

Letters to the Editor

A rare case of gangrene of cystic duct due to the insertion of endoscopic nasobiliary drainage (ENBD) tube into the cystic duct by mistake

Key words: Endoscopic nasobiliary drainage. Endoscopic retrograde cholangiopancreatography. Gangrenous cholecystitis.

Dear Editor,

Severe biliary complications after endoscopic retrograde cholangiopancreatography (ERCP) are rare. To the best of our knowledge, this is the first case report of gangrenous cholecystitis caused by mistaken insertion of an endoscopic nasobiliary drainage (ENBD) tube into the cystic duct.

Case report

A 64-year-old female patient received ERCP for common bile duct stones and obstruction. Her preoperative total bilirubin level was 321.5 $\mu\text{mol/l}$. We confirmed stones and obstruction in the lower bile duct, and performed endoscopic biliary sphincterotomy and ENBD (Fig. 1A). Since the patient had severe jaundice before surgery, the stones were not removed during ERCP (planned for treatment at the second stage). The ENBD volume was 500 ml on postoperative day 1 and 200 ml on postoperative day 2. However, no bile was drained on postoperative day 3. Then, the patient began to experience right upper quadrant pain, along with fever, shivering, hypotension, jaundice and leukocytosis. Magnetic resonance cholangiopancreatography showed: gallbladder shrinkage, gallbladder wall thickening, common bile duct stones, and absence of the ENBD tube. C. Erect abdominal plain film showed that the ENBD tube was located in the bile duct. D. The ENBD tube entered the gallbladder through the cystic duct.

duct stones, absence of the ENBD tube, and abnormal signals at the common hepatic duct, which were considered to be caused by air bubbles (Fig. 1B). Erect abdominal plain film showed that the ENBD tube was located in the bile duct (Fig. 1C).

We urgently performed laparoscopic common bile duct exploration plus laparoscopic cholecystectomy and T-tube drainage performed under general anesthesia, during which the gallbladder was found to be edematous and shrunken, Calot's triangle was difficult to identify, and gangrenous changes were identified in the cystic duct. After subtotal cholecystectomy, we found

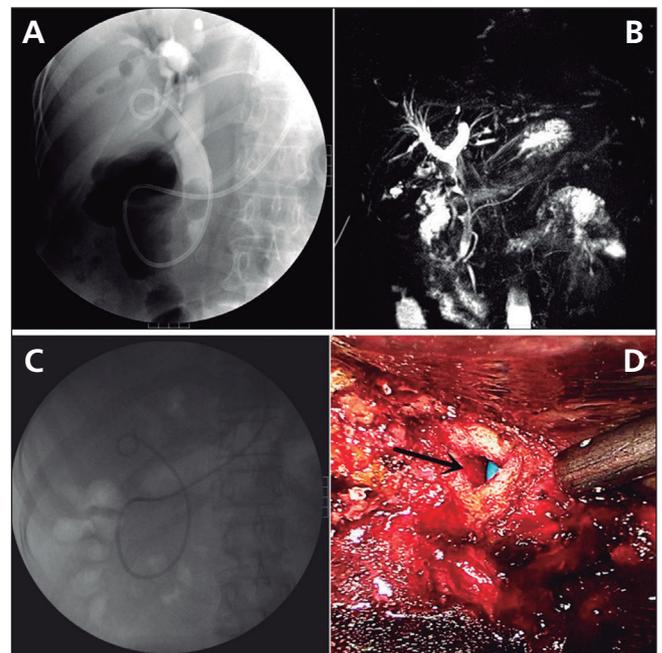


Fig. 1. A. Stones and obstruction in the lower bile duct were confirmed, and ENBD was performed. B. Magnetic resonance cholangiopancreatography showed: gallbladder shrinkage, gallbladder wall thickening, common bile duct stones, and absence of the ENBD tube. C. Erect abdominal plain film showed that the ENBD tube was located in the bile duct. D. The ENBD tube entered the gallbladder through the cystic duct.

that the ENBD tube had entered into the gallbladder through the cystic duct (Fig. 1D). No suppurative bile was found after incision of the bile duct, and the ENBD tube entered the cystic duct retrogradely. The surgery went smoothly, and postoperative recovery was good.

Discussion

Cotton et al. were the first to use an ENBD catheter for several days in the common bile duct after endoscopic biliary sphincterotomy (1). ENBD has become a key approach for clinical biliary drainage during ERCP (2,3); however, gangrenous cholecystitis caused by mistaken insertion of an ENBD tube into the cystic duct is rarely seen in clinical practice. The specific mechanisms remain unclear. In our current case, we initially suspected that the acute obstructive suppurative cholangitis was caused by non-patent drainage or ENBD tube prolapse. Fortunately, we did not perform a second ERCP. Emergency surgical exploration was performed instead, during which the septic shock was found to be caused by acute gangrenous cholecystitis. Therefore, for ERCP operators, the location of the ENBD tube must be repeatedly checked upon completion of the operation. In particular, whether the ENBD tube is located in the right hepatic duct or in

the gallbladder should be carefully distinguished. In our case, the head of the ENBD tube was mistakenly regarded as being in the right hepatic duct, and then postoperative fever and abdominal pain were mistakenly thought to have been caused by bile duct obstruction and infection.

Haibo Yu (zjuboby@163.com),
Haichuan Chen and Xiaodan Jin

Department of Hepatobiliary Surgery. Wenzhou Central Hospital. Wenzhou, Zhejiang. P.R. China

References

1. Cotton PB, Burney PG, Mason RR. Transnasal bile duct catheterization after endoscopic sphincterotomy: Method for biliary drainage, perfusion, and sequential cholangiography. *Gut* 1979;20:285-7. DOI:10.1136/gut.20.4.285
2. Sharma BC, Kumar R, Agarwal N, et al. Endoscopic biliary drainage by nasobiliary drain or by stent placement in patients with acute cholangitis. *Endoscopy* 2005;37:439-43. DOI: 10.1055/s-2005-861054
3. Tsuyuguchi T, Takada T, Kawarada Y, et al. Techniques of biliary drainage for acute cholangitis: Tokyo Guidelines. *Journal of Hepato-Biliary-Pancreatic Surgery* 2007;14:35-45. DOI: 10.1007/s00534-006-1154-9