Electrohydraulic lithotripsy using peroral cholangioscopy for impaction of stent-stone complex around biliary plastic stent

A stent-stone complex is a rare complication of long-term placement of biliary plastic stents [1,2]. Stones form around the proximal end of the stent, making endoscopic removal of the stent difficult. Herein we report a case of successful endoscopic removal of a stent-stone complex using peroral cholangioscopy-guided electrohydraulic lithotripsy (EHL). An 80-year-old woman was referred to our hospital for treatment of large bile duct stones (35 mm) (▶Fig. 1). Peroral cholangioscopy-guided EHL was performed; however, stones could not be completely removed, and a plastic stent was placed (▶Fig. 2). Two months after peroral cholangioscopy-guided EHL, a 30-mm stent-stone complex formed (▶Fig. 3a). We attempted to remove the stent-stone complex with grasping forceps; however, it could not be moved, and the plastic stent broke off at the grasping site (▶Fig. 3b). We performed EHL again under peroral cholangioscopy (SpyScope DS II; Boston Scientific, Tokyo, Japan) for stent-stone complex extraction (▶Video 1). A stent-stone complex resembling a lollipop was observed in the distal bile duct (▶Fig. 3c). The stone was fixed by the stent; this allowed the shock waves to be applied efficiently. The time taken to crush the stones around the plastic stent was approximately 10 min. The stones were then removed using a balloon catheter (▶Fig. 3d). Balloon cholangiography after stone evacuation confirmed complete removal of the stones (▶Fig. 3e). The patient recovered without cholangitis or bile duct stone recurrence.

Endoscopic removal of a stent-stone complex is difficult, and forcible extraction of a large stent-stone complex can cause papillary injury or biliary perforation. Further, surgery for a stent-stone...
complex [3,4] is highly invasive. In this case, EHL under peroral cholangioscopy efficiently crushed the stent-stone complex because the plastic stent served as an anchor. We believe that peroral cholangioscopy-guided EHL is an extremely useful method for stent-stone complex removal.

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Fig. 3 The second electrohydraulic lithotripsy (EHL) under endoscopic retrograde cholangiopancreatography (ERCP) for removal of the stent-stone complex. a The stent-stone complex was formed. b The stent was broken off during removal. c EHL was performed for stent-stone complex removal. d The stones were crushed for only approximately 10 minutes. e The stones were removed with a balloon catheter, and cholangiography confirmed that there were no residual stones.

Competing interests

The authors declare that they have no conflict of interest.

The authors

Yuta Tanimoto, Shota Harai, Mitsuharu Fukasawa, Ei Takahashi, Shinichí Takano, Nobuyuki Enomoto
First Department of Internal Medicine, Faculty of Medicine Graduate School of Medicine, University of Yamanashi, Chuo City, Japan

Corresponding author

Mitsuharu Fukasawa, MD
University of Yamanashi, Faculty of Medicine Graduate School of Medicine, First Department of Internal medicine, 1110 Shimokato, Chuo City, Yamanashi, Japan
Fax: +81-55-273-7108
fmitsu@yamanashi.ac.jp

Video 1 The procedure of electrohydraulic lithotripsy using peroral cholangioscopy for removal of a stent-stone complex.
References


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

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