

Endoscopic Management of Type III Cholecystobiliary Fistula in Mirizzi Syndrome

Courtney Cartier, DO, Shinban Liu, DO, Sam Serouya, MD, Adam Goodman, MD, H Tracy Davido, MD
Department of Surgery, NYU Langone Brooklyn Hospital, Brooklyn, NY, USA



NYU Langone Brooklyn
Department of Acute Care Surgery
Department of Gastroenterology

INTRODUCTION

Mirizzi syndrome is common hepatic duct obstruction caused by extrinsic compression. This typically arises from an impacted stone at the level of the cystic duct or infundibulum of the gallbladder. While rare for patients undergoing surgery for cholecystitis, Mirizzi syndrome is typically not diagnosed preoperatively and poses a significant risk of biliary injury and morbidity. The presence and extent of cholecystobiliary fistula classifies Mirizzi syndrome into five subtypes which have different degrees of operative management [1]. Conventionally, surgery is approached from least to most invasive options and can range from simple cholecystectomy and diagnostic cholangiogram with suture repair over T tube to bilioenteric anastomoses such as choledochoduodenostomy, cholecystoduodenostomy, choledochojejunostomy, or hepaticojejunostomy with Roux-en-Y reconstruction [2]. However, with the advent of more advanced endoscopic options and a growing body of literature, procedures such as stenting with wide local drainage have become more common.

Case Report

This is a 61 year old male who presented to the ED with painless jaundice for one month. Workup revealed an elevated TB of 19.3, DB 15.5, a WBC of 15.2, and GGT 912. US Abdomen was performed showing a severely dilated CBD of 1.7 cm and a large distended gallbladder with a 1.9 cm stone impacted in the neck. Gastroenterology was consulted and ERCP performed showing a large stone within a dilated cystic duct impinging on the CBD, causing Mirizzi’s Syndrome (Figure 1). Sludge was found and removed from the CBD, and a plastic stent placed. After a multidisciplinary discussion with advanced endoscopy GI and the hepatobiliary team, the plan was for laparoscopic cholecystectomy with postoperative ERCP. Intraoperatively the gallbladder was found to be inflamed and friable. Once the fundus was retracted the anterolateral wall tore longitudinally, revealing a large stone in the infundibulum. The defect was opened horizontally and the stone was extracted, revealing an exposed CBD stent. The CBD stent was deep to where the stone had been seated and there was no clear cystic duct visualized- consistent with a Type III cholecystobiliary fistula. A subtotal fenestrating cholecystectomy with drain placement was then performed. Post-operatively the patient was noted to have significant bilious drain outputs and repeat ERCP was performed revealing a bile leak from the middle CBD (Figure 2). A fully covered metal stent was placed over the area of leak, with repeat cholangiogram showing successful placement and cessation of the biliary leak (Figure 3).The patient recovered well and was subsequently discharged home. Outpatient ERCP and stent removal was performed 7 weeks later showing a small persistent leak after removal of the stent, indicating significant improvement and near complete healing of the bile leak.

REFERENCES

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FIGURE 1: Preoperative ERCP revealing Mirizzi’s Syndrome

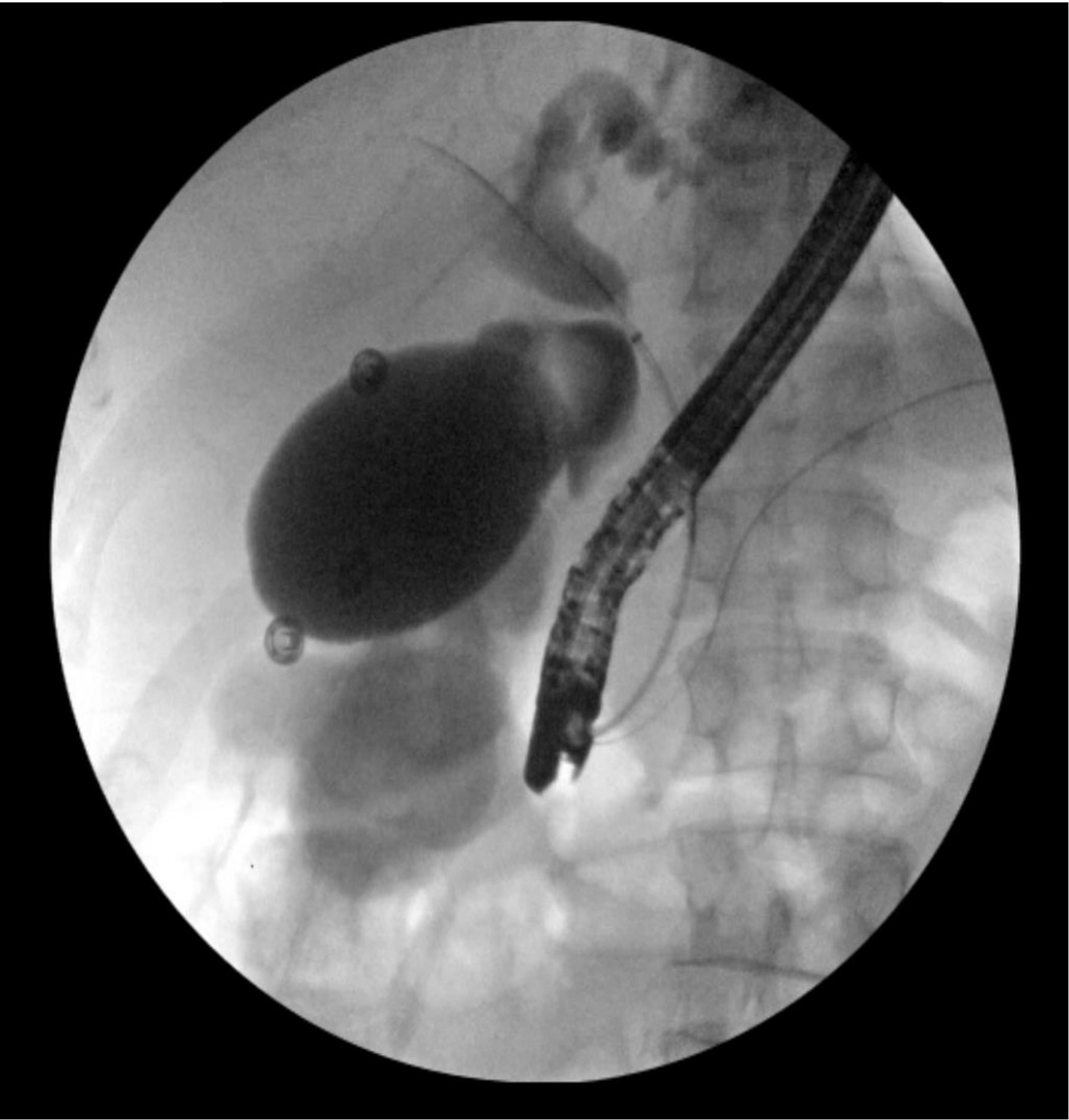


FIGURE 2: Postoperative ERCP showing biliary leak

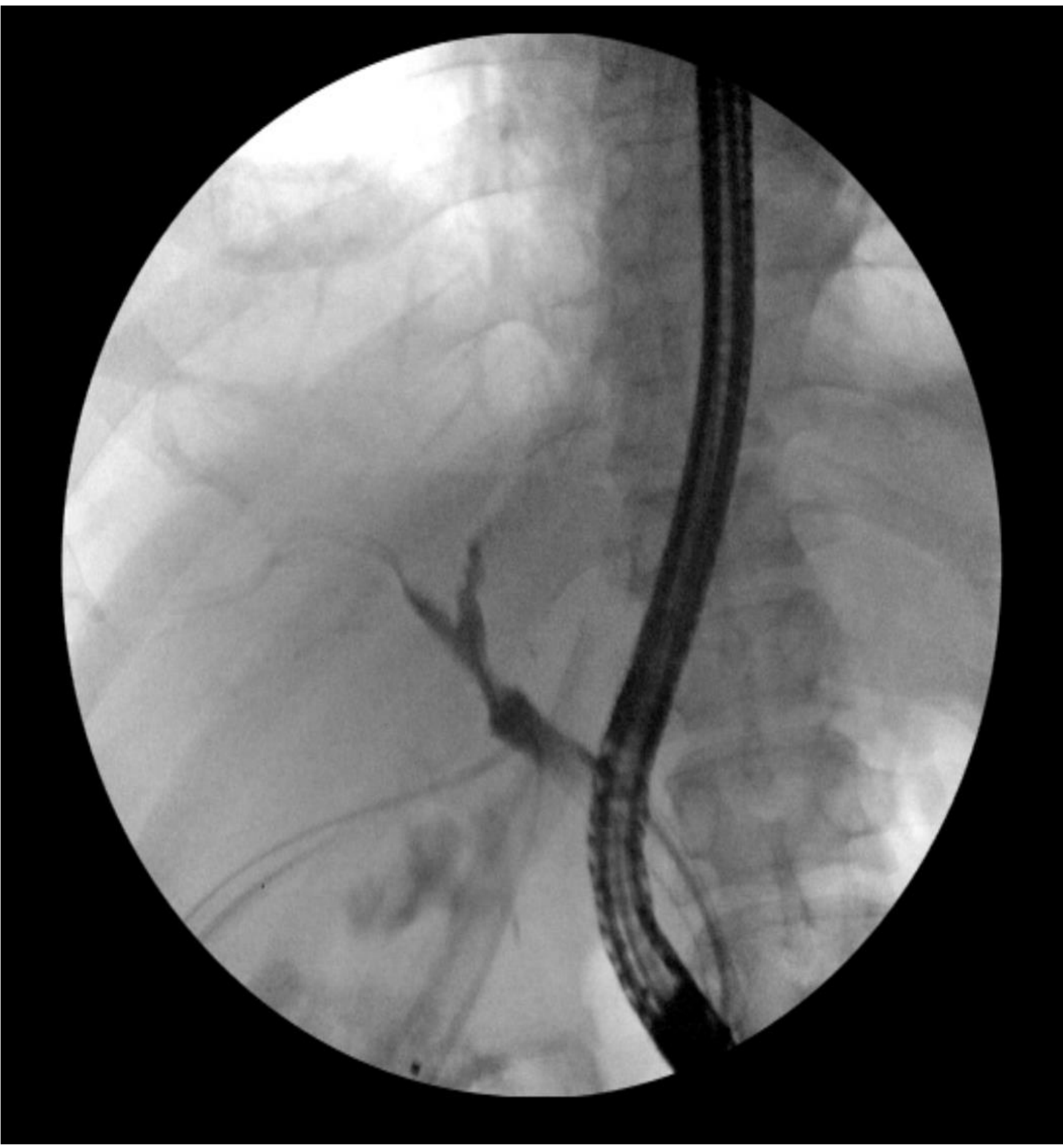
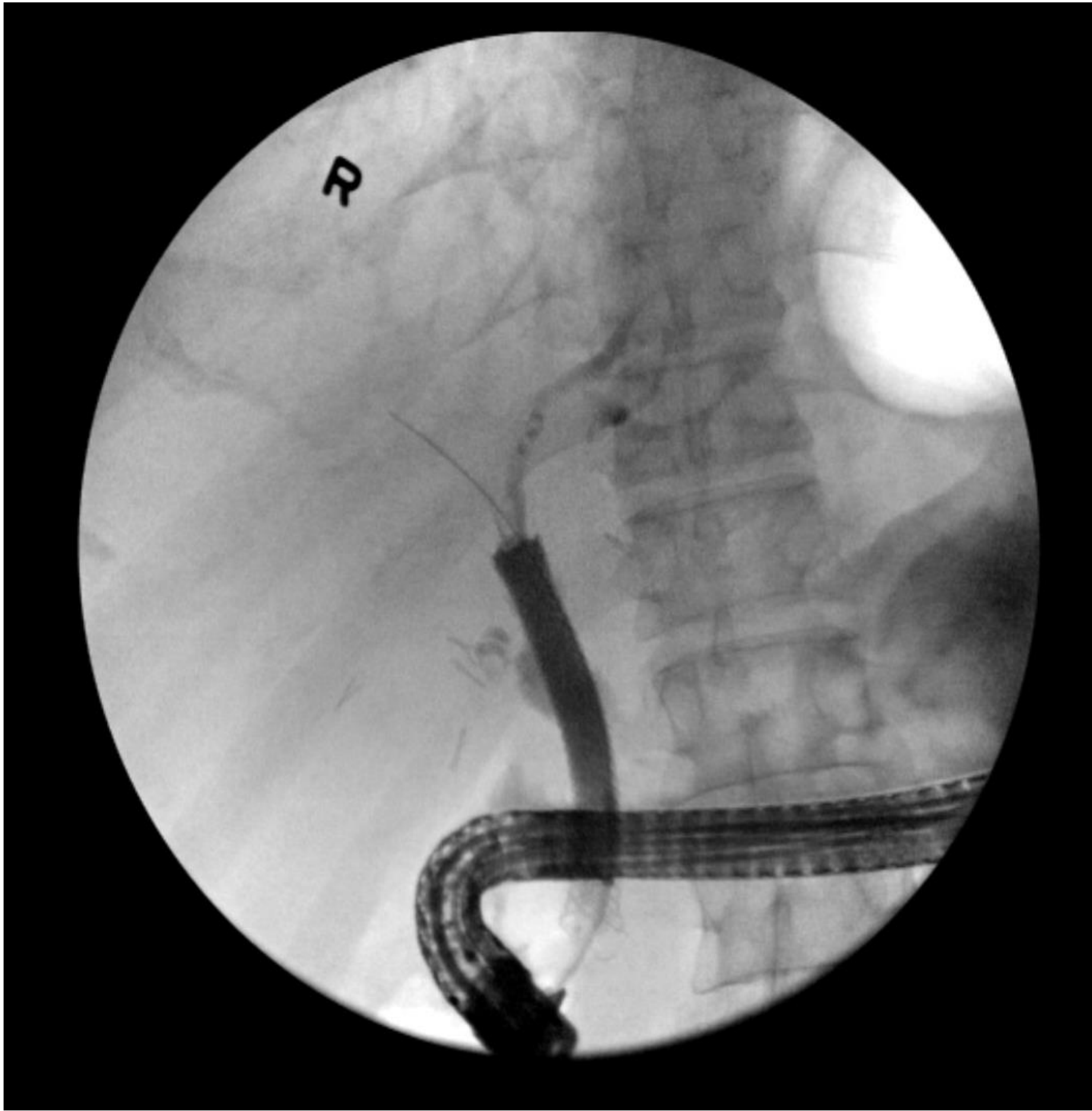


FIGURE 3: Post stent insertion and cessation of bile leak



CONCLUSIONS

Mirizzi Syndrome is a rare presentation of biliary obstruction, occurring in approximately 1% of all cases. It was formally described in 1948 by Argentinian hepatobiliary surgeon Pablo Mirizzi, who also performed the first intraoperative cholangiogram [3]. Mirizzi Syndrome causes biliary obstruction due to extrinsic compression of the duct by a stone lodged in the gallbladder infundibulum. If left unchecked the syndrome can evolve into cholecystobiliary or cholecystoenteric fistula formation, due to stone erosion from the gallbladder into the CBD [4]. This relegates the patient to a very high risk for biliary injury and morbidity during any biliary surgical procedures. In patient’s who’s preoperative workup is concerning for Mirizzi’s, GI consultation and further imaging by MRCP/ERCP may be warranted. These images can then provide the surgeon with an almost 3D view of the patient’s anatomy and help create a safer surgical plan. Endoscopic management of cholecystobiliary fistulae in patients with Mirizzi syndrome, as seen in this case, may be a superior minimally invasive option for select patients who may otherwise require more morbid procedures and have a high risk for biliary injury.