

Successful Endoscopic Treatment of Bleeding Duodenal Vascular Ectasia using Band Ligation

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Abstract

A 63 year-old woman with a cirrhosis due to chronic hepatitis B infection was admitted to our hospital with massive tarry stool. Endoscopy revealed bleeding duodenal vascular ectasia in the posterior wall of the second portion. We performed Endoscopic Band Ligation (EBL) for the bleeding duodenal vascular ectasia. EBL may be effective in treating the bleeding duodenal vascular ectasia.

Keywords: Duodenal vascular ectasia; Cirrhosis; Endoscopic band ligation; Portal hypertension

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Introduction

Portal hypertension induces the development of porto-systemic collateral vessels. Esophageal varices are considered to be the most common complication in patients with portal hypertension but other lesion such as gastric mucosal lesion (portal hypertensive gastropathy) [1-3], colonic varices, colonic mucosal lesion (portal hypertensive colopathy) [4-6] may develop. On the other hand, duodenal mucosal lesion

(portal hypertensive duodenopathy) is a rare condition related to portal hypertension. Several literatures have reported the Portal Hypertensive Duodenopathy (PHD) with portal hypertension [7-9]. PHD has rarely been reported, but Vigneri et al. described the frequency of PHD to be 25% in patients with portal hypertension [10]. Barakat et al. also have reported that the frequency of PHD was 51.4% of portal hypertensive patients including erythema, erosions, ulcers, telangiectasia, exaggerated villous pattern, duodenal varices [9]. On the other hand, the frequency of PHD was low and there was no increase in the prevalence of PHD after sclerotherapy [7] by Gupta et al.

Vascular ectasia of the duodenum is rare [11, 12], but it may be a cause of upper gastrointestinal bleeding in patient with portal hypertension. We report a case of bleeding vascular ectasia of the duodenum controlled successfully by EBL.

Case Report

A 63-year old female with hepatitis B surface antigen positive liver cirrhosis was admitted to hospital with tarry stool. She had been diagnosed with liver cirrhosis at 34 years of age based on laboratory data and imaging studies and received balloon-occluded retrograde transvenous obliteration to treat gastric varices at 49 years of age. At 50 years of age, she received endoscopic injection sclerotherapy for esophageal varices.

At the time of admission, her systolic blood pressure was about 90 mmHg, pulse 95 beats/min and regular, and body temperature 37.2°C. She had anemic conjunctivae but there was

no scleral icterus. The abdomen was soft and flat with no obvious abdominal masses. Bleeding massive and blood transfusions were required. Her hemoglobin level had dropped from 11.2 g/dL one month previously to 8.9 g/dL. Other laboratory findings were within normal ranges except for serum albumin, 3.4 g/mL (4.0-5.2 g/mL). All test results for tumor markers were within the normal range.

A fibergastrosopic examination revealed active bleeding in the second portion of the duodenum (Figure 1-a). After this area was washed with water, vascular ectasia with a bleeding point was revealed (Figure 1-b). To achieve hemostasis, EBL using a pneumo-activate device (Sumitomo Bakelite, Tokyo, Japan) was performed, which controlled the bleeding without any complications (Figure 1-c). On the other hand, gastric and esophageal varices were eradicated. Paraesophageal vein and paraumbilical vein were visualized by computed tomography. One month after EBL, endoscopy revealed an ulcer scar in the duodenum (Figure 1-d). She was finally discharged with a stable hemoglobin level.

Figure: 1-A

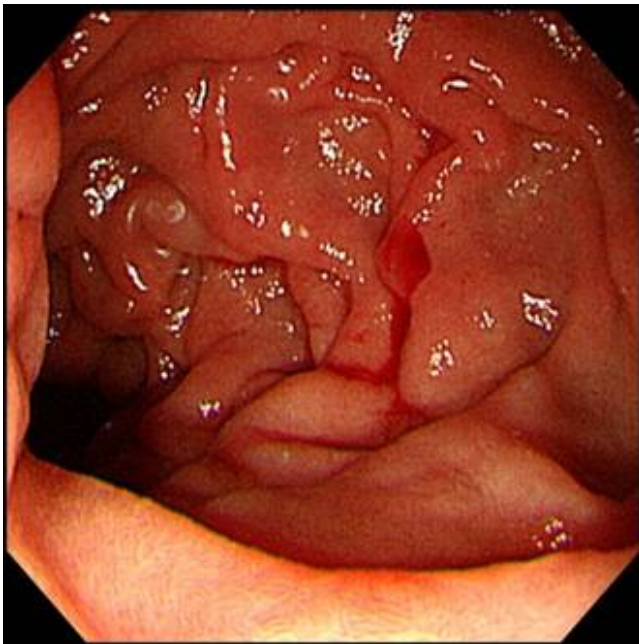


Figure 1-a: Endoscopic examination showing active bleeding in the second portion of the duodenum.

Figure: 1-B

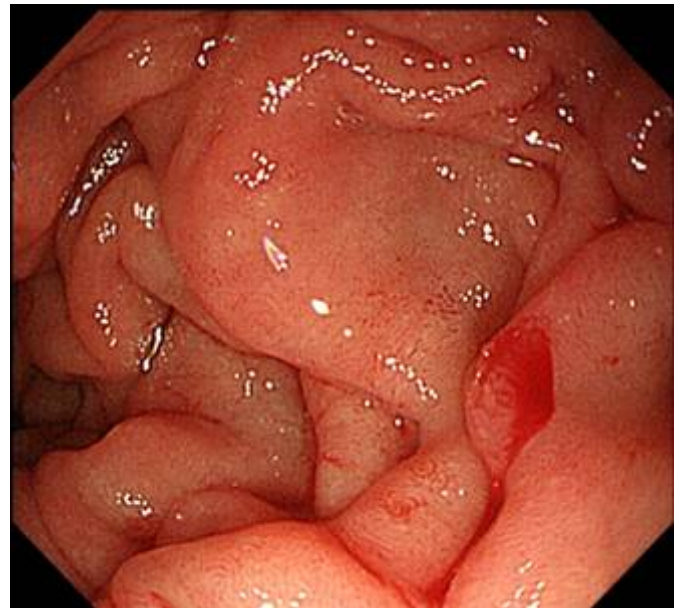


Figure 1-b: Endoscopic examination showing vascular ectasia with a bleeding point.

Figure: 1-C

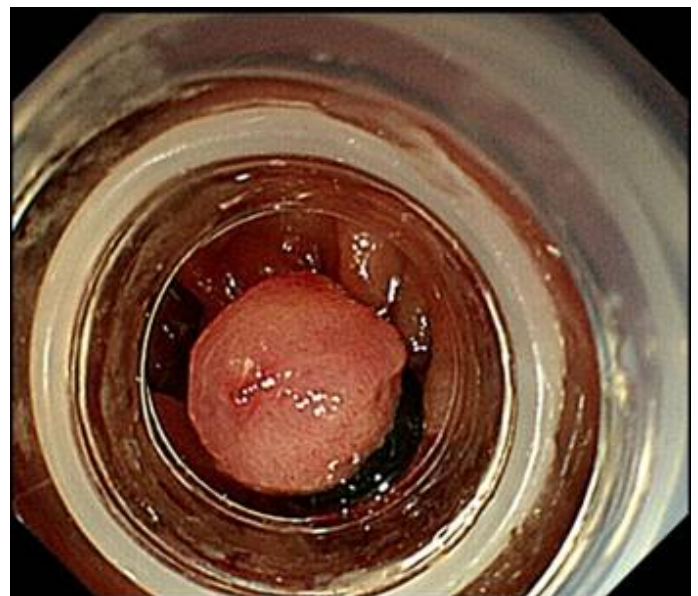


Figure 1-c: Endoscopic band ligation for the bleeding duodenal vascular ectasia

Figure: 1-D**Figure 1-d:** Endoscopic examination showing an ulcer scar in the duodenum one month after treatment.

Discussion

Gastrointestinal vascular ectasia is recognized as an important source of gastrointestinal bleeding [13, 14]. Vascular ectasia is typically discrete, flat, or slightly raised bright red lesion, with fern-like margin and surrounding pale rim [13]. A few cases of vascular ectasia of the duodenum have been reported in patients with cirrhosis [15-17]. The optimal treatment for vascular ectasia is not known. Before 1980, surgical resection was the treatment of choice. However, surgery carries a significant risk of mortality in cirrhotic patients. Recently, endoscopic techniques have become the first treatment of choice for vascular ectasia and several endoscopic treatments have been used successfully to treat vascular ectasia patients, including laser [18], electro coagulation [19, 20], heat probe [21], and Argon Plasma Coagulation (APC) [22-27].

APC is a new modality of non-contact electrocoagulation that applies high frequency electronic energy into tissue to cause defined thermal effects, which can be used for thermal devitalization of the tissue as well as hemostasis. Lee et al [12].

applied irradiation for 4-6 S with a current of 50 W, and were able to control the bleeding without any serious complications for duodenal vascular ectasia in patient with cirrhosis [12]. EBL is widely applied as an effective and standard treatment for esophageal varices by reason of obliteration of the sub mucosal varices [28]. Still more, EBL has been performed as an effective procedure for other gastrointestinal diseases [29, 30]. A few reports have appeared in the literature indicating the usefulness of EBL in the treatment of gastric antral vascular ectasia [27, 31-33].

A definitive treatment for bleeding duodenal vascular ectasia has not been established. In our case, EBL was performed successfully for the bleeding duodenal vascular ectasia without any serious complication. APC may be picked out in this case, however, we selected more reliable and safety EBL for active bleeding point. The histologic changes of vascular ectasia exist in the mucosal and submucosal region of the duodenum; therefore, EBL may be more effective for vascular ectasia because of its ability to obliterate sub mucosal vascular plexus. In conclusion, duodenal vascular ectasia is one of gastrointestinal bleeding in patients with portal hypertension. EBL may be effective in treating the bleeding duodenal vascular ectasia.

References

1. McCormack TT, Sims J, Eyre-Brook I, Kennedy H, Goepel J, et al. (1985) Gastric lesions in portal hypertension: Inflammatory gastritis or congestive gastropathy? *Gut* 26: 1226-1232.
2. D'Amico G, Montalbano L, Traina M, Pisa R, Menozzi M, et al. (1990) Natural history of congestive gastropathy in cirrhosis. *Gastroenterology* 99: 1558-1564.
3. Maruyama T (1995) Study of gastric mucosal lesion in portal hypertension. *Jpn J Gastroenterol* 92: 1121-1132.
4. Kozarek RA, Botoman VA, Bredfeldt JE, Roach JM, Patterson DJ, et al. (1991) Portal colopathy:

- Prospective study of colonoscopy in patients with portal hypertension. *Gastroenterology* 101: 1192-1197.
5. Bini EJ, Lascarides CE, Micale PL, Weinshel EH (2000) Mucosal abnormalities of the colon in patients with portal hypertension: An endoscopic study. *Gastrointest Endosc* 52: 511-516.
 6. Bresci G, Gambardella L, Parisi G, Federici G, Bertini M, et al. (1998) Colonic disease in cirrhotic patients with portal hypertension: An endoscopic and clinical evaluation. *J Clin Gastroenterol* 26: 222-227.
 7. Gupta R, Saraswat VA, Kumar M, Naik SR, Pandey R (1996) Complications of cirrhosis – frequency and factors influencing portal hypertensive gastropathy and duodenopathy in cirrhotic portal hypertension. *J Gastroenterol Hepatol* 11: 728-733.
 8. Shudo R, Yazaki Y, Sakurai S, Uenishi H, Yamada H, et al. (2002) Duodenal erosions, a common and distinctive feature of portal hypertensive duodenopathy. *Am J Gastroenterol* 97: 867-873.
 9. Barakat M, Mostafa M, Mahran Z, Soliman AG (2007) Portal hypertensive duodenopathy: clinical, endoscopic, and histopathologic profiles. *Am J Gastroenterol* 102: 2793-2802.
 10. Vigneri S, Termini R, Piriano A, Scialabba A, Bovero E, et al. (1991) The duodenum in cirrhosis. Endoscopic, morphological and clinical findings. *Endoscopy* 23: 210-212.
 11. Tai DI, Chou FF, Lee TY, Lin CC (1987) Vascular ectasia of the duodenum detected by duodenoscopy. *Am J Gastroenterol* 82: 1071-1073.
 12. Lee BJ, Park JJ, Seo YS, Kim JH, Kim A, et al. (2007) Upper gastrointestinal bleeding from duodenal vascular ectasia in a patient with cirrhosis. *World J Gastroenterol* 13: 5154-5157.
 13. Pavey DA, Craig PI (2004) Endoscopic therapy for upper-GI vascular ectasia. *Gastrointest Endosc* 59: 233-238.
 14. Lonardo A, Greco M, Grisendi A (2004) Bleeding gastrointestinal angiodysplasias: our experience and a review of the literature. *Ann Ital Med Int* 19: 122-127.
 15. Gallagher C, Bonar F, Dempsey J, J. Crowe (1985) Small bowel capillary dilatation in portal hypertension. *Postgrad Med J* 61: 541-543.
 16. Arendse MP, Jaskiewicz K, Funnell I (1992) Massive gastro-intestinal haemorrhage due to vascular ectasia of the duodenum. A case report. *S Afr J Surg* 30: 111-113.
 17. Fu KI, Fujimori T (2006) Bleeding angiodysplasia in the duodenum. *N Engl J Med* 354: 283.
 18. Bourke MJ, Hope RL, Boyd P, Gillespie PE, Ward M, et al. (1996) Endoscopic laser therapy for watermelon stomach. *J. Gastroenterol. Hepatol* 11: 832-834.
 19. Yamada M, Ichikawa M, Takahara O, Tsuchida T, Ishihara A, et al. (1999) Gastroduodenal vascular ectasia in patients with liver cirrhosis. *Dig. Endosc* 11: 241-245.
 20. Bimmoeller KF, Karon RM (1990) Bi polar electrocoagulation for watermelon stomach. *Gastrointest Endosc* 36: 399-402.
 21. Petrini JL, Johnson JH (1989) Heat probe treatment for antral vascular ectasia. *Gastrointest Endosc* 35: 324-328.
 22. Probst A, Scheubel R, Wienbeck M (2001) Treatment of watermelon stomach (GAVE syndrome) by means of endoscopic argon plasma coagulation (APC): Long-term outcome. *Z. Gastroenterol* 39: 447-452.
 23. Wahab PJ, Mulder CJ, den Hartog G, Thies JE (1997) Argon plasma coagulation in flexible gastrointestinal endoscopy. Pilot experiences. *Endoscopy* 29: 176-181.
 24. Canard JM, Vedrenne B (2001) Clinical application of argon plasma coagulation in gastrointestinal endoscopy: Has the time come to replace the laser? *Endoscopy* 33: 353-357.
 25. Yusoff I, Brennan F, Ormonde D, Laurence B (2002) Argon plasma coagulation for treatment of watermelon stomach. *Endoscopy* 34: 407-410.
 26. Sou S, Nagahama T, Nomura H, Matsubara F, Tanaka H, et al. (2004) Remarkable effectiveness of

- endoscopic argon plasma coagulation against diffuse antral vascular ectasia. *Dig. Endosc* 16: 166-168.
27. Sato T, Yamazaki K, Akaike J (2012) Endoscopic band ligation versus argon plasma coagulation for gastric antral vascular ectasia associated with liver diseases. *Dig. Endosc* 24: 237-242.
28. Goff GV, Reveille RM, Stiegmann GV (1988) Endoscopic sclerotherapy versus endoscopic variceal ligation: esophageal symptoms, complications and motility. *Am J Gastroenterol* 83: 1240-1244.
29. Berkelhammer C, Moosvi SB (2002) Retroflexed endoscopic band ligation of bleeding internal hemorrhoids. *Gastrointest Endosc* 55: 532-537.
30. Matsui S, Kamisako T, Kudo M, Inoue R (2002) Endoscopic band ligation for control of nonvariceal upper GI hemorrhage: comparison with bipolar electrocoagulation. *Gastrointest Endosc* 55: 214-218.
31. Sinha SK, Udawat HP, Varma S, Lal A, Rana SS, et al. (2006) Watermelon stomach treated with endoscopic band ligation. *Gastrointest Endosc* 64: 1028-1031.
32. Kumar R, Mohindra S, Pruthi HS (2007) Endoscopic band ligation: a novel therapy for bleeding gastric antral vascular ectasia. *Endoscopy* 39: 56-57.
33. Wells CD, Harrison ME, Gurudu SR, Crowell MD, Byrne TJ, et al. (2008) Treatment of gastric antral vascular ectasia (watermelon stomach) with endoscopic band ligation. *Gastrointest Endosc* 68: 231-236.