

Use of a Roth Net Platinum Universal Retriever for the endoscopic management of a large symptomatic gallstone causing Bouveret's syndrome



Fig. 1 Contrast-enhanced computed tomography imaging revealed a fistulous communication between the body of the gallbladder and the duodenal bulb (dotted black arrow). A calculus, measuring 3.7 × 2.2 cm (black arrow), was seen lodged at the junction of the first and second parts of the duodenum, causing gastric outlet obstruction (dotted white arrow) suggestive of cholecystoduodenal fistula and Bouveret's syndrome.



Fig. 2 A large pigmented stone was seen in the duodenal bulb on gastroduodenoscopy.



Fig. 3 A large pigmented stone was removed successfully by an endoscopic Roth Net Platinum Universal Retriever (net size 4 × 5.5 cm, diameter 2.5 mm; US Endoscopy, Mentor, Ohio, USA).

A 65-year-old woman, who was diagnosed with extrahepatic portal vein thrombosis, portal biliopathy, and gallstone disease, presented with multiple episodes of vomiting associated with abdominal pain after meals, with no overt gastrointestinal bleed or jaundice.

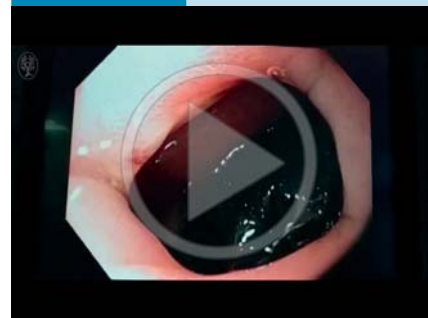
Physical examination revealed a malnourished, dehydrated pale patient with a distended upper abdomen without peritoneal signs. Contrast-enhanced computed tomography (CT) imaging performed immediately after hydration to look for extension of portosystemic thrombus revealed a fistulous communication between the body of the gallbladder and the duodenal bulb (● Fig. 1, dotted black arrow). A calculus, measuring 3.7 × 2.2 cm (● Fig. 1, black arrow), was seen lodged at the junction of the first and second parts of the duodenum, causing gastric outlet obstruction (● Fig. 1, dotted white arrow) suggestive of cholecystoduodenal fistula and Bouveret's syndrome [1].

Gastroduodenoscopy revealed a large pigmented stone lodged in the duodenal bulb (● Fig. 2). The stone was successfully removed endoscopically (● Fig. 3) using a Roth Net Platinum Universal Retriever (net size 4 × 5.5 cm, diameter 2.5 mm; US Endoscopy, Mentor, Ohio, USA) (● Video 1).

Less than 5% of intestinal obstruction is caused by gallstone ileus and <4% of those are due to Bouveret's syndrome, which is most commonly seen in frail women [2]. The Rigler's triad (small bowel obstruction, pneumobilia, and ectopic gallstone) is pathognomonic for this syndrome [3], but is not seen in 40% cases, even on computed tomography. Surgery (enterolithotomy, gastrostomy with or without cholecystectomy, and fistula repair) is the mainstay of treatment, but in poor surgical candidates such as our patient (elderly, malnutrition, portal hypertension with biliary system collaterals), endoscopic therapies such as net/basket extraction, mechanical, electrohydraulic or intracorporeal laser lithotripsy, or a combination of these, can be used, but the success rate is only 9% [4].

Endoscopy_UCTN_Code_CCL_1AB_2AZ_3AZ

Video 1



Real time endoscopy showing: large pigmented gallstone impacted at the first part of the duodenum (00.11 seconds); application of the Roth Net (00.32 seconds) posterior to the gallstone; and finally extraction of the gallstone (00.47 seconds). The extracted gallstone is seen in the body of the stomach (00.59 seconds).

Competing interests: None

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