Endoscopic Ultrasonography-Assisted Management of Biliopancreatic Disease

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Since many year, endoscopic retrograde cholangiopancreaticography (ERCP) is the first-line approach to manage both benign and malignant biliopancreatic obstruction. However, even in experienced hands, ERCP fails in 5–10% of cases because of impossible cannulation or inaccessibility of the papilla (eg due to surgically altered anatomy or a duodenal stenosis) (1). Moreover, ERCP can be complicated by pancreatitis, cholangitis, bleeding, perforation or stent dysfunction requiring reintervention (2). Until recently, percutaneous transhepatic biliary drainage (PTBD) was the only non-surgical alternative to achieve biliary drainage in cases of failed or impossible ERCP. However, reported adverse rates of PTBD are high (~25%) (3). In addition, PTBD can not be used to achieve pancreatic duct drainage.

Endosonographic-guided biliary drainage (EUS-BD) or pancreatic duct drainage (EUS-PD) techniques have recently been introduced as an alternative to PTBD and surgery in patients with failed ERCP. It is now clear that EUS-BD is associated with fewer adverse events as compared to PTBD and should be preferred if the expertise is available (4).

In patients with benign biliopancreatic obstruction and normal access to the papilla, an EUS-guided rendezvous technique is often used if retrograde cannulation has failed. During this procedure, the dilated bile duct or pancreatic duct is punctured with a 19G needle and a wire is advanced through the needle and through the papilla into the duodenum. The wire is retrieved with the duodenoscope and the sfinctero-

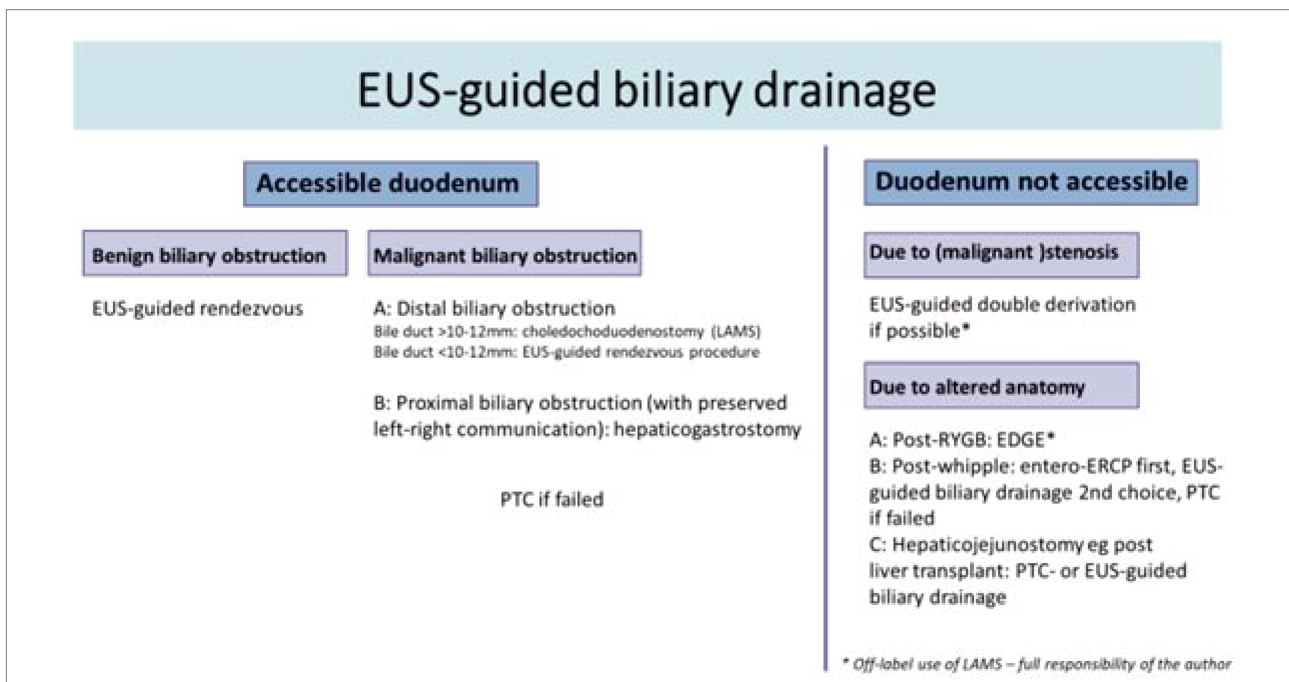

Figure. Flowchart: EUS-guided biliary drainage in case of failed or impossible ERCP

tome if advanced over the wire to cannulate the duct (5, 6).

In patients with malignant biliary obstruction and failed ERCP, direct EUS-guided biliary drainage can be achieved with either a lumen-apposing metal stent (LAMS) from within the duodenum for distal biliary obstruction (choledochoduodenostomy) or a stent between the stomach and the left liver lobe (hepaticogastrostomy). The choice between these two techniques depends on the site of biliary obstruction, the operability of the patient and the level of bile duct dilatation (6). Preliminary data suggest that EUS-guided drainage might replace ERCP as the first-line modality of biliary drainage in palliative patients with malignant distal biliary obstruction mainly since it eliminates the risk of post-ERCP pancreatitis (7, 8).

EUS-guided interventions are also of value in patients with altered anatomy. A direct connection (with a broad diameter LAMS) can be created between the gastric pouch and the excluded stomach to create endoscopic access to the excluded stomach in patient with previous gastric bypass (eg. to perform ERCP). In patients with a hepaticojejunostomy (eg after Whipple, after liver transplantation,...), a temporary hepaticogastrostomy can be placed to create a fistula that allows for further biliary interventions (such as dilatation and stenting of a narrowed biliodigestive anastomosis, stone removal,...) (10). Similarly, a gastropancreaticostomy can be created to drain the pancreatic duct and allow for future interventions through the fistula (stone lithotripsie, further stenting,...).

There is no doubt that EUS-guided biliopancreatic interventions will further expand and receive increasing popularity in the nextcoming years. The development of dedicated endoscopic tools will facilitate many of these EUS-guided procedures.

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