

Mini-invasive treatment of sump syndrome: OverStitch choledochoduodenostomy revision

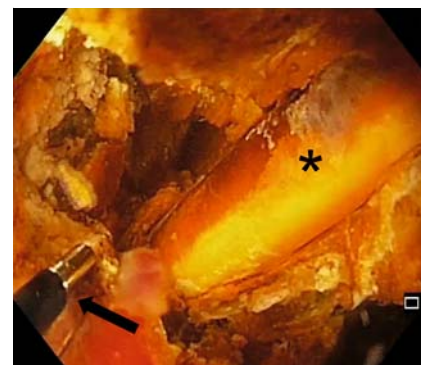
A 72-year-old woman, who was unfit for surgery, was admitted with recurrent cholangitis. She had a history of cholecystectomy and side-to-side choledochoduodenostomy (CDD) for huge impacted stones. In the previous year, she had undergone multiple endoscopic retrograde cholangiopancreatographies (ERCPs) with endoscopic sphincterotomy, incomplete stone extractions, and plastic stent placement in a local hospital. Magnetic resonance cholangiography showed multiple stones throughout the biliary tree, which was dilated up to 4 cm, along with an incarcerated plastic stent.

Endoscopy with a frontal-view scope (GIF-1TH190; Olympus Europe) confirmed a 25-mm CDD in the duodenal bulb (► **Fig. 1**). Management of the huge impacted stones by conventional techniques was not feasible; therefore, a 1.9-Fr bipolar electrohydraulic lithotripsy probe (Autolith; Northgate Technologies Inc.) was passed through the working channel of the endoscope to break the stones under direct cholangioscopy guidance (► **Fig. 2**). The scope channel allowed the removal of all fragments. Final fluoroscopy revealed a large diameter, atonic, empty biliary tree with delayed biliary outflow. A plastic stent was then inserted from the common bile duct to the duodenum, through the papilla, to promote drainage (► **Fig. 3**).

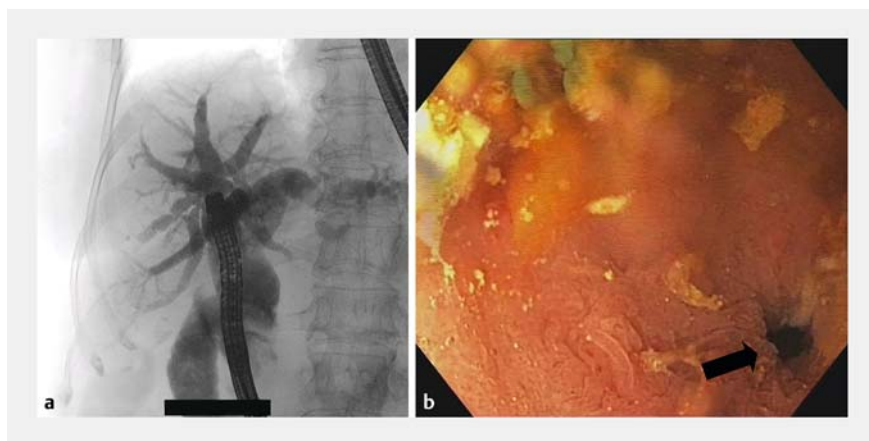
The patient returned 1 month later because of cholangitis. Endoscopy revealed a large amount of food debris in the biliary reservoir; a diagnosis of sump syndrome was made. Complete extraction of the food matter was performed. In order to prevent the recurrence of duodenocholedochal reflux, we decided to perform a stoma revision using the OverStitch device (Apollo Endosurgery; Austin, Texas, USA) to reduce the size of the CDD, leaving enough room for biliary outflow (► **Video 1**). There were no post-procedural complications. The patient has



► **Fig. 1** Endoscopic view showing a side-to-side choledochoduodenostomy with impacted stones (asterisk) that were causing biliary obstruction and acute cholangitis.



► **Fig. 2** Cholangioscopic view showing the electrohydraulic lithotripsy probe (arrow) located 1–2 mm from the surface of the gallstones, and ready to generate optimal fragmentation pressure under direct endoscopic control. In the common bile duct an incarcerated plastic stent is easily recognizable (asterisk).



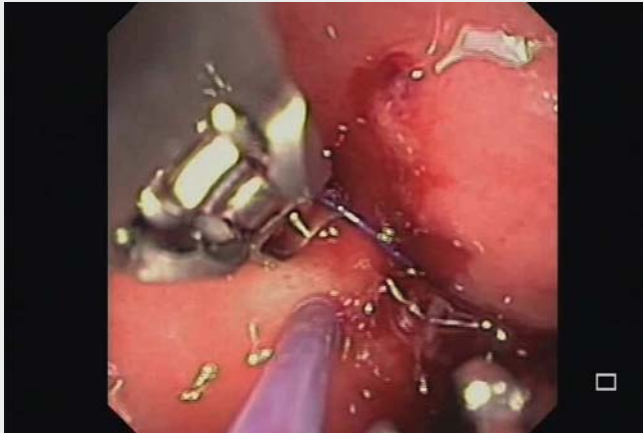
► **Fig. 3** Images following the removal of stone fragments showing: **a** atony and marked dilation of the biliary tree (the endoscope is easily recognizable inside the intrabiliary ducts with direct access through the choledochoduodenostomy); **b** antegrade endoscopic placement of a biliary plastic stent from the common bile duct to the second part of the duodenum (major papilla area; asterisk).

remained asymptomatic during 1 year of follow-up (► **Fig. 4**).

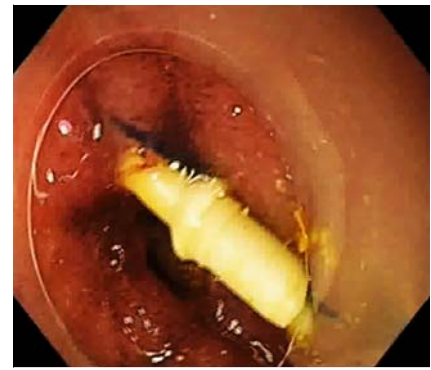
Sump syndrome is a rare long-term complication of CDD, with a reported prevalence of 2.5% [1]. Endoscopic sphincterotomy is the treatment of choice but, if endoscopic treatment fails, surgery is advisable [2]. Evidence concerning endo-

scopic closure of a CDD is lacking [3–5]. This is the first report detailing an endoscopic revision of a CDD using endoscopic suturing.

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▶ Video 1 Management of sump syndrome by electrohydraulic lithotripsy under direct cholangioscopy view and by choledochoduodenostomy revision using an endosuturing system



▶ Fig. 4 Follow-up endoscopic evaluation at 2 months showing a reduced caliber of the choledochoduodenostomy, with no evidence of lithiasis or food/debris inside.

Competing interests

None

The authors

Antonino Granata¹, Michele Amata¹, Alberto Martino¹, Dario Ligresti¹, Sergio Li Petri², Calogero Ricotta², Mario Traina¹

- 1 Digestive Endoscopy Service, Department of Diagnostic and Therapeutic Services, IRCCS-ISMETT, Palermo, Italy
- 2 Abdominal Surgery and Organ Transplantation Unit, Department for the Treatment and Study of Abdominal Diseases and Abdominal Transplantation, IRCCS-ISMETT, Palermo, Italy

Corresponding author

Antonino Granata, MD

Endoscopy Service, IRCCS-ISMETT, Via Tricomi 5, 90127 Palermo, Italy
 Fax: +39-091-2192400 (specify Endoscopy Service)
 agranata@ismett.edu

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