

Intraductal electrohydraulic lithotripsy by using SpyGlass cholangioscopy through a colonoscope in a patient with Roux-en-Y hepaticojejunostomy

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The endoscopic approach to large bile duct stones may require the use of intraductal electrohydraulic lithotripsy (IEHL) performed under direct cholangioscopic visualization.^{1,2} In patients with Roux-en-Y biliary reconstruction after liver transplantation, endoscopic retrograde cholangiography is feasible using long-length endoscopes.³ We describe successful fragmentation of a large common hepatic duct stone by using cholangioscopy-guided IEHL delivered through a colonoscope in a patient with a Roux-en-Y hepaticojejunostomy.

CASE REPORT

A 25-year-old man underwent an orthotopic liver transplantation 12 years earlier for primary sclerosing cholangitis. He was clinically well on cyclosporine monotherapy when fever, severe abdominal pain, and jaundice with rigors and chills developed. He was treated with antibiotics with partial relief. An abdominal CT scan showed a large filling defect in the common hepatic duct extending into the left hepatic duct with bilateral intrahepatic ductal dilation. Laboratory testing showed a total bilirubin of 34 mg/dL. A percutaneous cholangiogram confirmed the CT findings and demonstrated a 1.9- × 3.3-cm stone (Fig. 1). There was no evidence of anastomotic stricture or recurrent primary sclerosing cholangitis. An 8F internal/external drain was placed, and percutaneous stone extraction by using lithotripsy was thought not possible, at least not until the percutaneous tract became mature several weeks later. An endoscopic approach was undertaken 10 days after initial percutaneous cholangiogram.

ENDOSCOPIC PROCEDURE

In the endoscopy suite, the patient was placed in the supine position under monitored anesthesia care. A therapeutic channel variable stiffness colonoscope (CF-Q160AL; Olympus Medical Systems, Center Valley, Pa) was passed into the enteroenterostomy and eventually up the afferent limb to the hepaticojejunostomy where the previously placed internal/external catheter was pigtailed in the duo-



Figure 1. Percutaneous cholangiogram showing large filling defect in the common hepatic duct extending into the left hepatic duct (arrows).

denum. The catheter remained in place during the entire procedure because the tract was not yet mature. The hepaticojejunal anastomosis was patent. A cholangiogram obtained through the indwelling percutaneous catheter demonstrated the large stone. A SpyGlass cholangioscope (Boston Scientific, Natick, Mass) was passed through the colonoscope without difficulty and into the bile duct. IEHL was performed under direct endoscopic visualization by using a lithotriptor (Northgate Autolith; Nortech, Elgin, Ill) at a power of 40 (Fig. 2). A total of 1600 shocks were used to fragment the stone.

After 12-mm balloon dilation of the hepaticojejunostomy, a standard endoscopic stone retrieval balloon was then used to remove the residual fragments. During sweeping of the duct, there appeared to be a residual suture emanating from the hepaticojejunostomy. Because this could have been a nidus for stone formation, it was removed with a standard biopsy forceps. The completed cholangiogram with contrast injected through the percutaneous tube did not reveal obvious residual stone fragments. The total procedural time was 2.5 hours. The patient

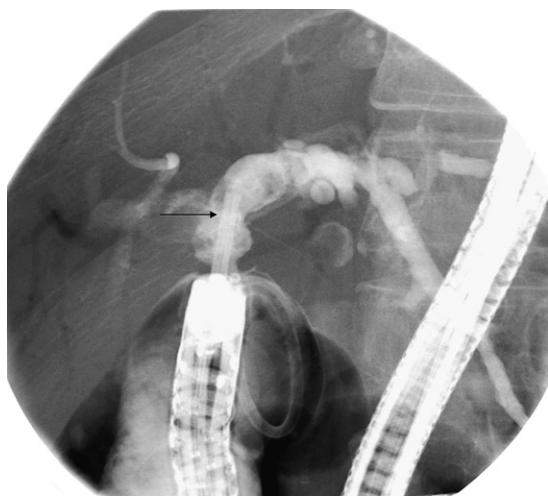


Figure 2. Radiograph taken at time of endoscopic retrograde cholangiography showing fragmentation of the stone. The cholangioscope can be seen exiting the tip of the colonoscope (arrow).



Figure 3. Final cholangiogram showing clearance of the bile duct.

tolerated the procedure well without complications and was discharged home 2 days later with the percutaneous drain in place. On return to the interventional radiology suite 9 days later, small residual fragments were pushed into the jejunum; the percutaneous tube was removed 1 week later, and a final cholangiogram was obtained (Fig. 3).

DISCUSSION

To our knowledge, this is the first case of hepatic duct stone removal by using a cholangioscope passed through a colonoscope to perform IEHL in a patient with Roux-en-Y anastomosis. The SpyGlass cholangioscope (Boston Scientific) is a single-operator endoscope that allows diagnostic and therapeutic applications in hepatobiliary diseases.^{4,5} Because it has a catheter length of 230 cm, it allows passage through a colonoscope. We used this system because conventional cholangioscopes are not of sufficient length to pass through the colonoscope. It is important to note that a therapeutic channel endoscope is necessary because the SpyGlass catheter is 10F in diameter. We also considered using a balloon enteroscope with passage of the cholangioscope through the overtube if the hepaticojejunostomy could not have been reached with the colonoscope.

In conclusion, cholangioscopy-guided IEHL is feasible in patients with hepaticojejunal anastomoses by using a colonoscope. Selected cases include such patients with long-limb anatomy in whom standard endoscopic approaches to stone removal have failed and in whom a percutaneous approach is not feasible.

DISCLOSURE

The authors disclosed no financial relationships relevant to this publication.

Abbreviations: IEHL, intraductal electrohydraulic lithotripsy.

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