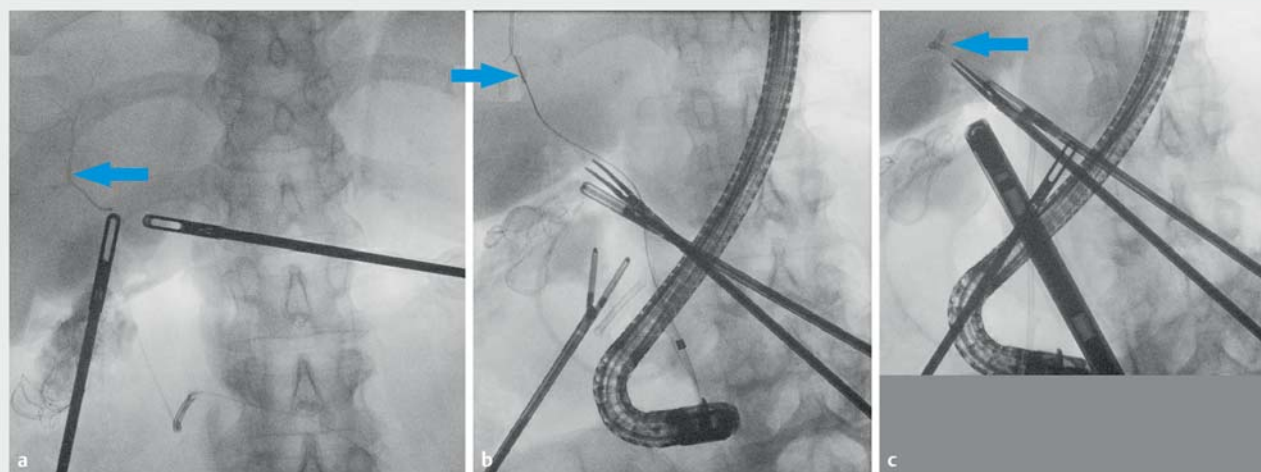
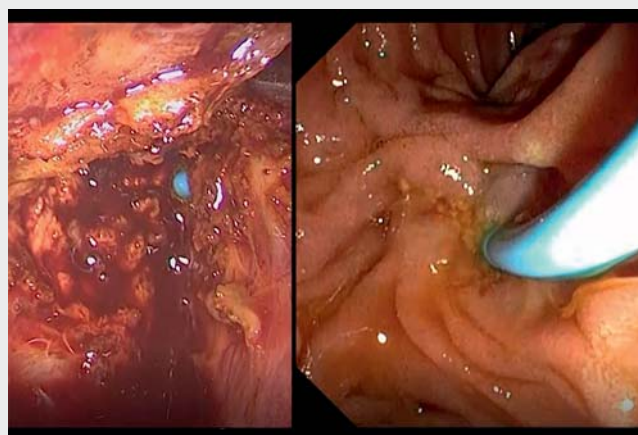


## Combined endoscopic and surgical management of a right intrahepatic bile duct injury during laparoscopic cholecystectomy



► **Fig. 1** Cholangiography during laparoscopic cholecystectomy. **a** Right posterior intrahepatic bile ducts (arrow). **b** Right posterior bile duct catheterization with guidewire placement in the right intrahepatic bile duct (arrow). **c** Placement of a plastic biliary stent (arrow) in the right intrahepatic bile duct to serve as a guide for biliary wound healing.

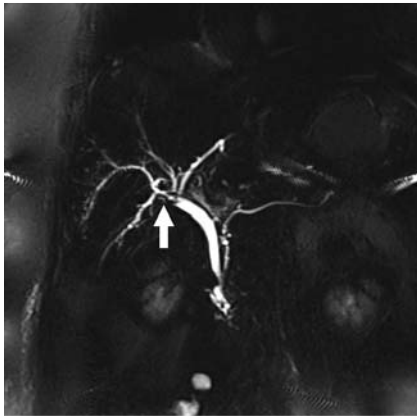
Biliary tract wounds are a rare complication of cholecystectomy [1]. They lead to the appearance of intra- or extrahepatic biliary stenosis, which usually requires endoscopic treatment [2–4]. They occur mainly when inflammation persists after cholecystitis or angiocholitis. The direct connection of the right posterior bile duct to the common hepatic duct is a well-known anatomical variant of the biliary tract, which can lead to the sectioning of the right posterior bile duct during cholecystectomy [1]. We report here the case of a 70-year-old woman who underwent laparoscopic cholecystectomy following acute cholecystitis. During the procedure, bile flow was found after sectioning of the cystic duct. Intraoperative opacification of the biliary tract showed it being in fact the right posterior bile duct. At the same time, an endoscopic retrograde cholangiopancreatography (ERCP) with endoscopic sphincterotomy was performed. After biliary wound catheterization, the guidewire was introduced inside the right posterior bile ducts laparoscopically (► **Fig. 1**). A 7 Fr × 15 cm



► **Video 1** Endoscopic retrograde cholangiopancreatography during laparoscopic cholecystectomy with positioning of a biliary plastic stent with laparoscopic guidance for a right posterior bile duct injury.

plastic biliary stent was then placed under endoscopic, fluoroscopic, and laparoscopic guidance inside the right posterior bile ducts to aid healing of the bile duct (► **Video 1**).

Magnetic resonance imaging of the biliary tract was performed 2 months later (► **Fig. 2**). It did not reveal any anomaly of the bile ducts and the stent was still in place. A new ERCP was performed to



► **Fig. 2** Biliary magnetic resonance imaging 2 months after the plastic stent was placed, showing healing of the right posterior hepatic duct (arrow).



► **Fig. 3** Endoscopic retrograde cholangiopancreatography performed 2 months after laparoscopic cholecystectomy with biliary stent ablation and cholangiography.

remove the stent. Retrograde cholangiography found no biliary leakage but instead satisfactory opacification of the entire biliary tree (► **Fig. 3**).

This case illustrates the effectiveness of immediate and joint management of biliary leakage during cholecystectomy. The immediate stent placement aided healing but also ensured patency of the injured bile duct and thus avoided the occurrence of biliary stenosis [5].

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## Competing interests

The authors declare that they have no conflict of interest.

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