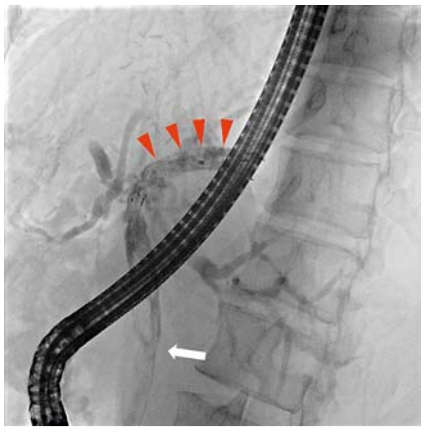
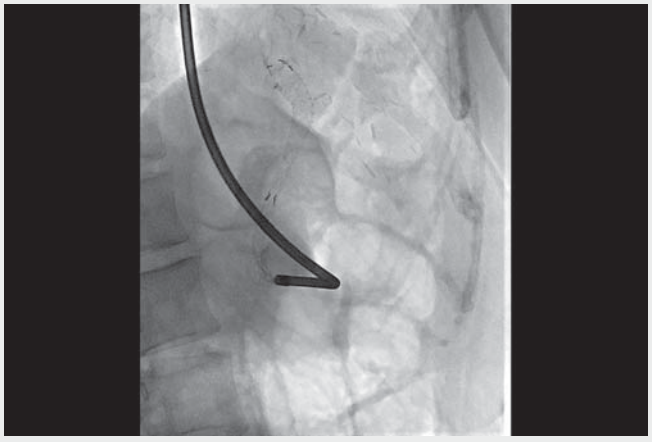
Article published online: 2023-02-03

Successful retrieval of migrated and embedded fully covered self-expanding metal stent using "snare and lithotripter" technique

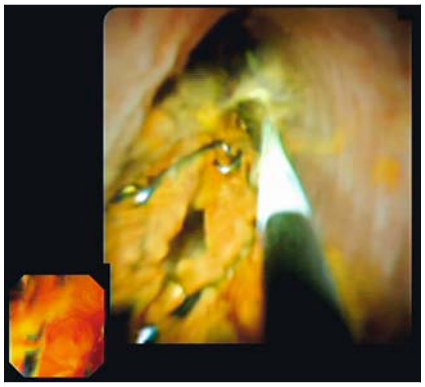
OPEN ACCESS



▶ **Fig. 1** Endoscopic retrograde cholangiography revealed supra-papillary stent migration (white arrow) and tissue ingrowth at the proximal end (red arrowheads).



Video 1 Removal of migrated and embedded multi-hole fully covered self-expanding metal stent using "snare and lithotripter" technique.



▶ **Fig. 2** Cholangioscopy. The stent lumen was completely obliterated by stone cast.

▶ **Fig. 3** Image of the removed intact multi-hole fully covered self-expanding metal stent.

A 52-year-old woman with benign perihilar left intrahepatic duct stricture underwent repeated stricture dilation and multiple plastic stent placements. Subsequently, an 8 mm × 12 cm multi-hole fully covered self-expanding metal stent (MH-FCSEMS) was inserted. Six months later, she had abnormal liver biochemistry. Endoscopic retrograde cholangiography (ERC) revealed supra-papillary stent migration and tissue ingrowth at the proximal end (▶ **Fig. 1**). Cholangioscopy (SpyGlass System; Boston Scientific Corp., Marlborough, Massachusetts, USA) showed that the stent lumen was obliterated by stone cast (▶ **Fig. 2**). Stent removal with forceps and snare failed. The patient was referred to our center for a second opinion.

ERC and cholangioscopy were performed. The distal end of the stent had collapsed with stone obstruction, which precluded guidewire passage. We failed to pull the stent out with a polypectomy snare. With the stent still trapped by the snare, the snare was transected near the handle. The plastic sheath of the snare and the duodenoscope were removed simultaneously. The metal sheath of a mechanical lithotripter (Olympus, Tokyo, Japan) was advanced over the snare wire, which was then connected to the lithotripter handle. The first attempt to pull the metal stent into the sheath by rotating the handle failed as the snare wire detached from the stent. At the second attempt, the snare grasped the more proximal portion of the stent. The metal stent was successfully pulled into the metal sheath and removed (▶ **Fig. 3**, ▶ **Video 1**). A 10 Fr × 12 cm plastic stent was inserted temporarily. The patient was discharged the next day with improved liver biochemistry.

Different techniques for removal of self-expanding metal stent (SEMS) have been described, including invagination/inversion [1], "SEMS-in-SEMS" [2, 3], and "guidewire and mechanical lithotripter" [4, 5]. However, these methods could not be applied in our patient due to stent obstruction and supra-papillary migration. We demonstrated that the "snare and lithotripter" technique is an effective method of SEMS removal in these situations.

Endoscopy_UCTN_Code_CPL_1AK_2AD

Competing interests

The authors declare that they have no conflict of interest.

The authors

Michael Kin-kong Li, Ka-kin Sze, Terence Yee-hong Tong
Division of Gastroenterology and Hepatology, Department of Medicine and Geriatrics, Tuen Mun Hospital, Tuen Mun, Hong Kong SAR, China

Corresponding author

Michael Kin-kong Li, MD
Division of Gastroenterology and Hepatology, Department of Medicine and Geriatrics, Tuen Mun Hospital, 23 Tsing Chung Koon Road, Tuen Mun, N.T. Hong Kong SAR
likk@ha.org.hk

References

[1] Nakai Y, Isayama H, Kawakubo K et al. Endoscopic removal of a biliary covered metallic stent with the invagination method. Endoscopy 2011; 43: E30–E31
[2] Arias Dachary FJ, Chioccioli C, Deprez PH. Application of the "covered-stent-in-uncovered-stent" technique for easy and safe removal of embedded biliary uncovered SEMS with tissue ingrowth. Endoscopy 2010; 42: E304–E305
[3] Marcos P, Bastos P, Patita M et al. Removal of intraductal migrated biliary fully covered self-expandable metal stents: the "SEMS in SEMS" technique. Gastrointest Endosc 2019; 89: 1259–1260
[4] Bernon M, Kloppers C, Lindemann J et al. Recalcitrant embedded biliary self-expanding metal stents: a novel technique for endoscopic extraction. VideoGIE 2019; 4: 72–75
[5] Martín Guerrero JM, Ortiz-Moyano C, Serrano-Romero M. Endoscopic removal of an embedded uncovered biliary self-expandable metal stent with a mechanical lithotriptor. Rev Esp Enferm Dig 2021; 113: 738–739

Bibliography

Endoscopy 2023; 55: E390–E391
DOI 10.1055/a-2008-0320
ISSN 0013-726X

Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany