

Management of choledocholithiasis with an ultraslim cholangioscope in a patient with possible anaphylaxis to contrast medium

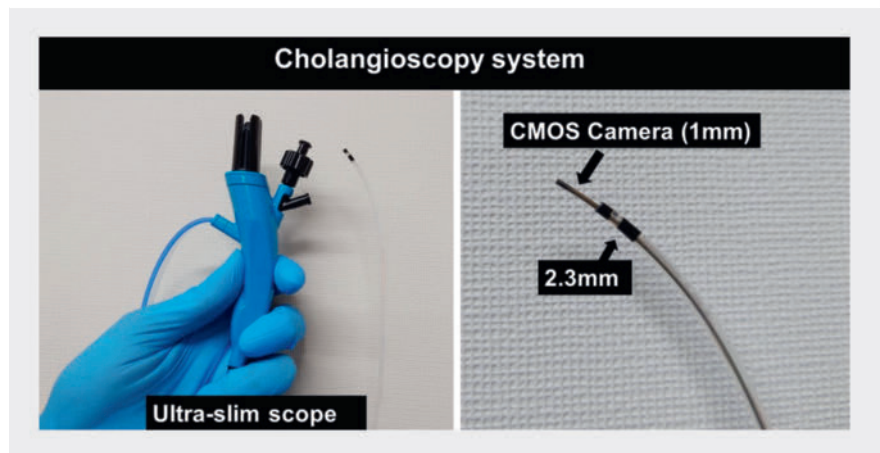
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Adverse reactions to contrast medium during endoscopic retrograde cholangiopancreatography (ERCP) are rare [1]; however, once they occur, the subsequent ERCP becomes challenging. Although alternatives using carbon dioxide or gadolinium exist [2, 3], resolution issues persist. Stone removal using a cholangioscope without fluoroscopy or contrast media in pregnant patients has been reported [4]; however, due to the thickness and rigidity of conventional cholangioscopes, this remains problematic. We report on common bile duct (CBD) stone removal without contrast media, using a novel ultraslim cholangioscope with a tip diameter of 2.3 mm (DRES Slim Scope; Japan Lifeline Co., Ltd., Tokyo, Japan) (► Fig. 1) [5].

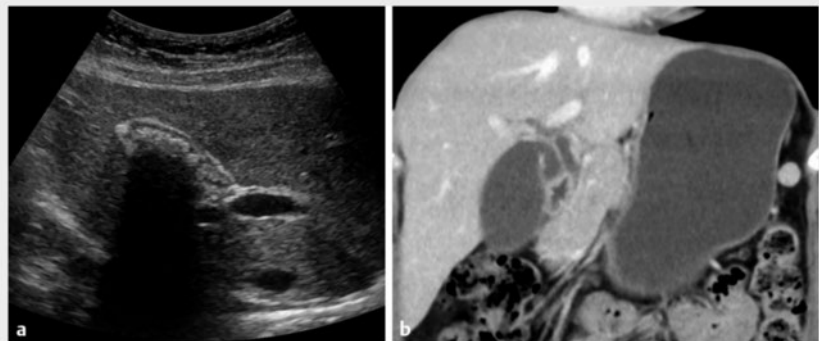
A 31-year-old woman presented to our department with recurrent abdominal pain and elevated biliary enzyme levels, suggesting choledocholithiasis. Computed tomography scans revealed no stones (► Fig. 2); however, endoscopic ultrasonography (EUS) performed under sedation after pre-administration of antibiotics detected CBD stones (► Fig. 3). With the patient's condition stable post-EUS, we proceeded to ERCP.

Following contrast medium injection into the bile duct, a diagnosis of anaphylaxis was made due to lowering blood pressure, decreased oxygen saturation, and rash developing over the body. The procedure was stopped; epinephrine administration improved the patient's condition. The contrast medium was likely responsible for the anaphylaxis, despite the possibility of effects from other medications.

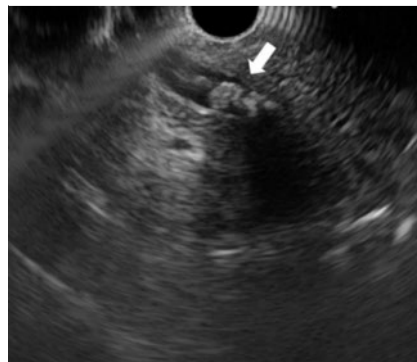
On another day, a second ERCP was performed without contrast medium using an ultraslim cholangioscope. Initially, a guidewire was placed in the bile duct using an ultraslim cholangioscope, and then the cholangioscope was inserted. After confirming the presence of stones (► Fig. 4 a), the cholangioscope was with-



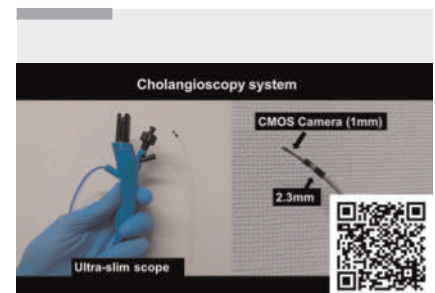
► Fig. 1 Cholangioscopy system. The cholangioscopy system involves inserting a camera (complementary metal oxide semiconductor type) with a diameter of 1 mm through an ultraslim scope with a diameter of 2.3 mm.



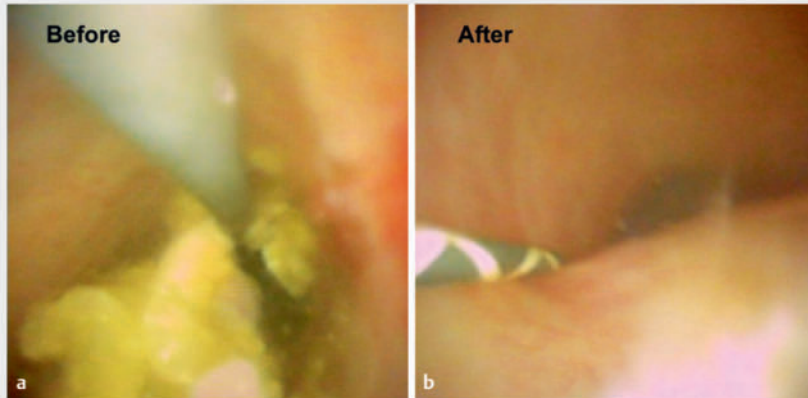
► Fig. 2 Imaging studies. a Ultrasonography showing gallbladder stones. b Computed tomography showing no biliary stones.



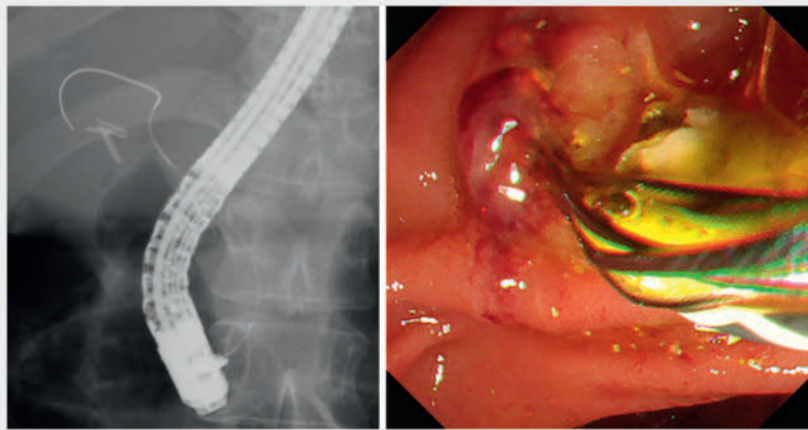
► Fig. 3 Endoscopic ultrasonography showing common bile duct stones.



► Video 1 Successful removal of common bile duct stones without contrast media using a novel ultraslim mother-baby cholangioscope.



► **Fig. 4** Cholangioscope images. **a** Stones were detected using an ultraslim scope. **b** After stone removal, the absence of stones in the bile duct was confirmed using the ultraslim scope.



► **Fig. 5** The stones were removed in a standard manner using a basket catheter under fluoroscopic guidance without contrast media or the cholangioscope.

drawn and stones were removed in a standard manner using a basket catheter under fluoroscopic guidance without contrast medium or a cholangioscope (► **Fig. 5**). Finally, the ultraslim cholangioscope verified stone clearance (► **Fig. 4b**, ► **Video 1**).

Although ultraslim cholangioscopes do not allow stone removal under direct visualization because of the slim design, they are less invasive in confirming the absence of residual stones after stone removal.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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