



EUS-guided coiling and cyanoacrylate injection of ectopic duodenal varices

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Duodenal varices due to significant portal hypertension are considered ectopic and are less common than esophageal or gastric varices. Duodenal variceal bleeding is a rare cause of upper GI bleeding and carries a mortality rate of up to 40%.^{1,2} Current treatment methods include transjugular intrahepatic portosystemic shunt (TIPS) placement, balloon-occluded retrograde transvenous obliteration, and endoscopic interventions including band ligation or sclerotherapy. Coil embolization and cyanoacrylate injection via EUS have been previously reported for the treatment of ectopic varices.¹⁻⁴ Here, we describe a case of ectopic duodenal varices treated with EUS-guided combination therapy.

CASE PRESENTATION

A 41-year-old man with a history of alcohol use disorder presented to an initial hospital with melena, along with signs

of newly decompensated cirrhosis. His hemoglobin on presentation was 4.8 g/dL, and he was found to have hepatitis C infection. He received 4 units of packed red blood cells, pantoprazole and octreotide infusions, and antibiotics.

The initial upper endoscopy revealed ectopic varices in the second portion of the duodenum with stigmata of recent bleeding; no apparent esophageal or gastric varices were seen. The patient was transferred to our tertiary care center for consideration of TIPS placement to prevent recurrent variceal bleeding. CT scan of the abdomen demonstrated large duodenal varices, a splenorenal shunt, and patent hepatic vasculature (Fig. 1). Because he had a Model for End-Stage Liver Disease-Na score of 26 and concomitant alcoholic hepatitis, the patient was considered high risk for post-TIPS adverse events, including risk of liver failure after TIPS. Therefore, the patient was referred for endoscopic management to prevent recurrent bleeding. The plan was made to perform EUS-guided variceal obliteration with a combination of endovascular coil embolization and cyanoacrylate injection.

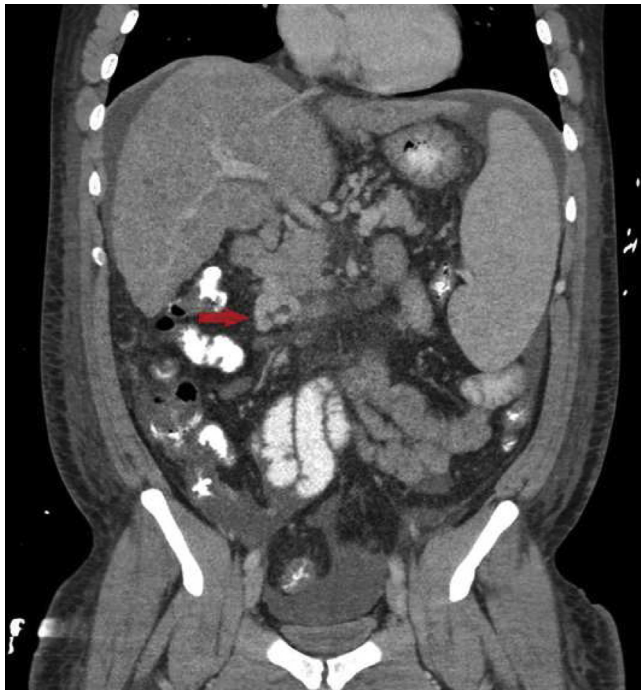


Figure 1. A CT scan of the abdomen and pelvis with intravenous contrast, which revealed large duodenal varices in the second part of the duodenum (red arrow).

PROCEDURE

Forward-viewing endoscopy revealed multiple large varices in the second part of the duodenum, without active bleeding (Fig. 2). EUS examination was performed using a



Figure 2. Initial EGD revealing multiple large, isolated varices in the second part of the duodenum.

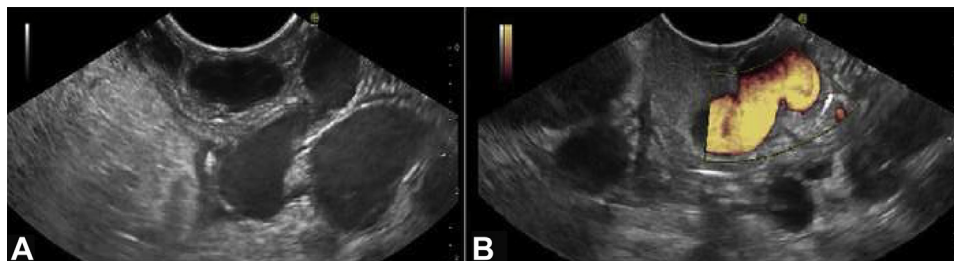


Figure 3. EUS examination of the second part of the duodenum revealing multiple tubal anechoic structures with evidence of blood flow on Doppler interrogation, consistent with large, isolated duodenal varices.

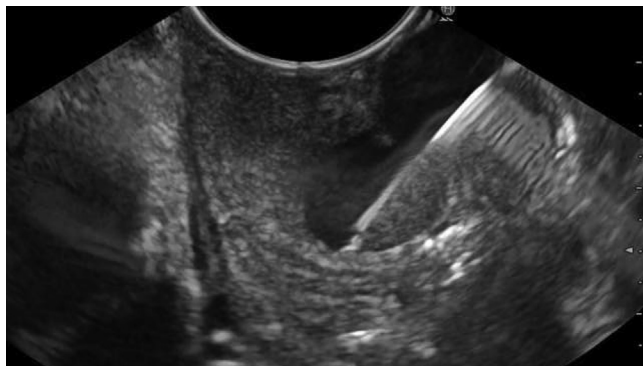


Figure 4. A large duodenal varix punctured with a 22-gauge FNA needle.

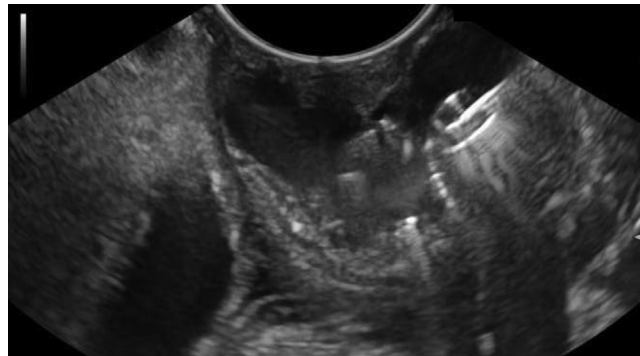


Figure 6. Insertion of additional microcoils into the varix to form a scaffold structure.

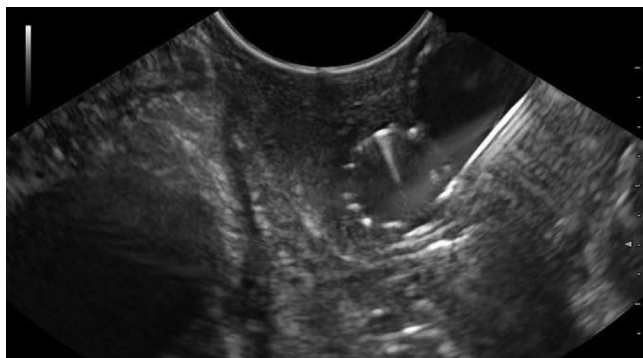


Figure 5. Insertion of a 7-cm \times 0.018-inch microcoil into the varix through the FNA needle.

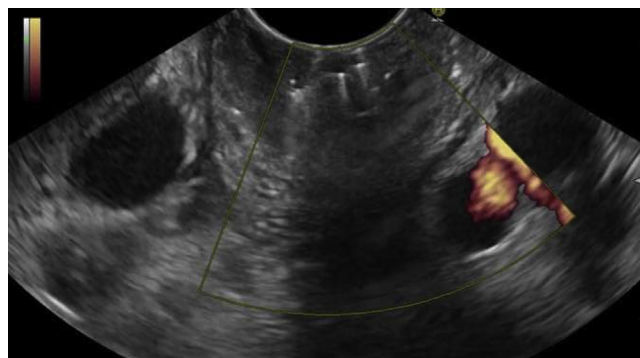


Figure 7. Postprocedural Doppler interrogation confirming the absence of blood flow and successful variceal obliteration.

linear echoendoscope. This examination revealed multiple tubal anechoic structures with evidence of venous blood flow on Doppler interrogation, consistent with varices (Fig. 3). Under EUS guidance, the duodenal varix was punctured with a 22-gauge FNA needle (Fig. 4). After flushing the needle with saline solution, an initial 0.018-inch \times 10-mm-diameter \times 7-cm-long microcoil was inserted into the varix through the needle with the stylet (Fig. 5). Two additional 0.018-inch \times 10-mm-diameter \times 7-cm-long microcoils and a 0.018-inch \times 8-mm-diameter \times 7-cm-long microcoil were inserted in a similar fashion. These were inserted in a linked manner to create a

scaffold structure within the varix to reduce the risk of glue embolization (Fig. 6). Finally, 2 mL of 2-octyl-cyanoacrylate were injected into the varix, with subsequent Doppler interrogation demonstrating reduced to absent blood flow (Fig. 7). This process was repeated for the treatment of 1 additional intramural varix that required 4 additional 0.018-inch \times 10-mm-diameter \times 7-cm-long microcoils. No extramural varices were treated. Final upper endoscopy revealed minimal postprocedural bleeding (Fig. 8). The patient's hemoglobin remained stable, and he was later safely discharged with a plan for surveillance endoscopy (Video 1, available online at www.VideoGIE.org).

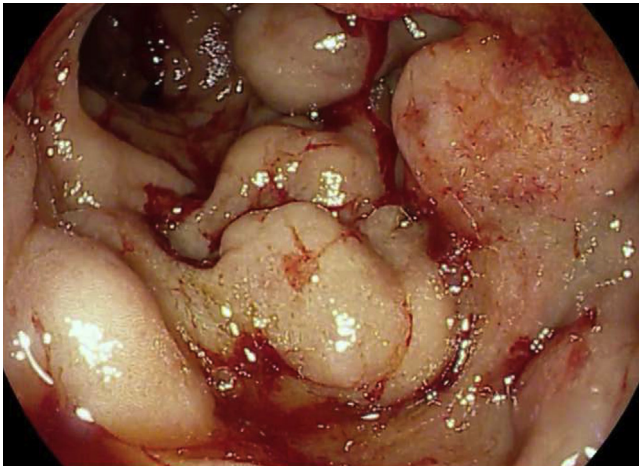


Figure 8. Postprocedural EGD with minimal bleeding.

CONCLUSION

EUS-guided interventions are effective in the management of ectopic duodenal varices and offer an additional treatment modality for patients with decompensated liver disease who are poor candidates for TIPS. Compared with traditional endoscopic interventions, EUS-guided therapy offers better characterization of the entire variceal complex, confirmed variceal obliteration in real time, and a lower recurrent bleeding rate.^{2,4} Among EUS-guided interventions, combined therapy with coil embolization and cyanoacrylate injection prevents glue embolization while offering a superior complete obliteration rate.⁴

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DISCLOSURE

All authors disclosed no financial relationships.

Abbreviation: TIPS, transjugular intrahepatic portosystemic shunt.

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