A New Age Of Biliary Intervention For The General Surgeon
First reported robotic cholecystectomy with common bile duct exploration using the trans-cystic duct approach and the SpyGlass DS System

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Background
The SpyGlass DS system (SpyGlass™, Boston Scientific Corp, Marlborough, MA, USA) is a single use/single operator system designed to aid endoscopic procedures of the pancreaticobiliary system. Specifically, it permits direct visualization of ductal structures and provides many options for diagnostic and therapeutic interventions. Given the ease of use, we report that the SpyGlass DS system can be utilized for common bile duct exploration and intervention via a trans-cystic duct approach during robotic cholecystectomy.

Common Use
The SpyGlass DS System is normally used alongside a duodenoscope for visual cholangiopancreatography. We report the first robotic cholecystectomy with common bile duct exploration using the trans-cystic duct approach and the SpyGlass DS System. The system produces a digital image of good quality, a very mobile four-way working tip, a working port for passage of accessory instruments/catheters and dedicated irrigation and suction channels.

Novel use
A da Vinci Xi (Intuitive Surgical, Sunnyvale, CA) robotic cholecystectomy with common bile duct exploration via a trans-cystic duct approach using the SpyGlass DS system was performed on a 52 year old male status post Roux-en-Y gastric bypass (RYGB) who had a one centimeter gallbladder polyp, hyperbilirubinemia with a dilated common bile duct (8mm) and evidence of distal common duct stenosis on preoperative MRCP. Due to RYGB anatomy, per oral ERCP is prohibitively difficult and alternative biliary access is often required (e.g., trans-hepatic cholangiography or laparoscopic assisted trans-gastric ERCP). We successfully cannulated the cystic duct with the SpyGlass DS and performed digital image cholangioscopy as well as traditional fluoroscopic cholangiography of the common bile duct without undocking the robot. We visualized, forcep biopsied, and balloon-dilated a benign distal common bile duct stricture.

Future Use
We report the first robotic cholecystectomy with common bile duct exploration using the trans-cystic duct approach and the SpyGlass DS System. General surgeons may find this approach to common duct exploration appealing for a patient status post RYGB presenting with biliary ductal pathology. We also propose this approach is of significant value in limited access institutions without ERCP capability or coverage.

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