




# Post-ERCP Bile Leak

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## Abstract

A 37-year-old female with no underlying comorbidities was referred for the evaluation of biliary stricture. Her magnetic resonance cholangiopancreatography showed a focal lesion in the left hepatic duct close to primary confluence causing a stricture and bilateral intrahepatic biliary radicle dilatation. Spyglass cholangioscopy was done and SpyBite biopsy was taken from the stricture. Repeated attempts at attaining deep cannulation of the right duct were unsuccessful. Patient developed right-sided abdominal pain the next day. Computed tomographic scan of the abdomen showed intra-abdominal fluid in the perihepatic region. Fluid was drained under ultrasound guidance. Though patient improved transiently, she had recurrence of pain after drain removal. A repeat endoscopic retrograde cholangiopancreatography (ERCP) was done and a leak was noted at the junction of right anterior and posterior hepatic ducts. Stenting was done to right anterior, right posterior, and left hepatic ducts. Over the next few days, she improved symptomatically. Though complications are inherent during ERCP, bile duct injury leading to bile leak is rare. Special caution has to be taken in high-risk cases to prevent bile duct injury. Though post-ERCP bile leak is a rare complication, early recognition with a high index of clinical suspicion and prompt management are the key factors in minimizing morbidity and mortality.

## Keywords

- ▶ bile leak
- ▶ ERCP
- ▶ spyglass cholangioscopy

A 37-year-old female with no underlying comorbidities was referred for the evaluation of biliary stricture. She had mild upper abdominal pain for a year without any fever or jaundice. Magnetic resonance cholangiopancreatography (MRCP) showed a focal lesion in the left hepatic duct close to primary confluence causing a stricture and bilateral intrahepatic biliary radicle dilatation. Her routine laboratory tests including liver function tests were normal. On endoscopic ultrasound,

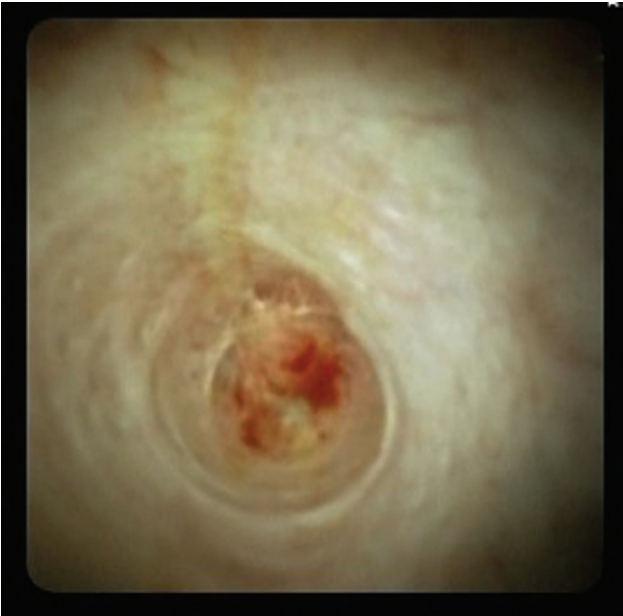
she had bilateral biliary radicle dilatation and a hilar stricture, the nature of which was not clear. Spyglass cholangioscopy showed normal common bile duct, irregular mucosa with scarring in the common hepatic duct, and a nodular hyperemic lesion at the bifurcation, more toward the left duct (▶ Fig. 1). SpyBite biopsy was taken from the stricture and the left duct was stented with a 7 Fr (French) double pigtail plastic stent. Repeated attempts at attaining deep cannulation of the right

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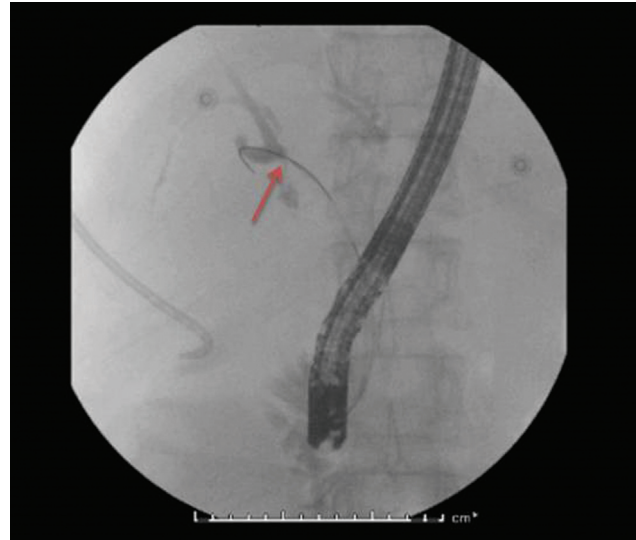
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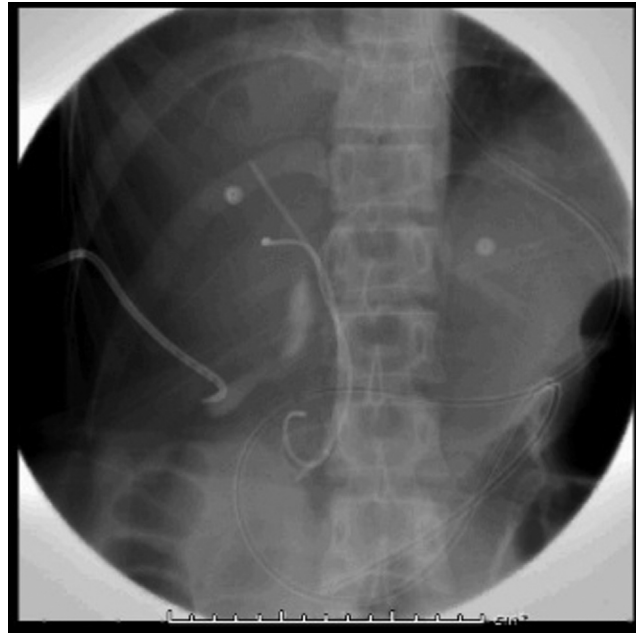
**Fig. 1** Spyglass cholangioscopy picture of hilar stricture extending to left hepatic duct.

duct, using a tapered tip endoscopic retrograde cholangiopancreatography (ERCP) catheter and a 0.025-inch guidewire with hydrophilic tip, were unsuccessful. Patient developed right-sided abdominal pain the next day requiring opioid infusion. An abdominal X-ray was noncontributory and the stent was in situ. Computed tomographic scan of the abdomen showed minimal fluid in the porta hepatis, right posterior perihepatic region, and right perinephric region. Ultrasound-guided aspiration of fluid was bilious and percutaneous drains were placed in the hepatorenal pouch and retroperitoneal collection. Subsequently patient improved symptomatically. As the drain output significantly reduced in the next few days, hepatorenal pouch drain was removed.

She had a recurrence of pain with rising inflammatory markers after drain removal. An MRCP done showed focal hyper intensity from the common hepatic duct region reaching up to perihepatic collection. Suspecting a biliary leak, she underwent a repeat ERCP (► **Video 1**). After removing the left ductal stent, a cholangiogram was done that showed a leak at the junction of right anterior and posterior hepatic ducts (► **Fig. 2**). Right duct was cannulated first and 7 Fr and 5 Fr plastic stents were placed into right anterior and posterior ducts, respectively. Subsequently, a 5 Fr plastic stent was placed into left hepatic duct also (► **Fig. 3**). Over the next few days, she improved symptomatically and was discharged. The histopathology report of SpyBite biopsy showed fibrous tissue with atypical glands. After 6 weeks, she underwent surgical excision of the extrahepatic biliary duct and Roux-en-Y hepaticojejunostomy to right anterior, right posterior, and left hepatic ducts. Histopathology of excised bile duct showed features of intraductal tubulopapillary neoplasm with no evidence of invasion.



**Fig. 2** Fluoroscopy image during endoscopic retrograde cholangiopancreatography showing the site of bile leak at the junction of right anterior and posterior ducts (arrow).



**Fig. 3** Post-endoscopic retrograde cholangiopancreatography fluoroscopy picture showing stents in right anterior, right posterior, and left hepatic ducts.

#### Video 1

Post-ERCP Bile Leak. Online content including video sequences viewable at: <https://www.thieme-connect.com/products/ejournals/html/10.1055/s-0042-1742701>.

Though complications are inherent during ERCP, bile duct injury leading to bile leak is rare. We feel that the tapered tip cannula, which was forced to pass across the stricture in right hepatic duct without attaining deep cannulation with the guidewire, would have caused the bile duct injury. As per Stapfer classification, our patient had a type III ERCP-related perforation. Type III ERCP perforations are ductal injuries due to accessories used during ERCP.<sup>1</sup> These perforations can be managed conservatively with intravenous antibiotics and biliary drainage.<sup>2,3</sup> Special caution has to be taken in high-risk cases to prevent bile duct injury. The practice of over the guidewire cannulation, fluoroscopy guidance, and caution at cannulation across strictures especially during stricture dilatation are of great help in preventing such complications. The selection of guidewires is extremely important and stiff guidewires may be avoided when attempting deep cannulation into the intrahepatic duct across a stricture.

Though post-ERCP bile leak is a rare complication, early recognition with a high index of clinical suspicion and prompt management are the key factors in minimizing morbidity and mortality.

#### Conflict of Interest

None.

#### References

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