

## **Percutaneous Antegrade Cholangioscopy for Management of Intrahepatic Cholelithiasis in Altered Biliary Anatomy: Case Report**

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### **Abstract**

Benign biliary disease in patients with altered anatomy due to surgical history represents a big challenge for endoscopists. Over the last decade, cholangioscopy has become essential for the treatment and evaluation of undetermined biliary tract stenosis and cholelithiasis, being these the two most frequent indications. Cholangioscopy is supported by interventional radiology and balloon- assisted endoscopic cholangiography, however, there are clinical scenarios that do not allow conventional access to the biliary tree due to an alteration of the biliary anatomy resulting from surgical procedures. These procedures include distal gastrectomy Billroth II, total gastrectomy, Roux-Y gastric bypass and those involving bilioenteric anastomosis, like pancreatoduodenectomy and hepaticojejunostomy. In this scenario, percutaneous antegrade cholangioscopy is a cost-effective tool, which consists of the introduction of a cholangioscope through a mature fistula tract and the possible addition of therapies such as electrohydraulic lithotripsy or laser, balloon sweeps for gallstone removal, stenting and introduction of dilation devices in stenotic areas. These result in a therapeutic and technical success of 100% of the cases published in the most recent series, with minimal major complications in expert hands.

**Keywords:** *Lithotripsy; Percutaneous Transhepatic Cholangiography; Bilioenteric Anastomotic Strictures; Cholelithiasis; Videocholangioscopy*

### **Introduction**

Benign biliary disease in patients with altered anatomy due to surgical history represents a big challenge for endoscopists.

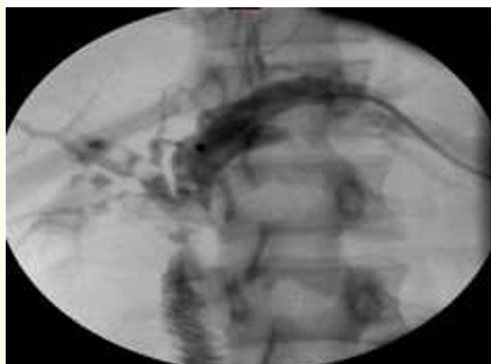
### **Case Report and Discussion**

28-year-old female patient with a history of open cholecystectomy three years ago and subsequently obstructive jaundice. Endoscopic cholangiography shows disruption of the biliary tract at the level of the middle bile duct. Patient is scheduled for biliodigestive diversion Hepp-Couinaud type + Y-en-Roux reconstruction, for a complete section of the common hepatic duct at 1 centimeter from the hepatic duct confluence. The procedure was performed without complications and the patient is discharged after clinical improvement.

Two years later, patient presents with abdominal pain at the right hypochondrium, nausea, vomiting, choloria, acholia, and generalized jaundice; laboratory tests emphasized: TB 9.9, DB 7.6, GOT 99, GPT 129, leucocytes 15.6, with normal results for the rest of the parameters. Liver and bile duct ultrasound showcase: intrahepatic bile duct dilatation. CT of the abdomen demonstrates intrahepatic bile duct dilatation + images with centrally distributed gas density in the hepatic hilum.

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**Figure 1:** Intrahepatic and extrahepatic choledocholithiasis.



**Figure 2:** Patient in the angiography room with 8.5 Fr multipurpose biliary catheter towards the left hepatic duct.



**Figure 3:** Percutaneous cholangiography + dilation of the bilioenteric anastomosis.



**Figure 4:** Introduction of the spyScope through the mature fistulous tract.

A percutaneous cholangiography was performed by Interventional Radiology with the following findings: predominantly left intrahepatic biliary dilatation, pneumobilia and multiple oval-shaped filling defects at the confluence level and filiform passage of the contrast in the hepatic-jejunal anastomosis. An 8.5 Fr multipurpose catheter was placed, however, for the next 30 days, the patient persisted with abdominal pain, vomiting, generalized jaundice, and minimal bile output through the external biliary bypass.

The gastrointestinal endoscopic unit, alongside interventional radiology, removed the 8.5 Fr multipurpose catheter and performed dilatations up to 12 Fr. Subsequently, the Spyscope is introduced through the fistulous tract over the left main hepatic branch, observing edematous, friable mucosa and stones along its path, the largest of which is 12 mm, color black, and located at the confluence level. Proceeding to Laser lithotripsy with 1 - 2 Joules, 12 Hz, the fragmentation of the stones and migration of the spontaneous stones to the jejunum is accomplished. A permeable hepatic-jejunal anastomosis is observed, with edematous mucosa. With the fluoroscopy, no filling defects or passage of the contrast to the jejunum is observed. The patient's evolution 12 weeks after the procedure is satisfactory.



**Figure 5:** Laser lithotripsy by cholangioscopy.



**Figure 6:** Choledocholithiasis resolved by cholangioscopy and laser + satisfactory bilioenteric rehabilitation.

## **Conclusion**

Percutaneous antegrade cholangioscopy promises to be a valuable addition to the treatment options for selected patients with complex hepatobiliary diseases and to meet the need for a cost-effective percutaneous approach [1-3].

## **Ethics Statement**

All the procedures were conducted in accordance with the ethical standards of the institution and/or national research committee. Informed consent for the publication of the case and its corresponding images were granted by the patient.

## **Conflicts of Interest Statement**

Authors have no conflicts of interest to declare.

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