EDITORIAL

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CLINICAL ENDOSCOPY

Role of endoscopic ultrasound in the secondary prevention of gastric varices

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See "Endoscopic ultrasound-guided coiling and glue is safe and superior to endoscopic glue injection in gastric varices with severe liver disease: a retrospective case control study" by Kapil D. Jamwal, Rajesh K. Padhan, Atul Sharma, et al., Clin Endosc 2023;56:65–74.

Gastric varices (GV) bleeding is less common than esophageal varices and is responsible for 10% to 30% of all variceal hemorrhages.[1] However, GV is more severe and associated with a higher mortality rate. Additionally, approximately 35% to 90% of patients rebleed after spontaneous hemostasis.[2] Therefore, secondary prophylaxis of GV hemorrhage is important. Therapeutic endoscopy plays a major role in GV bleeding. Endoscopic glue injection (EGI) has proven effective in the hemostasis of acute GV bleeding and prevents the rebleeding of varices, although this has been debated. In the 2016 American Association for the Study of Liver Diseases guidelines, transjugular intrahepatic portosystemic shunt (TIPS) or balloon-occluded retrograde transvenous obliteration (BRTO) is the first recommendation for secondary prophylaxis. TIPS is a very effective secondary prevention method for GV, but it causes hepatic encephalopathy (HE) without affecting survival.[3] BRTO is an alternative, but it requires the presence of a gastrorenal shunt and does not divert blood flow; however, it might increase portal pressures, worsen ascites or cause esophageal variceal bleeding. For this reason, several centers offer additional TIPS after BRTO if the hepatic venous portal gradient exceeds 12 mmHg.[4]

Endoscopic glue or coiling injection for the secondary prevention of GV has not been approved for the treatment of GV in the United States. It has been used in a few cases where neither TIPS nor BRTO are technically possible, but only a few centers have the knowledge to do so.[4] However, unlike the guidelines, EGI may have a global role in the secondary prophylaxis of GV.[5]

Jamwal et al.[6] investigated the safety and efficacy of endoscopic ultrasound (EUS)-guided coiling and glue in GV with severe liver disease. This retrospective study was carried out in two high-volume centers in India, and it benefited from their valuable experience. A total of 80 patients who had recent GV bleeding treated with EGI as first-line therapy were included and were scheduled for the remaining large GV (>10 mm) to be unfit for TIPS due to previous episodes of HE or having a high model for end-stage liver disease (MELD) score (MELD-Na >18). Additionally, 40 patients were included in the EGI group and 40 in the EUS-guided GV treatment (GVT) group; all patients were treated with appropriately titrated doses of beta-blockers, and the follow-up period was not statistically different between the two groups (193 and 201 days, respectively). However, a significant decrease in the number of endoscopy sessions (4 vs. 1.2), volume of glue injected (6 mL vs. 2 mL), and rebleeding (5 vs. 0) was observed in the EGI and EUS-GVT groups. In a subgroup analysis of the EUS-GVT group,

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GV obliteration or disappearance was lower in the paragastric collateral group than that in the gastric fundus group (2 vs. 10).

Endoscopic injection of cyanoacrylate for GV has been used globally since its first application was reported by Soehendra et al. in 1986. A study by Brutin et al. showed that the presence of performing vessels plays an important role in the pathogenesis of esophageal varices and GV, and several studies have reaffirmed this report.[7] Lahoti et al.[8] also showed that rebleeding was reduced after direct injection of perforating esophageal vessels with sclerosant. Although EGI for GV is a promising tool, it has been associated with severe adverse events, including systemic embolization, such as stroke, portal vein embolization, and septic emboli.[9] Nevertheless, many studies have been conducted; Binmoeller et al. reported that the EUS-GVT was more efficient and safe than the EGI. Finally, two recent meta-analyses showed that EUS-GVT achieved superior GV obliteration compared with EGI alone.[10,11] Mohan et al.[10] performed a meta-analysis of 23 studies (851 patients) comparing standard EGI with glue and EUS with coil and/or glue. The pooled treatment efficacies of EUS-GVT, GV obliteration, GV recurrence, early rebleeding, and late rebleeding were 93.7%, 84.4%, 9.1%, 7.0%, and 11.6%, respectively. They revealed that EUS with coil and glue showed a significantly lower recurrence rate than that in standard EGI (5.2% vs. 15%, p=0.01). Additionally, A meta-analysis by McCarty et al.[11] showed that EUS-GVT with combined coil and glue resulted in a 98% clinical success rate, showing that EUS with coil and glue resulted in better technical and clinical success compared with other modalities. The GV obliteration rate of EUS with coil and glue was significantly higher than that of either EUS with glue (98% vs. 96%, p<0.001) or with coil (98% vs. 90%, p<0.001), and the need for reintervention was lower than that of either EUS with coil (15% vs. 26%, p<0.001) or with glue (15% vs. 25%, p=0.047). Additionally, the rebleeding rate was lower than that in EUS with glue (14% vs. 30%, p<0.001).

As pointed out by the authors, the study by Jamwal et al.[6] had a relatively short follow-up period, and the number of patients was too small to prove that EUS-GVT is the best approach for the secondary prevention of GV bleeding. However, all patients received non-selective beta-blockers, focusing on patients with GV who could not undergo TIPS due to HE history and a MELD score ≥18; each treatment group was appropriately divided for comparison. Hopefully, future meta-analyses will include Jamwal et al.[6]

Although the use of EUS-GVT continues to expand rapidly, prospective randomized controlled trials are lacking. The guidelines also highlight the lack of evidence, safety issues, and availability of technical expertise. However, every new medical procedure undergoes similar processes during its introduction. The procedure, performed by only a few experts, has gradually spread, and the competency difference between centers has been gradually overcome. Future efforts are needed to standardize the site (fundus vs. paragastric collateral), materials (glue vs. coil vs. glue and coil), and route (transoesophageal vs. transgastric).

Conflicts of Interest

The author has no potential conflicts of interest.

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REFERENCES

1. Sarin SK, Lahoti D, Saxena SP, et al. Prevalence, classification and natural history of gastric varices: a long-term follow-up study in 568 portal hypertension patients. Hepatology 1992;16:1343–1349.
2. Wani ZA, Bhat RA, Bhadoria AS, et al. Gastric varices: classification, endoscopic and ultrasonographic management. J Res Med Sci 2015;20:1200–1207.
3. Lo GH, Liang HL, Chen WC, et al. A prospective, randomized controlled trial of transjugular intrahepatic portosystemic shunt versus cyanoacrylate injection in the prevention of gastric variceal rebleeding. Endoscopy 2007;39:679–685.
4. Garcia-Tsao G, Abraldes JG, Berzigotti A, et al. Portal hypertensive bleeding in cirrhosis: Risk stratification, diagnosis, and management: 2016 practice guidance by the American Association for the study of liver diseases. Hepatology 2017;65:310–335.
5. Bazarbashi AN, Ryou M. Gastric variceal bleeding. Curr Opin Gastroenterol 2019;35:524–534.
6. Jamwal KD, Padhan RK, Sharma Atul, et al. Endoscopic ultrasound-guided coiling and glue is safe and superior to endoscopic glue injection in gastric varices with severe liver disease: a retrospective case control study. Clin Endosc 2023;56:65–74.
7. Burtin P, Calès P, Oberti F, et al. Endoscopic ultrasonographic

signs of portal hypertension in cirrhosis. Gastrointest Endosc 1996;44:257–261.
8. Lahoti S, Catalano MF, Alcocer E, et al. Obliteration of esophageal varices using EUS-guided sclerotherapy with color Doppler. Gastrointest Endosc 2000;51:331–333.
9. Thiruvengadam SS, Sedarat A. The role of endoscopic ultrasound (EUS) in the management of gastric varices. Curr Gastroenterol Rep 2021;23:1.
10. Mohan BP, Chandan S, Khan SR, et al. Efficacy and safety of endoscopic ultrasound-guided therapy versus direct endoscopic glue injection therapy for gastric varices: systematic review and meta-analysis. Endoscopy 2020;52:259–267.
11. McCarty TR, Bazarbashi AN, Hathorn KE, et al. Combination therapy versus monotherapy for EUS-guided management of gastric varices: a systematic review and meta-analysis. Endosc Ultrasound 2020;9:6–15.