

# Severe portal venous bleed during ERCP treated with EUS-guided hepaticogastrostomy

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## CASE REPORT

### Background

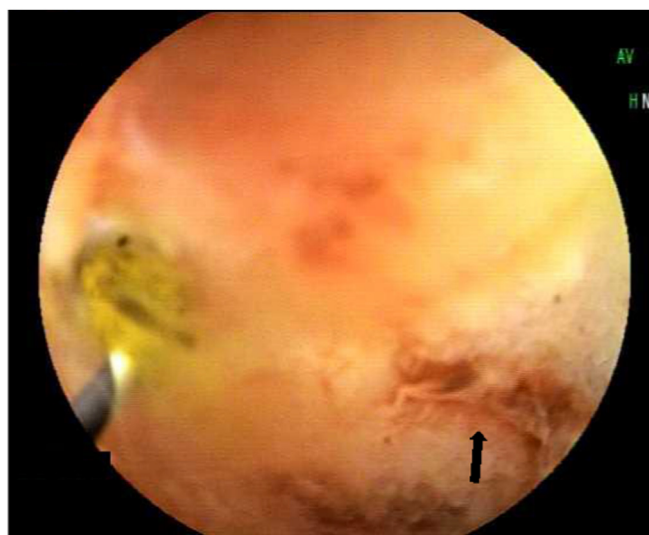
Portal venous bleeding can occur spontaneously from tumor invasion or erosions from biliary stents. This can also occur iatrogenically during radiologic and endoscopic procedures from guidewire passages, but it is rarely dangerous. However, sometimes when the injury is large, severe life-threatening bleeding can ensue.<sup>1,2</sup> This can be treated with an overlapping biliary fully covered self-expandable metal stent (FCSEMS).<sup>3</sup> We report a case of severe life-threatening bleeding during needle-knife therapy at a hepaticojunal anastomotic stricture, treated with EUS-guided hepaticogastrostomy (EUS-HG).<sup>4</sup>

### Case

A 54-year-old female patient with Roux-en-Y hepaticojunostomy for bile duct injury during cholecystectomy in 2017 presented with recurrent cholangitis (alkaline phosphatase 1501, bilirubin 1.5). MRCP showed obstruction of the left and right intrahepatic ducts (IHDs) with filling defects (stones) (Fig. 1). At enteroscopy ERCP 6 weeks prior, only the right IHDs could be accessed through a very-high-grade stricture (Fig. 2). Four weeks later, she returned for another enteroscopy ERCP to access the left IHD (Video 1, available online at [www.videogie.org](http://www.videogie.org)). After failure to pass even a 4F dilating catheter (other devices tried were a 4-mm dilating balloon taper tip canula and papillotome), a small needle-knife incision was made at the anastomotic stricture to facilitate balloon dilation (Fig. 3). However, severe nonpulsatile bleeding ensued, suspicious for a portal venous (PV) rather than an arterial bleed (Fig. 4). A 10-mm × 4-cm biliary FCSEMS failed to tamponade



**Figure 1.** MRCP showing high-grade hepaticojunal anastomotic strictures of the left and right hepatic ducts.



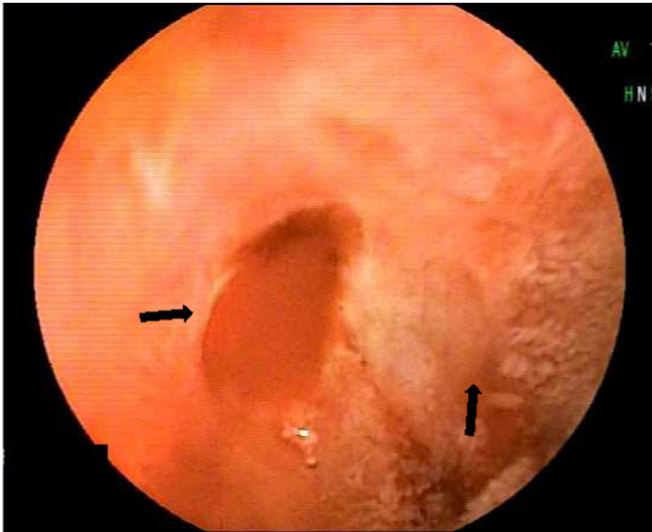
**Figure 2.** Endoscopic view of high-grade stricture (arrow) with only right hepatic ducts accessed with a guidewire.

*Abbreviations: EUS-HG, EUS-guided hepaticogastrostomy; FCSEMS, fully covered self-expandable metal stent; IHD, intrahepatic duct; PV, portal venous.*

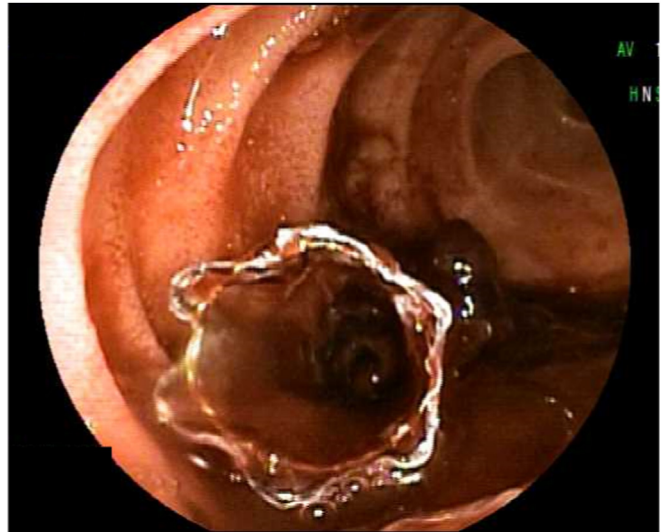
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<https://doi.org/10.1016/j.vgie.2023.05.010>

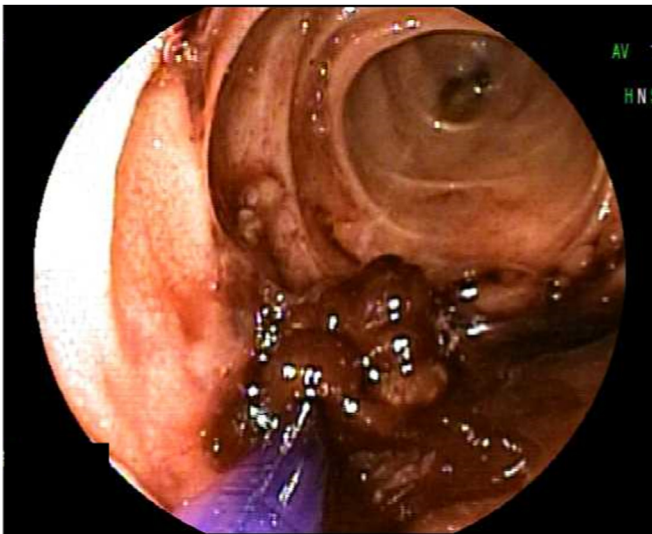
Center for Digestive Health, Virginia Mason Medical Center, Seattle, Washington.



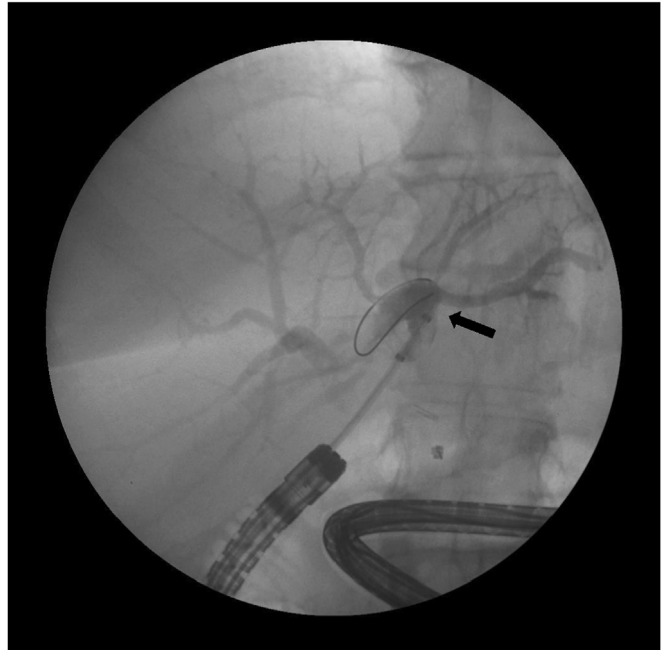
**Figure 3.** Small needle-knife incision (*arrow*) to allow passage of a balloon dilator.



**Figure 5.** Despite placing a 10-mm x 4-cm fully covered self-expandable metal stent, bleeding persisted.



**Figure 4.** Portal venous bleeding after balloon dilation.



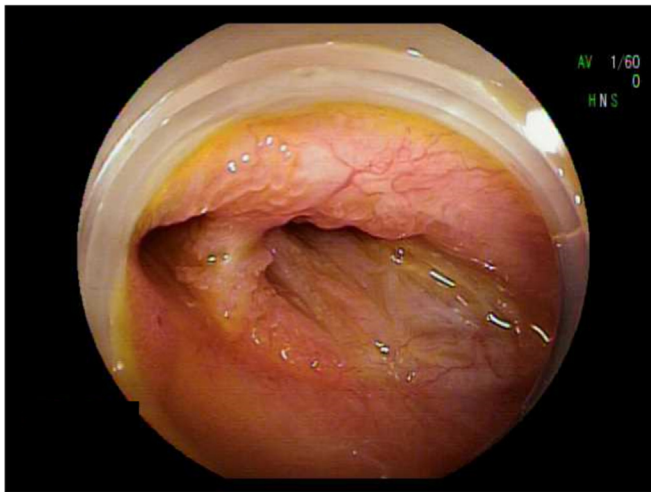
**Figure 6.** Left portal venogram (*arrow*), despite an enteroscopy ERCP after removal of previously placed fully covered self-expandable metal stent.

this (Fig. 5). A cholangiogram through the stent showed the left branch of the PV (suggesting deeper extent of tear into PV, likely with the distal end of stent in it) (Fig. 6). The FCSEMS was removed, but attempts to reassess the biliary tree failed. Interventional radiology suggested only a percutaneous biliary drain with the hope to let the venous bleed stop spontaneously. Instead, we decided to perform an EUS-HG to achieve biliary drainage and better tamponade. This was successfully performed with a 10-mm x 4-cm FCSEMS (adequately traversing the site of bleeding from PV) with resultant hemostasis. On day 2 postprocedure, the patient developed abdominal pain and a fever despite prophylactic antibiotics. A CT scan revealed extensive thrombosis in the main PV, which

was treated with anticoagulation (6 months) and antibiotics (7 days) (Fig. 7). Four weeks later, bilateral plastic stents were placed, and the metal stent removed, with healing of the PV. As the FCSEMS was removed from the anastomotic stricture, its inner tines unintentionally caught on the plastic stent across the hepaticogastrostomy, which was pulled across the anastomotic stricture and left there as one of the treating stents. After 6 months of stenting, the patient has not had recurrent cholangitis for 21 months (Fig. 8).



**Figure 7.** Portal vein thrombosis postprocedure (*arrow*).



**Figure 8.** ERCP at stent removal shows resolution of hilar stricture.

## CLINICAL IMPLICATIONS

Needle-knife therapy can cause severe bleeding at surgical anastomotic strictures at the hepatic hilum (proximity of the bile duct to the PV) and should probably be used as a last resort in this location. This can overwhelm one's ability to visualize and adequately treat the bleeding endoscopically, including with an FCSEMS. Identification of arterial versus venous bleeding, although sometimes difficult, can be done in situations if the PV is visualized (ie, venograms and pneumograms). Bleeding, even from the main PV, can be tamponaded with a biliary FCSEMS to allow healing.

## CONCLUSIONS

When conventional ERCP fails and one is certain the PV is the source of bleeding, an EUS-HG can help reassess the bile duct, allowing placement of an FCSEMS for biliary decompression and tamponade during the same procedure.

## DISCLOSURE

*Dr Irani is a consultant for Boston Scientific, Gore, and ConMed.*

## REFERENCES

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