Bile duct stones are routinely removed during endoscopic retrograde cholangiopancreatography (ERCP) with biliary sphincterotomy, using standard balloon or basket extraction techniques. However, in approximately 10%–15% of patients, bile duct stones may be difficult to remove owing to challenging access to the bile duct, large bile duct stones (>15 mm in diameter), intrahepatic stones, or impacted stones in the bile duct [1–3]. In such cases, an alternative procedure to ensure biliary drainage may be warranted.

A 65-year-old man was admitted for acute cholangitis with multiple organ dysfunction. Upper abdominal ultrasound showed a dilated common bile duct (CBD, 17 mm), containing multiple stones. After hemodynamic stabilization and the initiation of antibiotic therapy, the patient underwent emergency ERCP. A pyloric and duodenal bulb deformation was noted, which prevented stabilization of the duodenoscope after CBD cannulation. Sphincteroplasty was performed using a large balloon, dilating the sphincter to 17 mm (Fig. 1), without prior sphincterotomy. A pediatric colonoscope was then advanced slowly into the CBD over a catheter, allowing its entry into the biliary tract. Multiple biliary stones were seen under direct visualization, the largest of which was 16 mm. The largest stone could not be removed using a basket because of its size and position (Fig. 2). Therefore, a Roth Net (US Endoscopy, Mentor, Ohio, USA) retriever was used. Under direct visualization, the Roth Net was opened, and easily captured the largest stone, which was removed without fragmentation (Fig. 3 a, b, c). The remaining small biliary stones and sludge were removed using a balloon. After the procedure, complete stone removal was confirmed by direct visualization (Fig. 4). The procedure was performed using carbon dioxide insufflation. The patient was discharged 1 week later.

Peroral cholangioscopy allows therapeutic procedures in the biliary tract under direct visualization [4]. In the present case, a novel retrieval method, which used an accessory that is widely available, was used to remove a difficult bile duct stone.

Fig. 1 Cholangiography showing a large stone in the common bile duct. Sphincteroplasty was performed using a large balloon, dilating the sphincter to 17 mm, without prior sphincterotomy.

Fig. 2 The largest stone could not be removed using a basket because of its size and position.

Fig. 3 Retrieval of the bile duct stone using a Roth Net (US Endoscopy, Mentor, Ohio, USA). a Under direct visualization, the Roth Net was opened. b The net captured the largest stone easily. c The stone was removed without fragmentation.

Fig. 4 After the procedure, complete stone removal was confirmed by direct visualization.

Competing interests: None
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