

Unusual biliary gem: Cause of acute obstructive suppurative cholangitis and pancreatitis in a patient with Billroth II anastomosis

A 72-year-old man with a 10-year history of subtotal gastrectomy with Billroth II anastomosis and laparoscopic cholecystectomy presented with abdominal pain, high fever and altered mental status. His blood pressure was 94/50mmHg, heart rate 136bpm and body temperature 39.4°C. Laboratory examination revealed the following: white blood cell count 16,200/ μ L; aspartate aminotransferase 418IU/L; alanine aminotransferase 160IU/L; alkaline phosphatase 3,137U/L; total bilirubin 4.1mg/dL; and serum lipase 1,131U/L. A computed tomography scan revealed dilatation of the common bile duct (CBD), obstructed by an object containing a hyperdense string-shaped component at distal CBD (Fig. 1). Magnetic resonance cholangiopancreatography showed a hypodense object in the distal third portion of the CBD (Fig. 2). Considering the above findings, the patient was diagnosed with acute obstructive suppurative cholangitis (AOSC) and pancreatitis.

Which patient-related factor might be responsible for the biliary tract stone?

- A. Age
- B. Male sex
- C. History of subtotal gastrectomy with Billroth II anastomosis
- D. History of laparoscopic cholecystectomy
- E. Accidental ingestion of a foreign object

Endoscopic retrograde cholangiopancreatography revealed a surgical clip embedded in a 10mm CBD stone (Fig. 3). The patient was diagnosed with AOSC and pancreatitis due to a surgical clip embedded in a CBD stone. The patient underwent endoscopic sphincterotomy with the use of a forward-viewing gastroscope (GIF-Q260J, Olympus Medical Systems, Japan) and inverted sphincterotome (Billroth II sphincterotome; Cook Medical LLC, US) (Fig. 4). We successfully eliminated the choledocholithiasis and extracted the embedded surgical clip (Fig. 5). The patient had complete improvement of his condition with no adverse events.

Post-cholecystectomy clip migration (PCCM), defined as the migration of metallic clips into the CBD where

the clips may act as a nidus for stone formation, is one of the rare post-cholecystectomy complications.¹ Clinically, CBD stones caused by PCCM have the same risk as stone impaction and resulting AOSC. The treatment for CBD stones embedding metallic clips is similar to that for regular CBD stones, such as conventional sphincterotomy and balloon/basket-assisted stone extraction.¹ If patients with choledocholithiasis had a previous gastrectomy with Billroth II anastomosis, CBD stones were retracted with a forward-viewing gastroscope and an inverted sphincterotome.²

The exact pathogenesis of PCCM remains unknown; however, several hypotheses have been proposed.³ One possible underlying mechanism is when a surgical clip falls off an inverted cystic duct and then migrates into the CBD.² A large number of clips used intraoperatively or incorrect clip placements may also induce PCCM.⁴

Clip migration can be partly prevented by using fewer surgical clips and ensuring their proper placement away from the cystic duct and the CBD junction, or by using absorbable clips.⁴ In our case, one of the clips at the post-cholecystectomy site might have migrated into the CBD (Fig. 3). There were clips placed outside the CBD from the patient's history of gastrectomy. Those clips were not related to the PCCM.

The time interval between laparoscopic cholecystectomy and the occurrence of PCCM-induced complication varies from 11 days to 20 years, with a median interval of 26 months.⁵ Physicians should be aware of the fact that PCCM can cause severe cholangitis and pancreatitis, even decades after a surgery. PCCM-induced cholangitis and/or pancreatitis can be considered as a differential diagnosis in patients with a remote history of laparoscopic cholecystectomy presenting with abdominal pain and fever.

In summary, PCCM can cause severe cholangitis and pancreatitis when clips function as a nidus for biliary tract stones decades after laparoscopic cholecystectomy. Surgeons should note that a smaller number and correct placement of clips can prevent PCCM after laparoscopic cholecystectomy.

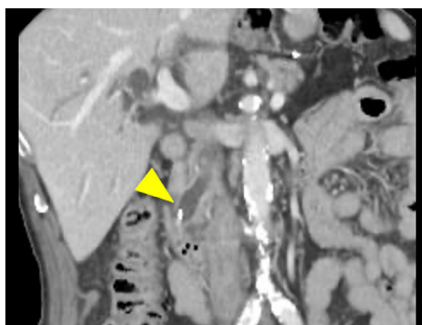


Fig. 1. A computed tomography scan showing a string-shaped hyperdense object (arrow) in the distal portion of the common bile duct.



Fig. 2. Magnetic resonance cholangiopancreatography of an obstructing hypodense object (arrow) in the distal portion of the CBD.

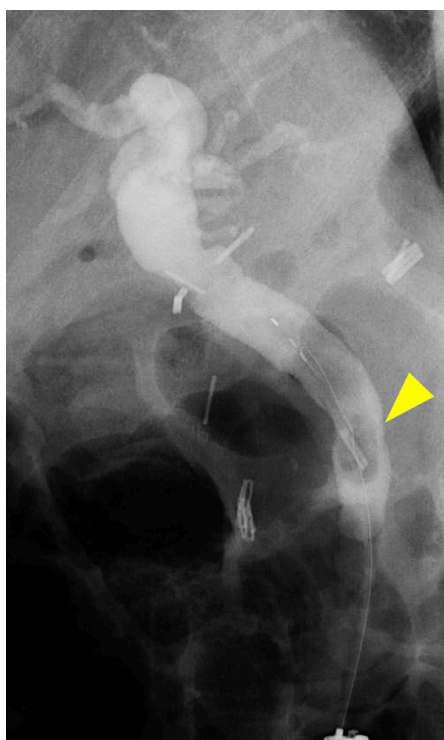


Fig. 3. Endoscopic retrograde cholangiopancreatography showing a 10mm filling defect with a hyperdense metal-like object (arrow) in the distal portion of the CBD.

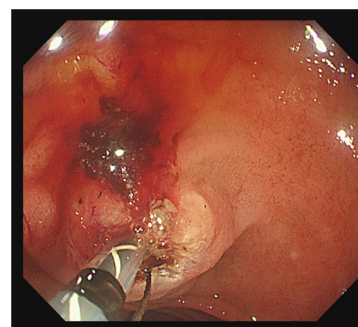


Fig. 4. Inverted sphincterotomy carried out with the use of a forward viewing gastroscope and an inverted sphincterotome.



Fig. 5. The removed surgical clip embedded in a common bile duct stone.

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Koki Yamada ¹FAMS (ORL), Susumu Shinoura ²FAMS (ORL)

¹ Department of Gastroenterology, Okinawa Chubu Hospital, Japan

² School of Psychology and Healthcare Management at Akasaka, Department of Healthcare Management, International University of Health and Welfare, Japan

Correspondence: Dr Koki Yamada, Department of Gastroenterology, Okinawa Chubu Hospital, 271 Uruma, Okinawa, Japan 904-2293. Email: yamada_koki@hosp.pref.okinawa.jp