

Thulium laser to manage a difficult biliary lithiasis: a first case report

The thulium laser, a new therapeutic laser, has recently been introduced in the field of endoscopy to overcome the limitations of classic thermoablative therapies, particularly in terms of the precision of the technique and the risks associated with the procedure [1].

Although its main use is for hemostasis and ablation of lesions in the upper gastrointestinal tract, the thulium laser can be used in many other clinical situations [2]. In the present case, we report a new endoscopic application of the thulium laser, not yet described in the available international literature.

A 61-year-old woman presented to our center for a difficult lithiasis of the common bile duct associated with Mirizzi type II syndrome (cholecystocholedochal fistula). Two previous endoscopic treatments had been unsuccessful. The patient's past medical history included chronic ischemic heart disease, arterial hypertension, and severe obesity.

At cholangiography two biliary stones in the main bile duct were reported, the distal one located at the origin of the cystic duct. Several standard attempts to remove the stones using a 15-mm Fogarty biliary balloon (Cook Medical Inc., Bloomington, Indiana, USA) and a 7-Fr Dormia basket (Cook Medical) failed. Reviewing available literature on laser applications in endoscopy [1–3], we decided to use thulium laser lithotripsy (coagulation set-up: 20W ablation/1W coagulation, 365 micron fiber, 7 minutes application; Quanta System Srl., Milan, Italy) through SpyGlass cholangioscopy (Boston Scientific Corporation, Marlborough, Massachusetts, USA) (► **Video 1**). We decided to complete the lithotripsy using a mechanical lithotripter (Cook Medical) with



► **Video 1** Intrabiliary thulium laser lithotripsy conducted through a cholangioscopic guide to complete a difficult biliary lithiasis.

Dormia basket. Unfortunately, this strategy failed and the Dormia basket was blocked by the fragmented stones in the common bile duct. Lithotripsy was completed using a thulium laser to free the Dormia basket. As a precaution, we positioned a 7-Fr nasobiliary tube for 24 hours. No adverse events occurred and the patient was discharged after removal of the nasobiliary tube.

To our knowledge, this is the first case of biliary stone lithotripsy using a thulium laser. The technique seems to be safe, and faster and more effective than standard holmium laser lithotripsy [3].

Endoscopy_UCTN_Code_TTT_1AR_2AH

Competing interests

None

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DOI <https://doi.org/10.1055/a-0983-8278>
Published online: 9.8.2019
Endoscopy 2020; 52: E112–E113
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Stuttgart · New York
ISSN 0013-726X

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