



## Afferent limb syndrome, biliocutaneous fistula, bilioenterocutaneous fistula, dehiscence of the hepaticojejunostomy: Can we treat all of this endoscopically?

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### BACKGROUND AND AIMS

Afferent limb syndrome can occur from benign and malignant causes, leading to biliary obstruction and cholangitis.<sup>1</sup> Patients are often managed with long-term percutaneous biliary drains, which are associated with pain, obstructions, dislodgements, leakage, and chronic biliocutaneous fistulas.<sup>2</sup> Although acute leaks around hepaticojejunal anastomoses are not uncommon, chronic anastomotic dehiscence is very rare but can lead to abscess formation and subsequent fistulization.<sup>3</sup> In patients who are deemed poor surgical candidates, can these conditions be treated endoscopically? (Institutional review board approval was obtained for this study.)

### CASE, ENDOSCOPIC METHODS, AND RESULTS

A 53-year-old woman with multiple prior surgical neoresectomies for pancreatitis and a pancreaticoduodenectomy in 2002 was referred for recurrent cholangitis. She had a history of multiple surgeries, including enteroenter-

ostomies to treat bowel obstructions and an afferent limb syndrome. Despite her recurrent cholangitis being treated with a percutaneous biliary drain (PTBD), she developed recurrent cholangitis and leakage around the drain. A second PTBD failed to resolve the leakage or cholangitis, and she was referred to us for further management (Video 1, available online at [www.giejournal.org](http://www.giejournal.org)).

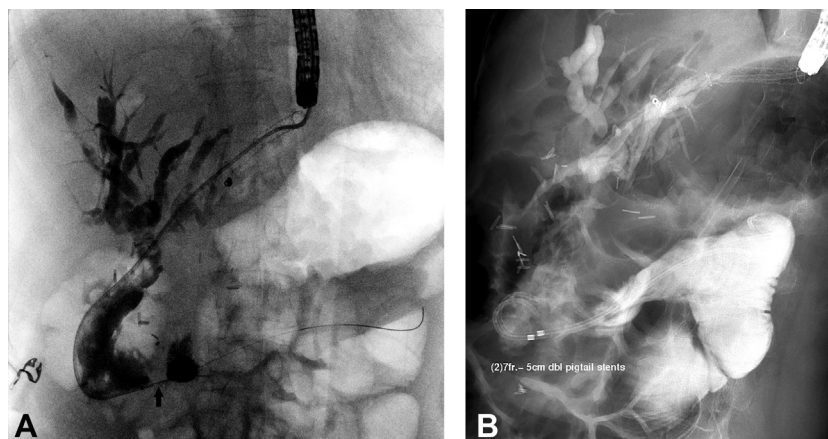
The persistent leakage was thought to be from the underlying afferent limb syndrome. She was deemed a nonsurgical candidate at our institution. Her CT scan showed 2 existing PTBDs through a central abdominal scar into the left intrahepatic ducts to the afferent jejunal limb (no window for endoscopic gastrojejunostomy) (Fig. 1). An enteroscopy-assisted ERCP at our institution failed owing to severe adhesions. An EUS-guided hepaticogastrostomy (EUS-HG) was performed to better divert the bile to the stomach, but this failed owing to the chronicity of the leak from a more anterior segment of the left lobe of the liver (Fig. 2), as did 2 additional pigtail stents to treat the downstream afferent limb stricture (Fig. 3A and B). However, by inflating an extraction balloon percutaneously in the leaking biliary segment, a targeted EUS-HG with



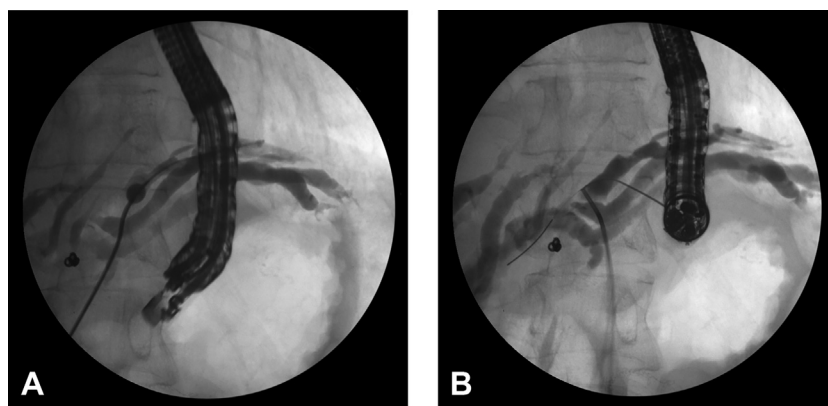
**Figure 1.** CT scan showed 2 existing percutaneous biliary drains going through a central abdominal scar into the left intrahepatic ducts to the afferent jejunal limb (no window for endoscopic gastrojejunostomy).



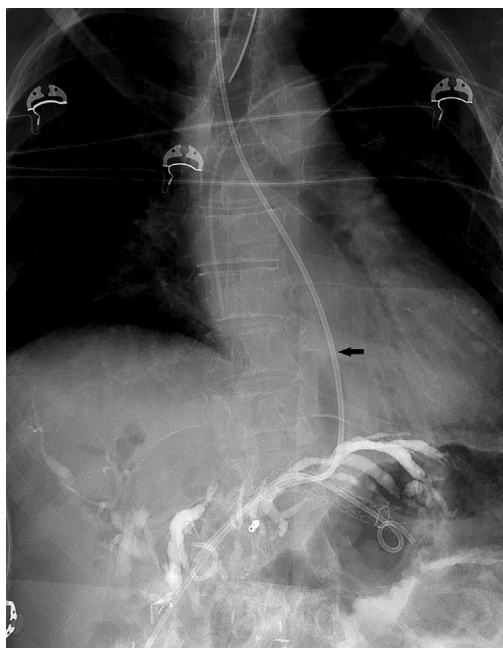
**Figure 2.** The first hepaticogastrostomy failed owing to chronic leak from a more anterior segment of the left hepatic lobe.



**Figure 3. A, B,** Downstream afferent limb stricture (*arrow*) after dilation (**B**) and placement of 2 double-pigtail stents across it.



**Figure 4. A, B,** By inflating an extraction balloon percutaneously in the leaking biliary segment, an EUS hepaticogastrostomy targeted to the leaking segment was performed.

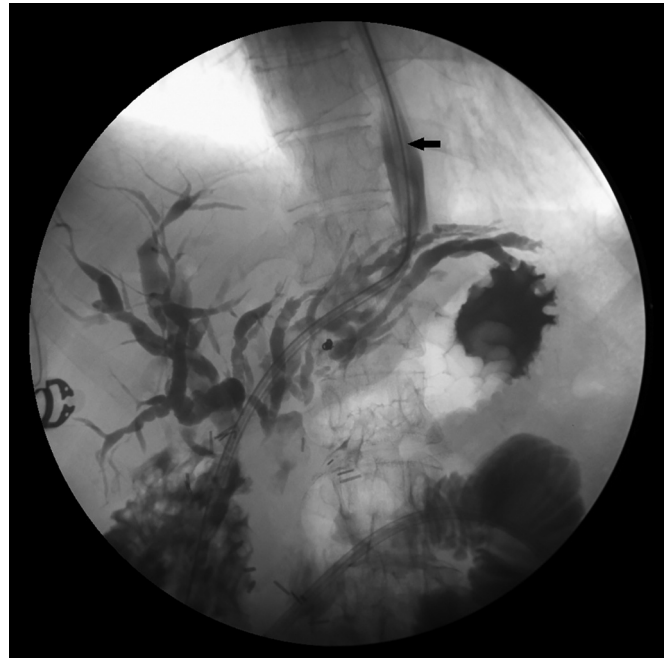


**Figure 5.** Nasobiliary drain (*arrow*) placed for wall suction to aid healing of the chronic fistula.

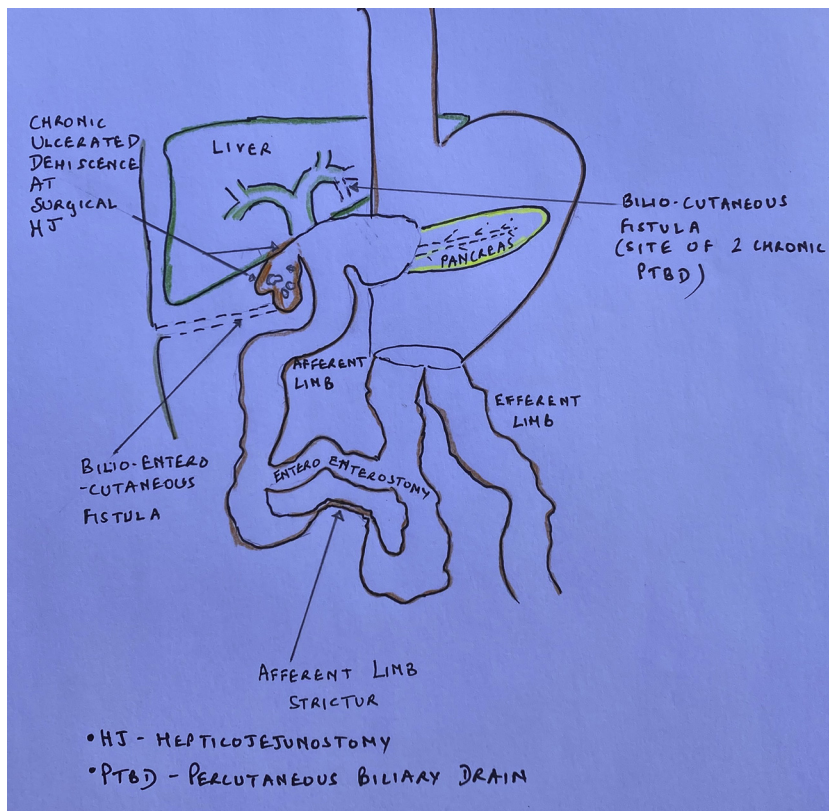
interventional radiology rendezvous was performed (Fig. 4A and B). Although the output decreased, the leak did not resolve, likely owing to the longstanding tract through a ventral scar avoiding the abdominal wall musculature. This was treated successfully with ablation of the fistula tract with argon plasma coagulation passed percutaneously and visualized cholangioscopically, followed by nasobiliary suction (Fig. 5). However, 12 weeks later, a new fistula with food and bile emerging from the abdominal wall (bilioenterocutaneous fistula) developed. Cholangioscopy (via hepaticogastrostomy) helped identify an ulceration leading to a chronic anastomotic dehiscence at the surgical hepaticojejunostomy, with an abscess filled with food, suspected to be due to downstream adhesions and food emerging through the enteroenterostomies (Fig. 6). She was not on nonsteroidal anti-inflammatory drugs, and multiple deep biopsies ruled out inflammatory bowel disease, so the clinical suspicion was this was postsurgical ischemic ulceration and dehiscence. The abscess containing food was meticulously cleaned out cholangioscopically, followed by placement of a 16F nasobilioenteric tube (Fig. 7) to suction for 2 weeks (Fig. 8). This finally resulted in long-



**Figure 6.** Cholangioscopy demonstrating food-filled abscess at chronic dehiscence of surgical hepaticojejunostomy.



**Figure 7.** Nasobilioenteric tube (arrow) placed to suction to help heal biliointerocutaneous fistula after cleaning out abscess.



**Figure 8.** Diagram demonstrating the pathophysiology of the complex afferent limb syndrome and biliocutaneous fistula.

term (29 months) remission. She has mostly adhered to a low-residue diet and has had no recurrent cholangitis or biliocutaneous or bilioenterocutaneous fistulas.

## CONCLUSIONS

If a persistent biliocutaneous fistula, in the setting of an afferent limb syndrome, fails to respond to pigtail stents and EUS-HG, a targeted hepaticogastrostomy into the leaking segment can help. Ablation of a chronic tract and nasobiliary suction can further aid healing. Surgical hepaticojejunostomy ulceration can lead to chronic dehiscence and abscess, which can also be potentially healed by cleaning out the cavity and using large-caliber tubes for suction in the nonsurgical patient.

## DISCLOSURE

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

*Abbreviations: EUS-HG, EUS-guided hepaticogastrostomy; PTBD, percutaneous biliary drain.*

## REFERENCES

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