

## Case Report

# A modification of rendezvous technique for endoscopically treating transected common bile duct following cholecystectomy

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## Abstract

Endoscopic therapy is the standard of care for management of most benign biliary strictures. However, endoscopic therapy can fail in very tight strictures. We report a case of a 52-year-old lady who had complete bile duct transection with stricture after laparoscopic cholecystectomy. In initial attempt, at endoscopic retrograde cholangiopancreatography (ERCP), guidewire could not be negotiated endoscopically across the narrowing as there was complete cut off of the bile duct and so a percutaneous transhepatic biliary drainage (PTBD) was done and subsequently internalized into the duodenum. We cannulated the internalized end of PTBD catheter with the standard ERCP cannula with guidewire and advanced it across the biliary stricture. PTBD catheter was withdrawn externally, and the guidewire was left in the left ductal system. We report this innovation as this may be helpful in managing patients with ERCP after an initial PTBD has been successfully internalized into the duodenum.

## Key words

Cholecystectomy, common bile duct, endoscopic retrograde cholangio-pancreatography

## Introduction


Endoscopic retrograde cholangio-pancreatography (ERCP) has been widely used for the treatment of benign biliary strictures. As laparoscopic cholecystectomy has become the standard of care for benign gallbladder diseases, the incidence of iatrogenic bile duct injuries has increased (0.3–0.7%).<sup>[1]</sup> Endoscopic therapy is usually not possible in patients with completely occluded or transected bile duct. Endoscopic therapy with multiple plastic stents placed side by side across the stricture with stent exchange 3 monthly over a period of 1 have shown success rate of 74–90% with stricture recurrence of 20–30% within 2 years of stent removal.<sup>[2,3]</sup> Bismuth type I

and II have better success rates with endoscopic therapy than Bismuth type III strictures. Percutaneous interventional radiologic techniques including percutaneous trans-hepatic biliary drainage (PTBD) have been an effective strategy for patients with bile duct strictures, especially short bile duct strictures after laparoscopic cholecystectomy.<sup>[4]</sup> Minimally invasive techniques and modification of rendezvous technique have been described in the literature for bile duct stricture and biliary leaks.<sup>[5,6]</sup>

## Case Report

A 52-year-old lady who underwent laparoscopic cholecystectomy for symptomatic gallstone disease elsewhere presented 2 weeks after surgery with fever with chills, right upper quadrant pain abdomen, and cholestatic jaundice of 3 days duration. Her investigations revealed total leucocyte count of 18,000/ $\mu$ l, bilirubin of 11 mg/dl (conjugated fraction - 9 mg/dl), elevated liver enzymes (aspartate transaminase = 212 U/l, alanine transaminase = 234 U/l) and alkaline phosphatase of 434 U/l. Ultrasound sonography abdomen showed

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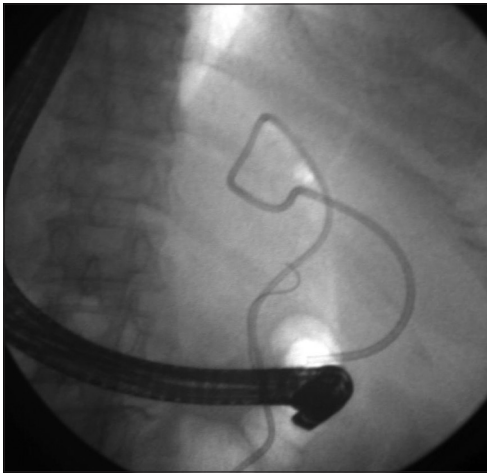
bi-lobar intrahepatic biliary radicles dilatation with dilated proximal part of common bile duct (CBD) and obscured distal CBD. ERCP was done which was suggestive of a complete cut off at the level of upper CBD and guidewire was not negotiable beyond. In view of cholangitis, PTBD catheter was placed in left biliary duct system under ultrasound guidance. She was managed with intravenous antibiotics with which she improved. Thereafter, using a stiff Terumo guide wire through the PTBD catheter, the bile duct distal to the transaction was accessed, dilatation was done using fascial dilators and 8 Fr PTBD catheter was internalized under fluoroscopic guidance.

A repeat attempt for ERCP was made wherein cannulation was attempted by the side of internalized PTBD catheter however guidewire was not negotiable [Figure 1] due to cut off at proximal CBD [Figure 2]. Hence, we cannulated the internalized end of PTBD catheter with the standard

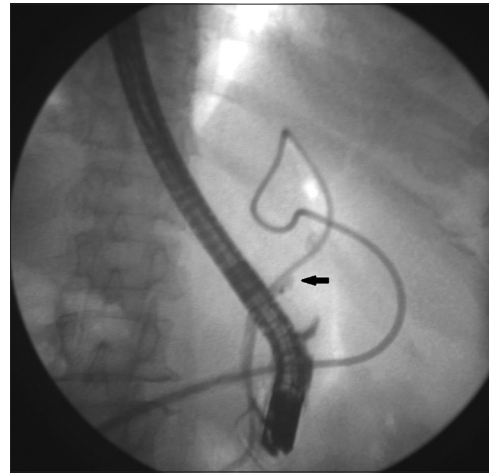
ERCP cannula [Figure 3] and advanced the guidewire across the biliary stricture. Guidewire was passed inside the cannula into the left ductal system [Figure 4]. PTBD catheter was withdrawn externally, and the guidewire was left in the left ductal system [Figure 5]. Stricture was dilated by using 4 mm biliary dilatation catheter [Figure 6] and thereafter a 7F straight biliary stent was placed across the stricture [Figure 7]. The patient remained asymptomatic and has undergone ERCP twice subsequently with dilatation of stricture and currently has two stents placed across the stricture (one 10 Fr and another 7 Fr stent).

## Discussion

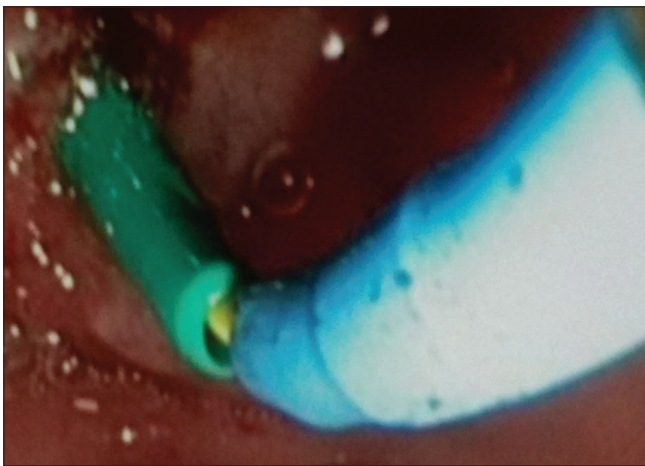
Several minimally invasive techniques and modifications of rendezvous technique have been described in the literature for bile duct stricture and biliary leaks. Case reports describe complete CBD transection and proximal



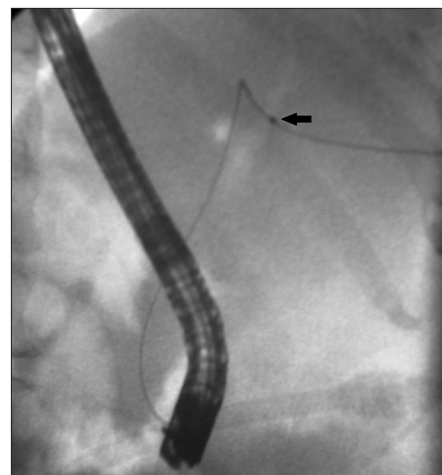
**Figure 1:** Endoscopic retrograde cholangio-pancreatography: Guide wire could not be negotiated by the side of the percutaneous transhepatic biliary drainage catheter across the cut off in the common bile duct. The tip of the wire could be seen coiling



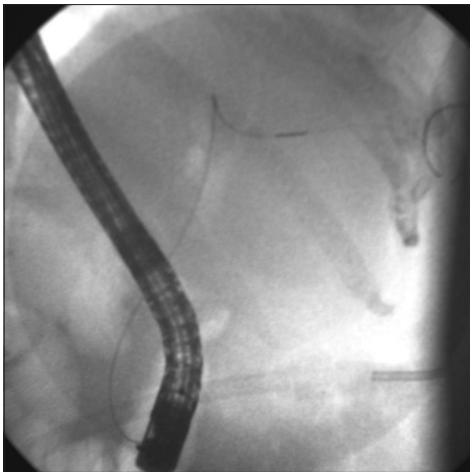
**Figure 2:** Cholangiogram shows complete cut off in upper common bile duct (arrow). Percutaneous transhepatic biliary drainage catheter is noted



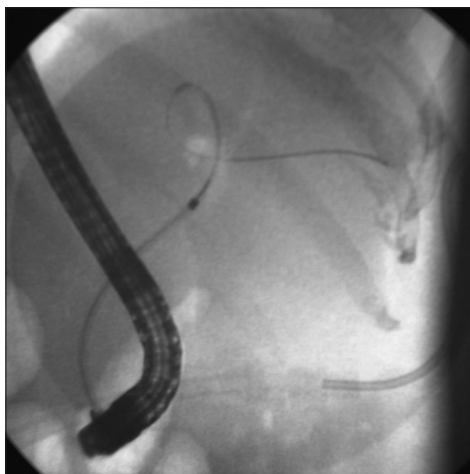
**Figure 3:** Internalised tip of percutaneous transhepatic biliary drainage catheter cannulated



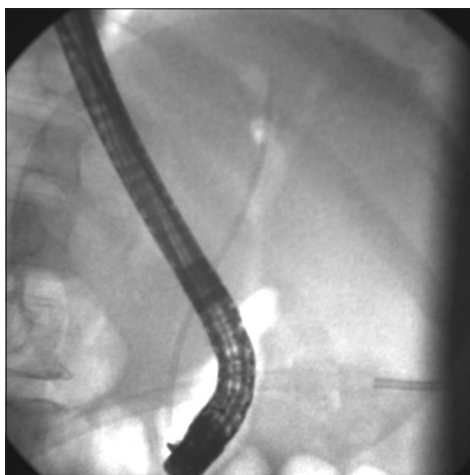
**Figure 4:** Cannula and guide wire taken deep into left ductal system through the percutaneous transhepatic biliary drainage catheter. Tip of cannula noted in left ductal system (arrow)



**Figure 5:** Cannula and percutaneous transhepatic biliary drainage catheter have been withdrawn, and guide wire seen in left ductal system and coiled outside the body



**Figure 6:** Stricture dilated using 4 mm biliary dilatation catheter



**Figure 7:** 7 F straight biliary stent placed across the stricture. Note air cholangiogram

bile leaks being managed with a rendezvous procedure, in which a guidewire is placed through the distal CBD and

into the area of bile leak and subsequently snared with percutaneous transhepatic cholangiography (PTC), allowing for a biliary-duodenal catheter to be placed successfully.<sup>[5,6]</sup> Alternatively, the guidewire can also be placed through the PTC and pulled by the biopsy forceps across the papilla in a retrograde fashion, and stent could be placed over the guidewire.<sup>[7]</sup> Inflation of stone extraction balloon just below the stricture with downward traction can be used to straighten bile duct and improve the axis of guidewire in relation to the stricture. Endoscopic ultrasound-rendezvous technique has also been used in patients with failed ERCP for achieving choledochoduodenostomy and biliary drainage.<sup>[8]</sup> We describe an endoscopic innovation to do ERCP guided drainage in a patient who underwent PTBD after failed initial ERCP. We utilized the route created by the interventional radiologist for internalization of PTBD. The novelty in our technique is that we have cannulated through the PTBD catheter which to the best of our literature search has not been reported in the literature. This methodology ensures that the stricture and transection are negotiated, and subsequently stent could be placed. Further management can be undertaken endoscopically as the patient will need multiple procedures and stents. Of course, the prerequisite for this procedure is that the interventional radiologist should be able to internalize the PTBD catheter. This new technique can, therefore, be useful in a select group of patients with complete bile duct transection with stricture and failed ERCP in whom the radiologist could internalize the PTBD.

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