

# Biliary Duct Varices Diagnosed by Peroral Cholangioscopy with the SpyGlass System



Case presented by:  
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## PATIENT HISTORY

A 58-year-old man was waiting for “urgent” orthotopic liver transplantation (OLT), due to alcoholic liver cirrhosis (MELD: 26) complicated by esophageal varices (F2) and splenomegaly. Because of increasing jaundice, the patient underwent blood tests showing high levels of cholestatic liver enzymes (AST: 149 U/L; ALT: 90 U/L; total bilirubin: 12.6 mg/dl; direct bilirubin: 4.8 mg/dl), Ca 19-9: 230 U/L and anemia (Hb: 8.1 gr/dl). Abdominal ultrasound (US) diagnosed a mild left intra-hepatic biliary duct dilatation with normal common bile duct (CBD) and incomplete portal vein thrombosis; a CT scan confirmed the US diagnosis and showed the absence of focal lesions in the liver parenchyma. Cholangio-magnetic resonance imaging (MRI) underlined the dilatation of left intrahepatic ducts without stenosis of the CBD; a mild stenosis of the right intrahepatic biliary duct at hilum bifurcation with no contrast medium signal in the homolateral biliary tract 2 cm above the stenosis that was suspected for malignancy (**Figure 1**).

## PROCEDURE

The patient’s surgeons strongly required biopsy specimens by biliary brushing from the stenotic tract during ERCP.

Contrast medium selective cholangiography obtained during ERCP confirmed the dilatation of left intra-hepatic ducts without lesions into the extrahepatic ducts lumen and showed a right intrahepatic biliary duct substenosis at the hilar bifurcation with stenosis estimated in the left biliary tract, 2 cm above the hilum (**Figure 2**).

On suspicion of malignancy at previous ERCP, and because of anamnestic portal hypertension signs secondary to incomplete portal thrombosis, we performed peroral cholangioscopy with the SpyGlass® System to directly visualize the lumen of the biliary ducts. The SpyGlass System revealed four choledocal veins-ectasia/varices with red mucosal spots localized at medium part of CBD (**Figure 3**) (not known at previous ERCP) and a substenosis of the right intra-hepatic duct at hilar bifurcation without wall lesions.

Under cholangioscopic view, a Jagwire® Guidewire was inserted into the right intra-hepatic duct; the direct visualization of the lumen with the SpyGlass System was achieved. Two cm above the hepatic hilum showed the stenotic tract secondary to biliary varix that did not allow the guidewire to go through.

## CONCLUSION

The SpyGlass System plays a fundamental role in the differential diagnosis between benign and malignant biliary stenosis not performed by either contrast medium cholangiography at previous ERCP and/or others nor invasive radiological imaging techniques. The SpyGlass System provided direct visualization of the biliary lumen, allowed the correct diagnosis of biliary disease, avoided the invasive and dangerous endoscopic procedures (biliary brushing) with high risk of adverse events and it heavily changed the therapeutic approach and clinical outcome of the patient.

Two days later the patient successfully underwent an OLT; no OLT related complications were found at six months clinical follow up.

## COMMENT

Biliary ducts varices are a rare complication secondary to portal hypertension and it is very difficult to distinguish them from other biliary tract diseases. Common non-invasive imaging techniques (US, CT, MRI) and endoscopic ultrasonography (EUS) are the first diagnostic tools to study the portal flow system. The SpyGlass Direct Visualization System is the most accurate tool to diagnose biliary complications secondary to portal hypertension.



Figure 1



Figure 2



Figure 3

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

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