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Endoscopic ultrasound-guided antegrade stenting for benign biliary disease in an elderly patient with altered anatomy (Roux-en-Y)

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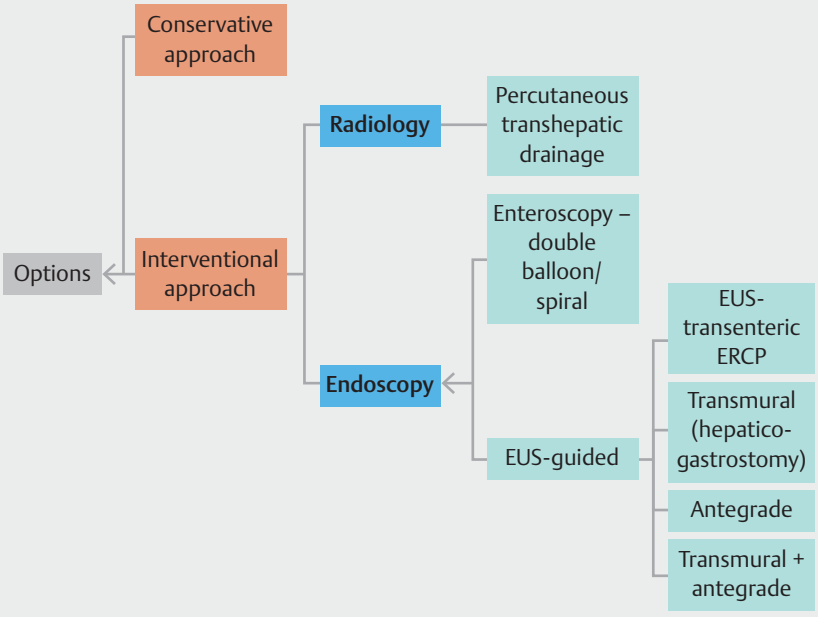
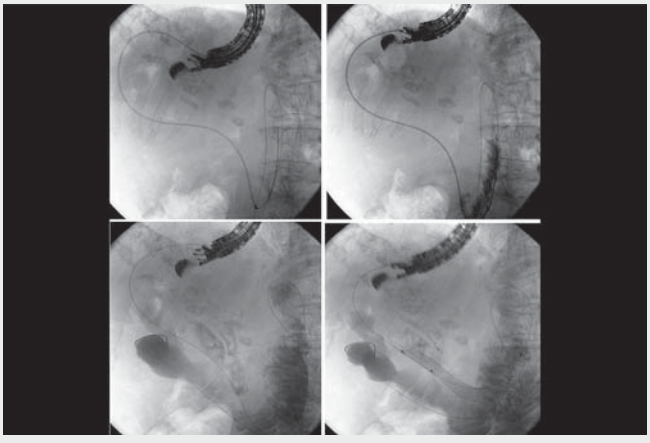
A 91-year-old man with multiple pathologies and a history of subtotal gastrectomy with Roux-en-Y reconstruction for an antral ulcer was admitted with acute cholangitis. A hepatobiliary magnetic resonance imaging (MRI) scan showed multiple choledochal stones causing intra- and extrahepatic bile duct dilatation. Different possible options were discussed, including conservative management, interventional percutaneous radiology, and endoscopic biliary drainage interventions (▶ **Fig. 1**). The latter approaches included enteroscopy-assisted endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic ultrasound (EUS)-guided options such as: (i) EUS-transenteric ERCP, (ii) transmural (hepaticogastrostomy), (iii) antegrade, and (iv) combined transmural plus antegrade stenting [1–4]. Finally, based on our previous experience and with motorized spiral enteroscopy not available at our center, it was decided to opt for an EUS-guided technique instead of enteroscopy-assisted-ERCP.

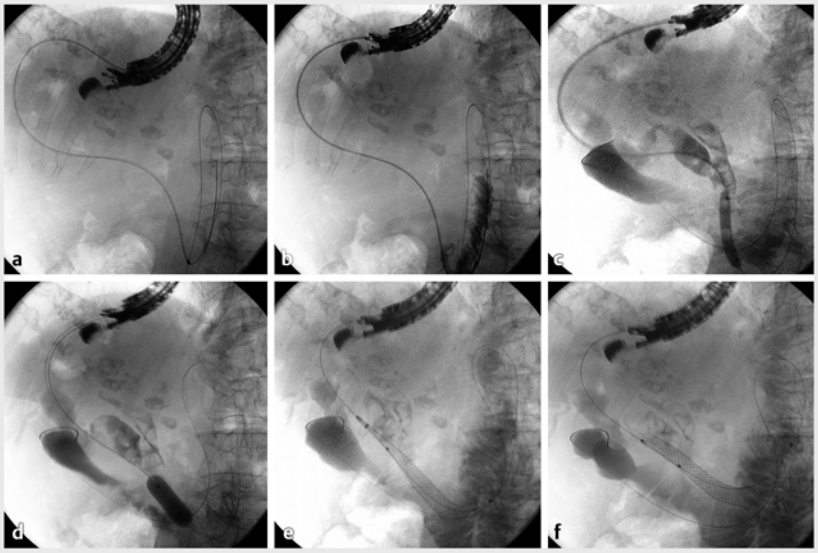
An initial EUS examination confirmed that the intrahepatic ducts were sufficiently dilated for an EUS-guided biliary intervention. Firstly, EUS-guided biliary access was achieved by transgastric puncture into a left intrahepatic biliary duct (segment II) and confirmed by serum instillation and bile aspiration. Secondly, a guidewire was advanced antegradely with fluoroscopy guidance until an enteral loop was reached through the papilla. Next, the transgastric hepaticostomy created using a 6-Fr cystotome allowed a cholangiogram and confirmatory enterography to be performed. Lastly, antegrade papilloplasty using a balloon (up to 10 mm) enabled EUS-guided antegrade stenting (biliary fully covered metal stent; 60 × 10 mm) guided by fluoroscopy to be performed without incident (▶ **Fig. 2**; ▶ **Video 1**).



▶ **Fig. 1** Possible biliary drainage approaches in a gastrectomy and Roux-en-Y reconstruction scenario. EUS, endoscopic ultrasound; ERCP, endoscopic retrograde cholangiopancreatography.



Video 1 Endoscopic ultrasound-guided antegrade stenting is performed in a patient with benign biliary disease and altered anatomy (Roux-en-Y reconstruction).



▶ **Fig. 2** Fluoroscopic images of endoscopic ultrasound-guided antegrade stenting being performed in a patient with altered anatomy (Roux-en-Y) and benign biliary disease showing: **a** a cystotome being advanced antegradely over a guidewire; **b** the enterogram performed to confirm the bowel loop had been accessed; **c, d** papilloplasty being performed with 6-mm and 10–12-mm balloons; **e, f** deployment of a self-expandable metal stent guided by fluoroscopy.

To limit the procedure time and associated morbidity, it was decided not to perform stone extraction maneuvers or leave an opened hepaticogastrostomy.

The academic purpose of this work is to expose the different approaches that may be considered in a surgically altered anatomy (Roux-en-Y reconstruction) and benign biliary pathology scenario. The final choice of EUS-guided antegrade stenting was made as transpapillary biliary drainage was preferred and to choose a less time-consuming procedure over other endoscopy options, such as an enteroscopy-assisted ERCP.

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Competing interests

J. B. Gornals is a consultant for Boston Scientific. A. Garcia-Sumalla, D. Luna-Rodriguez, S. Maisterra, and M. Puigcerver-Mas declare that they have no conflict of interest.

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