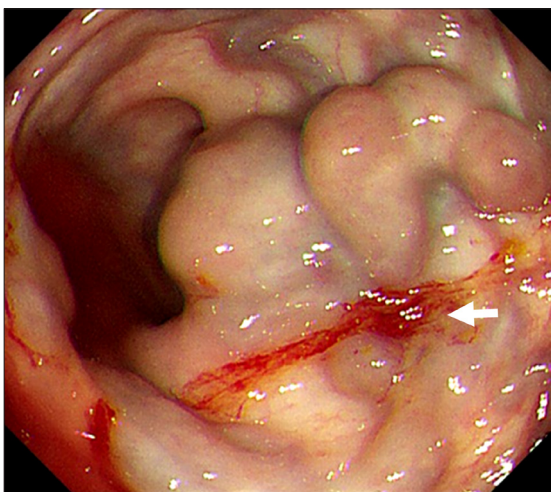
## case report

ening of the fissures, enlarged portal vein, esophageal varices and splenomegaly, was shown by enhanced computed tomography (CT).

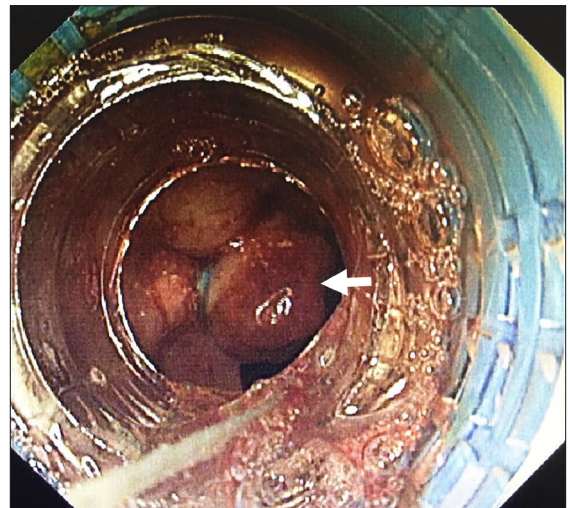
A gastroscopy indicated mild esophageal varices but did not show signs of recent bleeding. To detect the cause of hemorrhage, a colonoscopy was used to observe the whole large intestine. The colonoscopy showed a dilated and tortuous varix with blood oozing, a communicating branch and a "red sign" in the transverse colon close to the hepatic flexure showing signs of acute bleeding (**Figure 1**). The bleeding was arrested with EBL using a gastroscope. All five bands were deployed to ligate the colonic varix (**Figure 2**). There were no signs of re-bleeding after EBL, that is, no hematochezia within 48 hours, the level of hemoglobin increased and vital signs recovered within 48 hours. One month after initial treatment, a second colonoscopy revealed that the varices in the transverse colon had almost disappeared, and had been replaced with mild ulcer (**Figure 3**).

### DISCUSSION

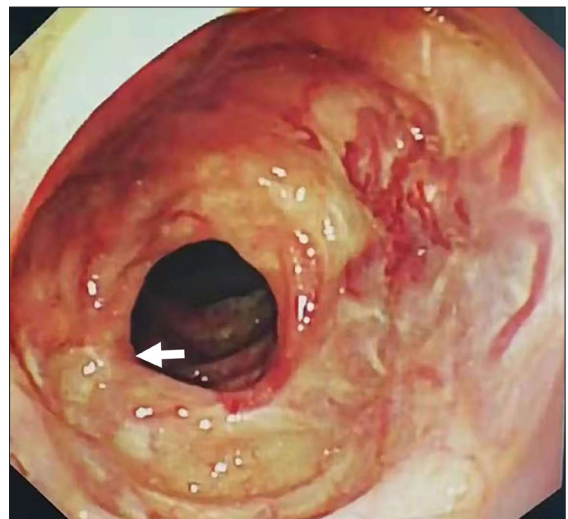
Colonic varices, usually secondary to portal venous hypertension, are a relatively rare cause of hematochezia.<sup>4</sup> The acute colonic variceal bleeding may be massive and occasionally fatal. Since Brill and colleagues reported a case of colonic varices in 1969, fewer than 100 cases have been reported in the following decades.<sup>5</sup> In our case, a patient with a 20-year history of alcohol abuse had a typical stereograph of liver cirrhosis by CT, and was diagnosed with alcoholic liver cirrhosis. After a complete diagnostic workup, hematochezia was attrib-



**Figure 1.** Colonoscopy showed a dilated and tortuous varix in the transverse colon close to the hepatic flexure with massive red color sign, a communicating branch and bloody scab (arrow).



**Figure 2.** All five rings were deployed to ligate the transverse colon varices (arrow).



**Figure 3.** One month after endoscopic treatment, the transverse colon varices had nearly disappeared (arrow) and were replaced with a mild ulcer.

uted to transverse colonic variceal bleeding detected by colonoscopy. Although 'various' interventions for colonic variceal bleeding has been reported for decades, treatment guidelines for colonic varices have not been standardized possibly due to their low incidence. Hemicolectomy, which was initially shown to stop blood loss, emerged as the most useful measure to treat colonic varices. However, abnormal liver function or even liver failure from decompensated liver cirrhosis, may restrict the usage of surgery. Thus, minimally invasive surgery, including vascular intervention and endoscopic treatment, has generally been accepted as treatment for colonic varices secondary to liver cirrhosis. Ko et al

obliterated distal ascending colonic varices by vein coil embolization and histoacryl injection.<sup>6</sup> Matsumoto et al performed balloon-occluded retrograde transvenous obliteration to prevent the rupture of an ascending colonic varix.<sup>7</sup> A transjugular intrahepatic portosystemic shunt, a vascular intervention for decreasing portal hypertension, was recently reported to cure the ascending colonic varices.<sup>3,8</sup>

With the development of newer endoscopic instruments, more operative procedures will be performed by endoscopic therapy. In contrast to traditional surgery or vascular intervention, endoscopic treatment for ectopic varices is simple, low-risk and cost-effective. Additionally, most physicians are inclined to apply endoscopic therapy for colonic varices secondary to liver cirrhosis, possibly because of abnormal liver function or even liver failure. Endoscopic therapy is usually used in patients with high MELD (model for end-stage liver disease) and Child-Pugh scores. The colonic varices in this case were indications for endoscopic surgery due to abnormal liver function, characterized by lower albumin and worsening coagulation. Matsumoto et al reported a case of endoscopic histoacryl injection for treatment of varices in the ascending colon.<sup>9</sup> Sato et al reported a case of transverse colonic varices near the splenic flexure, which was controlled successfully by endoscopic sclerotherapy (EIS).<sup>10</sup>

EBL has been used to treat acute bleeding for decades, especially for gastroesophageal variceal bleeding. EBL is now considered the most useful and popular intervention for acute esophageal bleeding, and has recently been reported as treatment for ectopic varices, such as duodenal varices and rectal varices, and non-variceal bleeding, such as angiodysplasia, Dieulafoy's lesion, and even iatrogenic gastrointestinal perforation.<sup>11,12</sup> There have been a few reports of EBL to arrest rectal variceal bleeding.<sup>13</sup> However, reports on the use of EBL to arrest colonic variceal bleeding are

rare. Additionally, a few case reports indicate that colonic diverticular bleeding has been controlled by EBL, which can be safe and effective measure for the non-expert endoscopist.<sup>14-16</sup> Similarly, Misra et al reported a case of a descending colonic bleeding treated with EBL deployed with three bands, which is the only report on EBL treatment for colonic varices as far as we are aware.<sup>17</sup> Unlike other centers, we have used more bands to arrest the bleeding colonic varices due to our skilled experience in treating esophageal varices in our endoscopy center, a well-known department in China, with almost 2000 cases of EBL per year. Our procedure had excellent hemostatic effects and a low recurrence rate, while patients with esophageal varices applied with 2-3 bands per session had recurrence of the varices which required a repeat session of banding. Additionally, at the one month follow-up there was no evidence of recurrence of varices detected by colonoscopy after one-month operation, to evaluate the long term effect of EBL on the transverse colonic varices. Both techniques, EBL and EIS, have been highly effective in the control of variceal bleeding. However, EBL was safer, involved less pain and had higher patient satisfaction than EIS.<sup>18</sup> Nevertheless, EBL is need of combination with other interruptions like a transjugular intrahepatic portosystemic shunt procedure to prevent recurrence of ectopic varices. In our patient, the transverse colonic varices almost vanished at one month follow-up after the initial presentation, suggesting that EBL may be a safe and effective intervention for acute colonic variceal bleeding for future clinical application.

#### Acknowledgments

*This case report was supported by the National Natural Science Foundation of China (NO: 81503437) and the Natural Science Foundation of Jiangxi Province (NO. 20161BAB205246). The authors thank Professor Liang Bin for his professional support and help.*

## REFERENCES

1. Seo YS. Prevention and management of gastroesophageal varices. *Clin Mol Hepatol*. 2018; 24(1): 20-42.
2. Helmy A, Al Kahtani K, Al Fadda M. Updates in the pathogenesis, diagnosis and management of ectopic varices. *Hepatol Int*. 2008; 2(3): 322-324.
3. Christian KE, McCurdy MT, Potosky DR. Massive Hematochezia from Ascending Colonic Varices. *West J Emerg Med*. 2015; 16(4): 577-578.
4. Dina I, Braticевич CF. Idiopathic colonic varices: case report and review of literature. *Hepat Mon*. 2014;14(7): e18916.
5. Brill DR, Bolasny B, Vix VA. Colonic varices. Report of a case. *Am J Dig Dis*. 1969; 14(11): 801-804.
6. Ko BS, Kim WT, Chang SS, Kim EH, Lee S. W, Park WS, et al. A case of ascending colon variceal bleeding treated with venous coil embolization. *World J Gastroenterol*. 2013;19(2): 311-315.
7. Matsumoto K, Imai Y, Takano M, Nakazawa M, Ando S, Sugawara K, et al. A case of colonic varices complicated by alcoholic cirrhosis treated using balloon-occluded retrograde transvenous obliteration. *Clin J Gastroenterol*. 2018.
8. Zhou LY, Ma YJ, Tian F. Hepatobiliary and Pancreatic: Management of bleeding colonic varices in liver disease. *J Gastroenterol Hepatol*. 2017; 32(12): 1913.
9. Sousa M, Ribeiro I, Proenca L, Silva J, Ponte A, Rodrigues J. Histoacryl injection for treatment of varices in the ascending colon. *Endoscopy*. 2016; 48 Suppl 1: E285.
10. Sato T, Yamazaki K, Akaike J, Toyota J, Karino Y, Ohmura T, et al. Transverse colonic varices successfully treated with endoscopic procedure. *Clin J Gastroenterol*. 2008; 1(2): 52-55.
11. Laine L, Cook D. Endoscopic ligation compared with sclerotherapy for treatment of esophageal variceal bleeding. A meta-analysis. *Ann Intern Med*. 1995;123(4): 280-287.
12. Ji JS, Cho YS. Endoscopic band ligation: beyond prevention and management of gastroesophageal varices. *World J Gastroenterol*. 2013;19(27): 4271-4276.
13. Coelho-Prabhu N, Baron TH, Kamath PS. Endoscopic band ligation of rectal varices: a case series. *Endoscopy*. 2010; 42(2): 173-176.
14. Higashi R, Kinugasa H, Nakagawa M. Endoscopic band ligation for colonic diverticular bleeding. *Dig Endosc*. 2018; 30(3): 399.
15. Shimamura Y, Ishii N, Omata F, Imamura N, Okamoto T, Ego M, et al. Endoscopic band ligation for colonic diverticular bleeding: possibility of standardization. *Endosc Int Open*. 2016; 4(2): E233-E237.
16. Lee I, Park CH, Kwon JW, Kim SJ, Park JW, Kim KO, et al. Complete closure of a colonic bleeding diverticulum using endoscopic hemoclip and band ligation. *Gastrointest Endosc*. 2012; 75(2): 425; discussion 425-426.
17. Misra SP, Dwivedi M. Ligation of a bleeding colonic varix using an upper gastrointestinal endoscope. *Endoscopy*. 2006; 38(6): 657.
18. Awad AE, Soliman HH, Saif SA, Darwish AM, Mosaad S, Elfert AA. A prospective randomised comparative study of endoscopic band ligation versus injection sclerotherapy of bleeding internal haemorrhoids in patients with liver cirrhosis. *Arab J Gastroenterol*. 2012; 13(2): 77-81.