

## Detection of mucin-hypersecreting bile duct tumor by direct peroral cholangioscopy

Detection of the rare mucin-producing bile duct tumor is difficult because of ambiguity caused by the abundant mucin secretion and/or by the superficial mucosal spread of the tumor along the bile duct [1]. We report the case of a 77-year-old patient, who initially presented with severe jaundice, right upper abdominal pain, and fever. The endoscopic retrograde cholangiopancreatography (ERCP) demonstrated a large amount of viscous mucin in a dilated bile duct system (● Fig. 1 a, b).

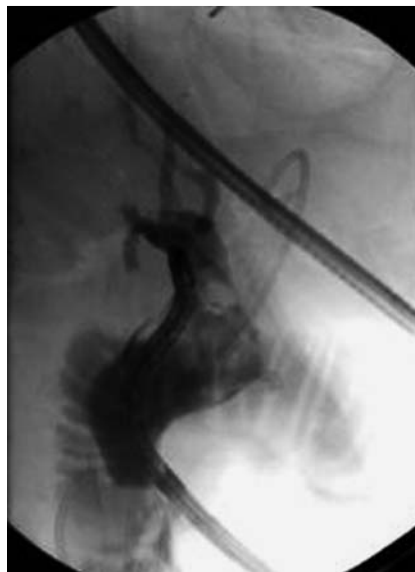


**Fig. 1** a Viscous mucin in the ampulla of Vater visualized during endoscopic retrograde cholangiopancreatography (ERCP). b Radiograph taken during endoscopic retrograde cholangiopancreatography (ERCP) showing an inhomogeneous distribution of contrast medium in the dilated bile duct.

A large endoscopic sphincterotomy was initially performed but the mucin could not be completely removed with basket and balloon catheters and a tumor could not be detected. Cholangioscopy by baby-mother technique was also unhelpful; suction power and pressure washing were insufficient and devices such as basket catheters are not available for the choledochofiberscope (CHF-BP30, 1.2-mm working channel; Olympus, Tokyo, Japan).

It was decided to use an ultrathin upper endoscope (GIF-XP160, outer diameter of 5.9 mm, 2.0-mm working channel; Olympus, Tokyo, Japan) to perform direct peroral cholangioscopy (● Fig. 2).

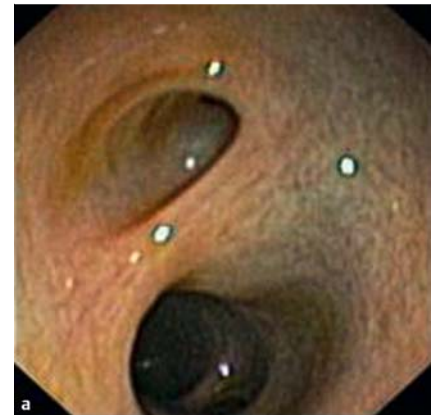
This procedure, first reported in 1977, has since been described with several variations [2–5]. After insertion of a nasal biliary drainage tube (PBD-21Z, 2.35-mm maximum diameter; Olympus, Tokyo, Japan) the ultrathin upper endoscope was advanced beside the drainage tube directly into the bile duct by pushing and pulling in a stepwise manner while twisting the endoscope. Using an endowasher (Aqua:Master; Endo-Technik W. Griesat GmbH, Solingen, Germany) via the working channel of the ultrathin endoscope, it



**Fig. 2** Radiograph taken during direct peroral cholangioscopy showing an ultrathin upper endoscope positioned in the bile duct of the left hepatic lobe and nasal biliary drainage tube in the right hepatic lobe.

was possible to wash out the mucin from the bile duct and to have a direct view of the tumor (● Fig. 3).

Biopsies confirmed the diagnosis of a mucin-producing bile duct adenoma in the left hepatic lobe. The patient underwent



**Fig. 3** Endoscopic views using the ultrathin endoscope: a normal bile duct in the right hepatic lobe; b tubular neoplasm in the bile duct of the left hepatic lobe; c tumor protruding into the bile duct of the left hepatic lobe.

successful resection of the tumor. In this case direct peroral cholangioscopy was the only endoscopic technique able to visualize the mucin-producing tumor.

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**Competing interests:** None

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