



## Cyanoacrylate injection of an ectopic variceal bleed at a choledochojejunal anastomotic site in a patient with post-Whipple anatomy

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Ectopic varices account for up to 5% of all variceal bleeding; the mortality from untreated or misdiagnosed variceal bleeding has been reported to be as high as 40%.<sup>1-3</sup> Variceal bleeds originating from the choledochojejunostomy (CDJ) site are a rare adverse effect of pancreaticoduodenectomy (PD), with few cases reported in the literature.

Jejunal and ileal varices secondary to portal hypertension occur when collaterals form among the superior mesenteric vein (SMV), the inferior mesenteric vein, and the retroperitoneal systemic venous system, and they may occur in close proximity to surgical anastomoses or adhesions.<sup>4</sup> Treatment of ectopic varices include obliteration of the varices (by endoscopic therapy, reanastomosis, surgical ligation, or embolization) or reduction of portal pressure (by portal venous stent placement, splenectomy, or shunt operation).<sup>5</sup> Direct endoscopic therapy (with glue injection, band ligation, or sclerotherapy) has been described in the management of ectopic variceal bleeds.<sup>5,6</sup> The position of a CDJ anastomosis within a long afferent jejunal limb may make it difficult to reach endoscopically. There are only 4 previous case reports of endoscopic therapy used in the

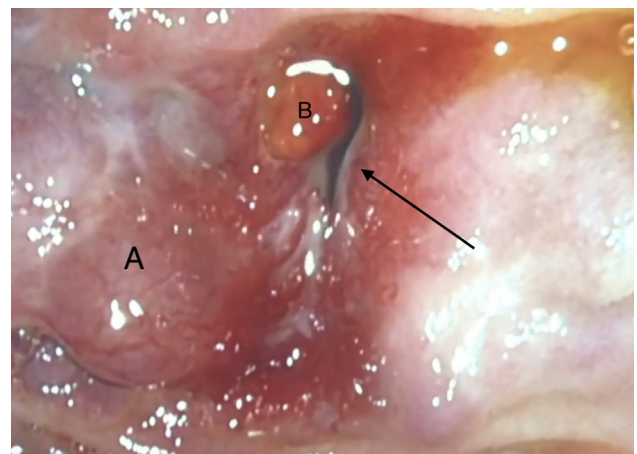
treatment of jejunal varices in PD patients.<sup>5,7-9</sup> In this video case report, we demonstrate histoacryl glue injection in a bleeding ectopic varix at the site of CDJ (Video 1, available online at [www.VideoGIE.org](http://www.VideoGIE.org)).

A 40-year-old man with a history of PD performed 3 years earlier for pancreatic adenocarcinoma was seen at the hospital because of epigastric pain, one episode of hematemesis, and melena. He was in a hemodynamically stable condition, and his initial hemoglobin was 7.1 g/dL (7.6 g/dL 3 months prior). CT of the abdomen (Fig. 1) revealed a soft-tissue density adjacent to the previous pancreaticojejunostomy, extending into the porta hepatis, suggestive of local recurrence of pancreatic cancer. Imaging also revealed hepatic lesions concerning for metastases and a new portal-vein thrombus.

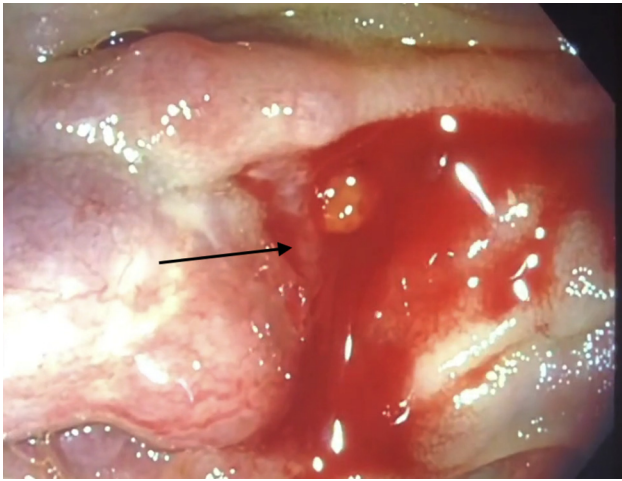
After admission, he had further episodes of bleeding, and his hemoglobin dropped to 5.2 g/dL. Upper endoscopy revealed 4 columns of grade 2 to 3 esophageal varices with no stigmata of recent bleeding, along with fresh blood in the stomach and in the afferent and efferent limbs of the gastrojejunostomy. No active bleeding was identified. The esophageal varices were banded. The CDJ was not reached.



**Figure 1.** CT view demonstrating ectopic varix at the site of choledochojejunostomy (arrow).



**Figure 2.** A, Varix. B, Fibrin clot; site of choledochojejunostomy (arrow).

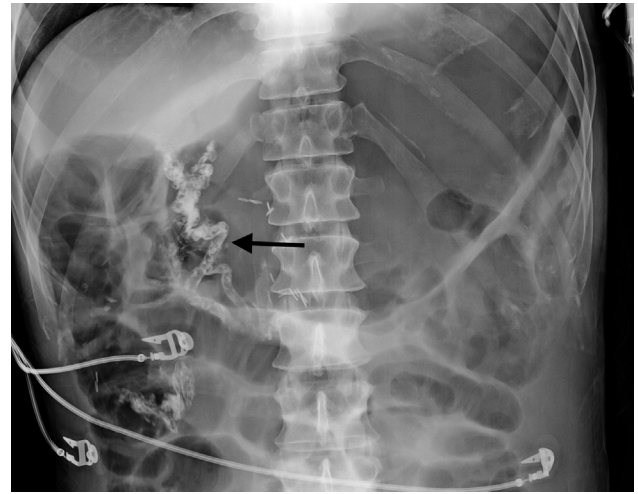


**Figure 3.** Slow oozing from the edge of the varix within the anastomosis (arrow).



**Figure 4.** Appearance of the choledochojejunostomy site after application of Hemospray.

Later that night, the patient had a large volume of hematemesis and was transferred to the intensive care unit for intubation and vasopressor support. A CT angiogram did not demonstrate any active bleeding. An emergent “push enteroscopy” with use of a slim colonoscope was performed. The CDJ was reached and demonstrated a large ectopic varix with an adherent fibrin clot (Fig. 2) and active oozing (Fig. 3). Hemospray was applied as a temporizing measure, with good effect, in advance of more definitive management (Fig. 4). After discussion with the patient’s family, along with consultation from the radiology and hepatobiliary surgery services, it was decided to proceed with endoscopic glue injection. A 23-gauge needle was used to puncture the varix endoscopically, and 1:1 N-butyl-2-cyanoacrylate and Lipiodol (Delpharm Tours [France] for Guerbet, Roissy CDG Cedex, France) was injected, with good hemostatic effect. There



**Figure 5.** Plain abdominal radiograph demonstrating radiopaque material extending from the site of anastomosis (arrow).



**Figure 6.** CT view showing glue at the site of choledochojejunostomy (arrow).

was no access to fluoroscopy during this procedure. Injection of glue, 1 mL at a time, was performed. The varix was probed with the blunt tip of the injector needle after each injection. Once the varix was no longer fluctuant but rather appeared hard on probing, no further glue was injected. In total, 3 mL of glue was injected, and the varix demonstrated no further bleeding. The patient was discharged in stable condition 5 days later.

Because of the close proximity of the anastomotic varix to the intrahepatic portal vein, this procedure carried a theoretic risk of intrahepatic obstruction of the portal vein and a risk of glue embolus.<sup>8,10</sup> A plain radiograph and CT scan after the procedure demonstrated glue in the region of the CDJ, with occlusion of a portion of the proximal SMV (Figs. 5 and 6). Endoscopic therapy is a reasonable first-line treatment of ectopic variceal bleeds.

## DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviations: CDJ, choledochojejunostomy; PD, pancreaticoduodenectomy; SMV, superior mesenteric vein.

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