

A fully covered self-expandable metallic stent as a cystic-duct overtube facilitated stone removal from a gallbladder



A 43-year-old woman who had undergone endoscopic cholangiopancreatography (ERCP) with plastic stenting for multiple gallstones and multiple liver cysts compressing the common bile duct (CBD) causing CBD stricture (▶ **Fig. 1**, ▶ **Fig. 2**) presented with recurrent cholangitis. Repeat ERCP revealed multiple CBD stones with resolution of the CBD stricture (▶ **Fig. 3**). After complete removal of CBD stones, cholangiogram showed dilated cystic duct and a few stones left in a shrunken gallbladder. The patient agreed to endoscopic removal of the residual gallstones, and another ERCP was performed.

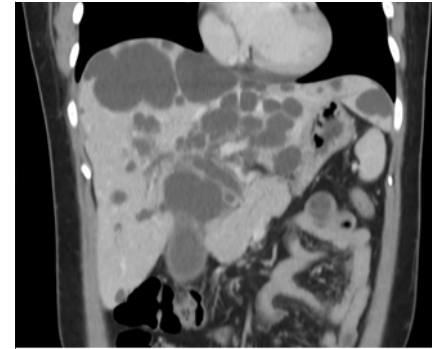
A 0.25-in guidewire was used to facilitate gallbladder entry and then a stone retrieval balloon was passed into the gallbladder to sweep the stones. Unfortunately, the diameter of the stones was still larger than the narrowest part of the cystic duct. A direct pass of a stone retrieval basket was also impossible even with the aid of a monorail system under the guidewire. Therefore, a 100 mm × 10 mm fully covered self-expandable stent (FCSEMS) was inserted as a cystic-duct overtube for all devices passing into the gallbladder. Additional passes of a stone retrieval balloon and basket were performed, and this time one stone was able to be retrieved in the FCSEMS but it again got stuck at the narrowest part of cystic duct. Subsequently, a cholangioscope was inserted into the FCSEMS and a stone was caught and removed by a mini-basket (▶ **Fig. 4**). Later, a cholangioscope was inserted into the gallbladder, but an attempt to open a mini-basket failed. Ultimately, the two residual gallstones were retrieved and pulled against the wall of FCSEMS using a standard basket. Stones became fragmented and drained after water irrigation. Cholangioscopy



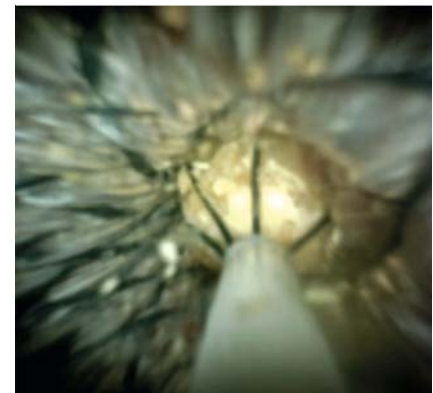
▶ **Fig. 1** Original endoscopic cholangiopancreatography showed multiple gallstones in the gallbladder with a common bile duct stricture.



▶ **Fig. 3** Repeat endoscopic cholangiopancreatography revealed multiple common bile duct stones migrated from the gallbladder (now shrunken) with resolution of the common bile duct stricture.



▶ **Fig. 2** Computed tomography scan showed multiple liver cysts compressing the bile ducts.



▶ **Fig. 4** A cholangioscope was inserted into a fully-covered metallic stent bridging between the gallbladder and papilla with a stone caught by a mini-basket.

with final cholecystogram confirmed complete stone removal (▶ **Fig. 5**). A FCSEMS was removed by a snare before finishing the procedure. The patient reported no pain or fever and was released from the hospital the following week (▶ **Video 1**).

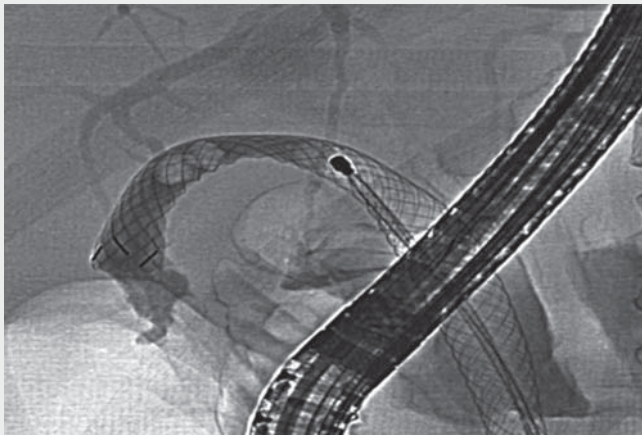
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Competing interests

The authors declare that they have no conflict of interest.



► **Fig. 5** Cholangioscopy and cholecystogram confirmed complete stone removal from the gallbladder.



► **Video 1** A fully covered self-expandable metallic stent as a cystic-duct overtube facilitated stone removal from a gallbladder.

Bibliography

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