

Type 2 biliary perforation successfully managed with early insertion of self-expandable metal stent

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ABSTRACT

Perforations after endoscopic retrograde colangiopancreatography (ERCP) are divided into four types. Type 1 refers to the duodenum, type 2 the periampullary region, type 3 the bile duct itself, and type 4 the observation of retroperitoneal free air on cross-sectional imaging. The treatment of type 2 biliary perforations remains debatable. We present a patient who was successfully treated with a self-expandable metal stent (SEMS) without the need for surgery or any complications.

Keywords: Biliary, perforation, self-expandable metal stent

Perforations after endoscopic retrograde colangiopancreatography occur between 0.3% and 1% and cause mortality between 16% and 18% [1]. They are divided into four types according to Stapfer *et al.* [2]. According to the affected side, type 1: duodenal wall (directly with duodenoscope); type 2: periampullary region (commonly after sphincterotomy); type 3: distal bile duct (related to wire or basket instrumentation); and type 4: retroperitoneal free air with no true perforation [2]. Surgery is generally performed for type 1 perforations and conservative, endoscopic treatment for type 3 and 4 perforations. However, for type 2 perforations, which patients should be treated surgically or endoscopically is still controversial [3].

CASE PRESENTATION

An 81-year-old patient presented to the Emergency Department with epigastric colic pain a week ago. In

the measured blood values, alkaline phosphatase: 331 mg/dl, gamma glutamyl transferase: 462 mg/dL, alanine aminotransferase: 70U/L, aspartate aminotransferase: 67U/L, total bilirubin: 0.7 U/L, complete blood count was normal. In abdominal ultrasound and computerized tomography (CT), intrahepatic bile ducts and common bile duct (CBD-13 mm) were dilated and magnetic resonance colangiography was recommended (MRCP). The MRCP revealed prominent intrahepatic bile ducts and dilated common bile ducts with suspicious millimeter filling defects in the lower portion. ERCP was performed in symptomatic patients with elevated cholestatic enzymes. CBD was selectively cannulated. Cholangiography shows a considerably dilated biliary tree and the lower end of CBD noticeably narrowed. A proper sphincterotomy was carried out. Subsequently, the CBD was swept using a balloon catheter. Instead of stones, mucosal particles with papillary projections were extracted from CBD. Specimens were sent to pathology, and a 10 cm, 7 F plastic stent was implanted. Epigastric pain with radi-

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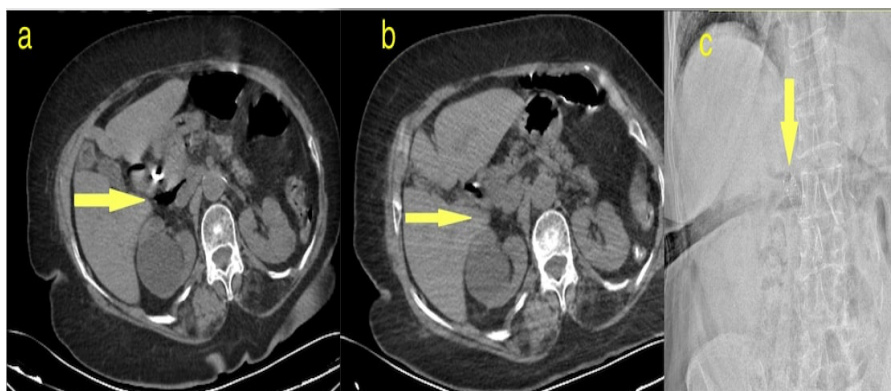


Fig. 1. (a) Type 2 perforation with free air in the anterior side of the right kidney and the inferior vena cava. CT (b) and plain radiograph (c) of perforation resolution 72 hours after SEMS insertion.

ation to the right lumbar area reoccurs in the morning after the procedure on analgesics. An urgent CT scan was performed. Free air images were observed in the anterior side of the right kidney and the inferior vena cava. (Fig. 1). At the 15th hour after intervention, a 60 mm long, 10 mm wide self-expandable metal stent was placed in CBD due to clinically and radiologically confirmed type 2 biliary perforation (Fig. 2). A nasogastric tube was also inserted, and parenteral fluid support with broad-spectrum antibiotic therapy was

started. The pain was immediately relieved after the metal stent was implanted. The resolution of free air was observed in the 72nd hour CT (Fig. 1). There was no significant increase in leukocyte or C reactive protein levels. The patient was discharged after enteral feeding was successfully initiated. Pathology revealed that the patient had an intraampullary tubular neoplasm with high grade dysplasia. Outpatient surgery was recommended for the patient.

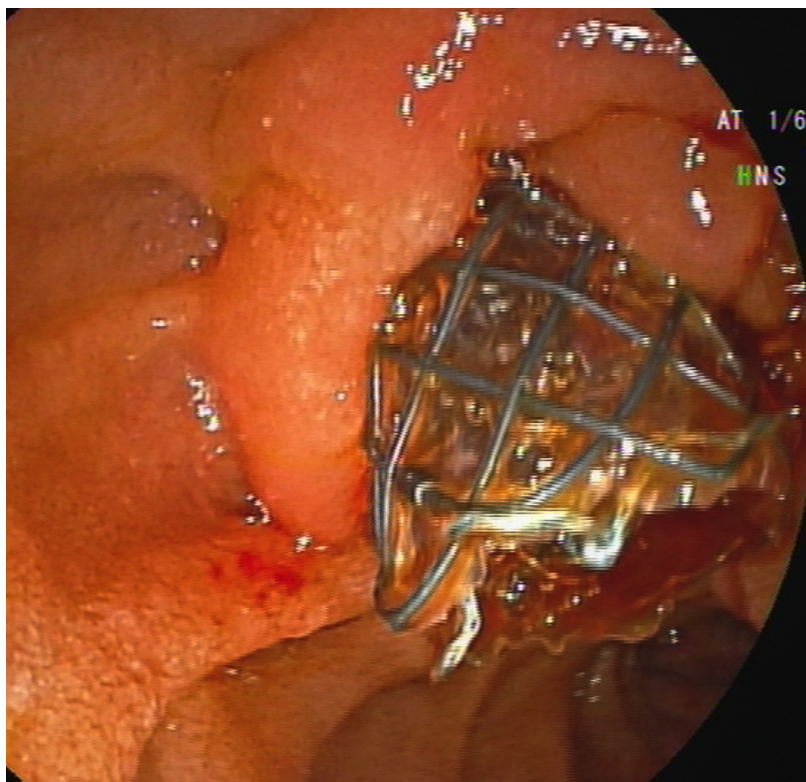


Fig. 2. Endoscopic view of a metallic stent.

DISCUSSION

In recent years, SEMS has been widely used to treat type 2 biliary perforations. Odemis *et al.* [4] compared nasobiliary drainage and SEMS in their study, they found that analgesic use, hospital stay was decreased, and leukocytosis was seen less in patients with SEMS. Type 2 perforations are not very symptomatic due to their retroperitoneal location; therefore, they are unlikely to be detected at the time of intervention. According to the current study, there was no significant difference in terms of surgery, percutaneous intervention, and mortality when a metallic stent was inserted simultaneously during the procedure or 7 to 48 hours after detection of perforation [5]. At the 15th hour of perforation detection, SEMS was successfully inserted into the common bile duct in our patient. The pain was immediately relieved after insertion, and laboratory values did not worsen. And patient was successfully discharged.

CONCLUSION

SEMS can be safely used in type 2 perforations, significantly reducing the patient's likelihood of surgery and mortality.

Informed Consent

Written informed consent was obtained from the patient for publication of this case and any accompanying pictures or data.

Authors' Contribution

Study Conception: İK; Study Design: İK; Super-

vision: İK; Funding: N/A; Materials: İK; Data Collection and/or Processing: İK; Statistical Analysis and/or Data Interpretation: İK; Literature Review: İK; Manuscript Preparation: İK and Critical Review: İK.

Conflict of interest

The author disclosed no conflict of interest during the preparation or publication of this manuscript.

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