ORIGINAL ARTICLE

Cholangioscopic recanalization of a completely obstructed anastomotic biliary stricture after liver transplant

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INTRODUCTION

Liver transplant is the standard of care for patients with end-stage liver disease. However, there is a high rate of anastomotic biliary adverse events. We report here a successful endoscopic recanalization of complete biliary obstruction.

CASE DESCRIPTION AND METHODS

A 51-year-old woman with a history of orthotopic liver transplant for primary biliary cholangitis 8 months prior presented with pancreatitis. ERCP demonstrated an indwelling surgical "stent" and an anastomotic stricture. The surgical stent was removed, a sphincterotomy was performed, and a 10-mm × 8-cm fully covered stent was placed.

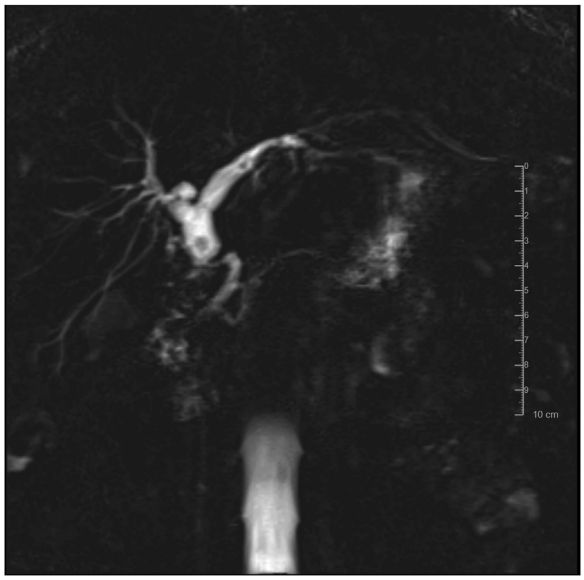

Figure 1. Follow-up MRCP shows a severe anastomotic biliary stricture with an upstream stone.

Figure 2. EUS-guided hepaticogastrostomy shows complete obliteration of lumen with failure of passage of the guidewire across anastomosis. Contrast can be seen in distal common bile duct due to a prior attempt of retrograde recanalization.

Three months later the stent was removed. Five months later the patient presented with fatigue, nausea, abdominal pain, and abnormal liver function tests. MRCP showed a severe anastomotic stricture and an upstream stone (Fig. 1). Recurrent structuring was believed to be because of ischemia or inadequate recanalization. ERCP was undertaken. Unfortunately, the stricture could not be traversed with a 0.035-inch or a 0.025-inch hydrophilic guidewire (Fig. 2).

EUS-guided hepaticogastrostomy was performed for biliary decompression and to attempt antegrade recanalization. However, there was no residual lumen and recanalization was unsuccessful (Fig. 3).

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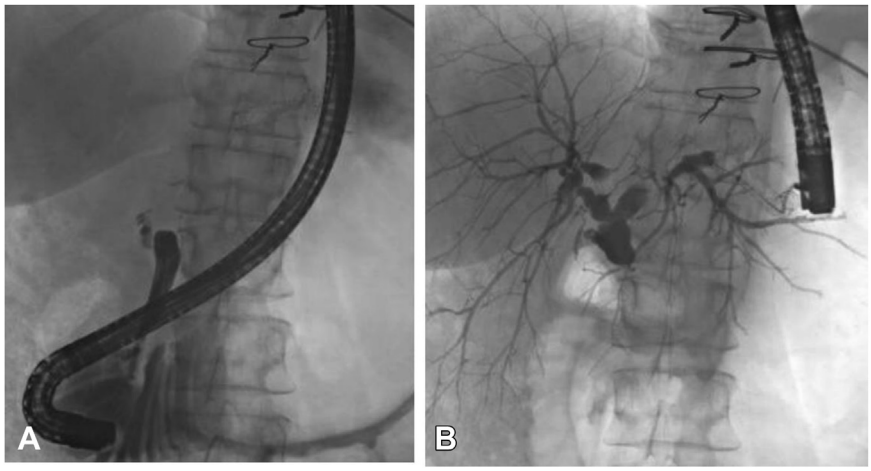

Figure 3. ERCP **(A)** and EUS-guided hepaticogastrostomy **(B)** showing complete obstruction with inability for contrast to pass retrograde or antegrade, respectively.

Figure 4. Cholangioscope (SpyScope DS-2; Boston Scientific, Marlborough, Mass, USA) in place and mini-forceps (SpyBite forceps; Boston Scientific) passing through it into the proximal biliary tree.

Figure 5. Passage of the guidewire with balloon dilatation of the stricture.

ERCP with cholangioscopy was performed (Fig. 4). Guidewires would not traverse the anastomosis under cholangioscopic visualization, and no lumen could be identified. Mini-forceps (SpyBite; Boston Scientific, Marlborough, Mass, USA) were used under cholangioscopic direction to recanalize the lumen using a bite-on-bite technique (Video 1, available online at www.videogie.org). We used the pearly scar tissue as a guide to ensure the correct site for recanalization. We felt comfortable doing this because hepatogastrostomy and sphincterotomy were thought to be protective against any bile leak if tunneling had dissected out of the duct. Moreover, contrast injection was used periodically to monitor progression into the duct. This allowed cholangioscopic guidewire placement, balloon dilation, and placement of a 10- × 100-mm fully covered metal stent (Figs. 5-7). The stone previously seen on MRCP passed spontaneously.

While a rendezvous approach with antegrade transillumination and a percutaneous SpyScope DS-2 (Boston Scientific) might be safer for recanalization of complete obstruction, the process would require multiple admissions and procedures for percutaneous access and fistula maturation. This might increase morbidity for this patient with no difference in outcome. We propose that cholangioscopic recanalization along with protection from bile leakage

Figure 6. Follow-up cholangiogram showing lumen patency of the biliary tree.

Figure 7. Follow-up cholangiogram showing a 10-mm × 10-cm fully covered metal stent placed across anastomosis.

would be a reasonable approach in this case and similar cases with altered anatomy, hepatogastrostomy in place, or unavailability for follow-up or multiple procedures.

The patient ended up getting a stent exchange for multiple plastic stents about 3 months later. The patient remains well 10 months later and continues to have liver function tests back at her baseline outside the hospital.

DISCUSSION

Biliary strictures remain a major cause of morbidity in liver transplant recipients, estimated to occur in up to 30% of patients, with anastomotic strictures being most common.

The mainstay of treatment is endoscopic balloon dilation and biliary stent placement of a fully covered self-expandable metal stent or by multiple side-by-side plastic stents.

Our patient developed a recurrent, resistant biliary stricture. ERCP with cholangioscopy and mini-forceps were used to successfully recanalize a complete anastomotic obstruction, which has been previously described.[1]

DISCLOSURE

Dr Baron is a consultant and speaker for Ambu, Boston Scientific, Cook Endoscopy, Medtronic, Olympus America, and W.L. Gore. The other authors did not disclose any financial relationships.

REFERENCE

1. Martínez-Moreno B, Martínez-Sempere J, Ruíz Gómez F, et al. Usefulness of intraductal cholangioscopy biopsy forceps in critical strictures of the biliary anastomosis after liver transplantation. Endoscopy 2022;54:E834.