

A case of duodenal variceal bleeding treated by Doppler-guided endoscopic cyanoacrylate injection



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BACKGROUND

Duodenal varix is a rare condition caused by portal hypertension. The most common site is the duodenal bulb or the second portion of the duodenum. It involves potential massive bleeding, diagnostic difficulties, high risk of re-bleeding, and mortality. Optimal management is not well established. Endoscopic management can be considered as first-line therapy. We describe a challenging case of duodenal variceal bleeding that was successfully treated with Doppler-guided cyanoacrylate injection using non-EUS, freehand technique.

CASE

A 72-year-old-man with portal hypertension from portal vein thrombus associated with adenocarcinoma in the head of the pancreas was admitted for hematemesis and intermittent copious hematochezia. He had recurrent hematochezia over the past year requiring multiple admissions and blood transfusions. Prior extensive evaluations in an outside hospital did not yield a clear bleeding source. Upper endoscopy during this admission showed bulging in the duodenal bulb, thought to be from extrinsic

compression from the pancreatic head cancer (Fig. 1). A capsule endoscopy was negative for bleeding. CT angiography suggested that the known cavernous transformation of the portal vein had likely developed into varices next to the duodenum (Fig. 2). A tagged red blood cell scan showed blood pooling of radiotracer at the suspected duodenal varices, with trace migration of radiotracer into the small bowel, concerning for slow variceal bleeding. A repeat EGD showed large (>5 mm) blebs with blue hue in the duodenal bulb, and EUS showed a positive Doppler signal, most consistent with engorged collaterals or varices (Fig. 3). These findings from imaging and endoscopic modalities suggested duodenal varices as the only possible source of bleeding.

ENDOSCOPIC METHODS

We performed an upper endoscopy with a through-the-scope Doppler probe examination using a non-EUS, free-hand technique. A continuous, strong, low-pitched hum



Figure 1. Upper endoscopy showed bulging in the duodenal bulb.

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Figure 2. A contrast-enhanced CT scan showing the prior cavernous transformation of the portal vein that led to development of duodenal varices (arrows).

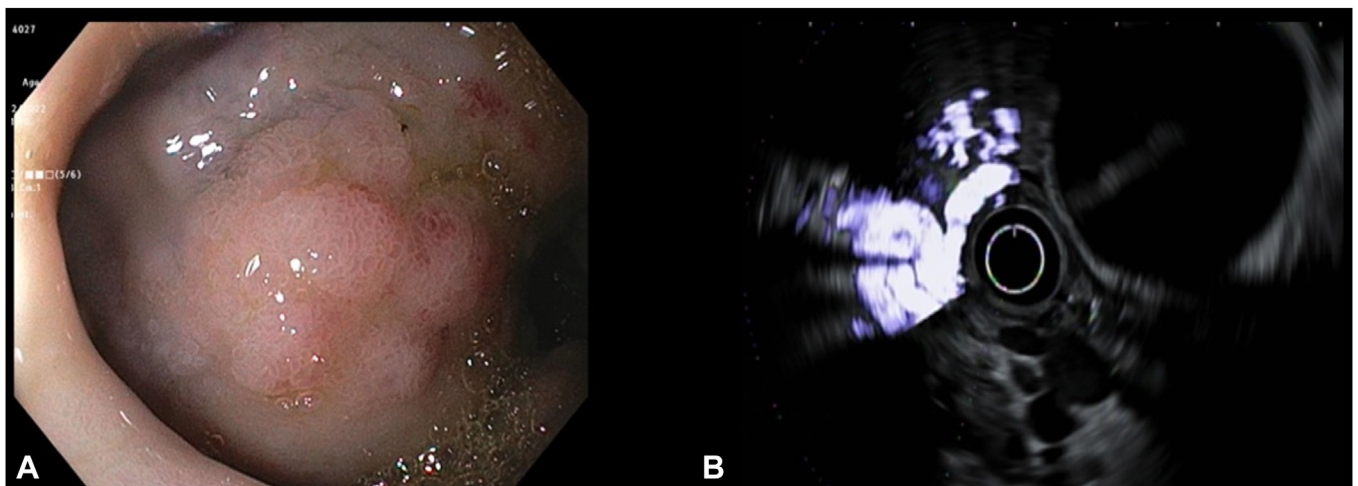


Figure 3. **A,** EUS showing positive Doppler signal. **B,** EGD showing large blebs with blue hue in duodenal bulb.

was heard from both varices, indicating active venous blood flow. Each varix was successfully injected with 2 mL *N*-butyl-2-cyanoacrylate glue. The use of undiluted cyanoacrylate preserved the speed of polymerization upon contact with blood and promoted rapid thrombosis of the varix. There was a small amount of immediate back-bleeding from both injection sites that quickly ceased. Repeat Doppler examination postintervention showed an absent signal, indicating adequate hemostasis. No further bleeding or adverse events were noted during hospitalization. A follow-up upper endoscopy 10 days later showed a small extrusion ulcer with an ab-

sent Doppler signal (Fig. 4). The patient had no bleeding recurrence at 3 months.

CONCLUSION

In summary, diagnosis of duodenal variceal bleeding was extremely challenging in this case and required multiple endoscopic and imaging evaluations. Doppler-guided cyanoacrylate injection is a non-EUS endoscopic method to achieve immediate and durable hemostasis

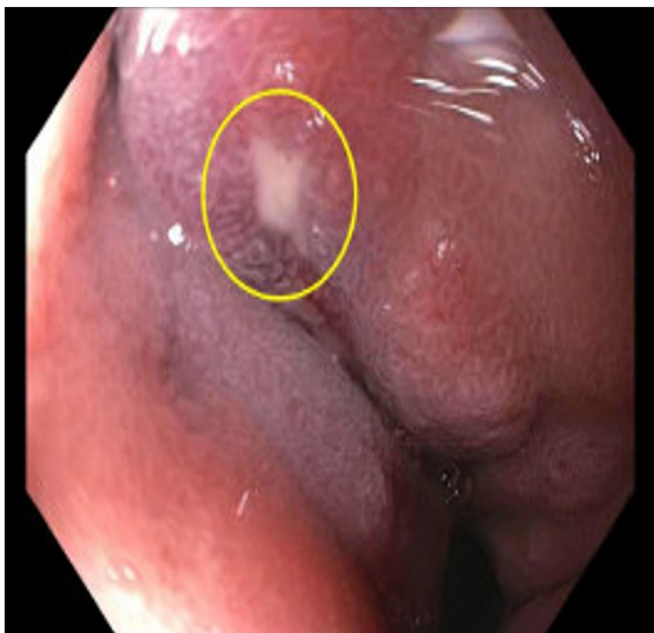


Figure 4. Follow-up endoscopy showed a small glue extrusion ulcer.

with potentially less tissue injury ([Video 1](#), available online at www.videogie.org).

DISCLOSURE

Dr Wong is a consultant for and received research grant support from Vascular Technology, Inc, and is a consultant for Steris Endoscopy. All other authors disclosed no financial relationships.

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