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Endoscopic management of acute cholecystitis after metal stent placement in patients with malignant biliary obstruction: a case series

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Acute cholecystitis is a complication of biliary self-expandable metallic stent (SEMS) placement and results from obstruction of the cystic duct.[1] The incidence of acute cholecystitis in this setting ranges between 1.9% and 12%.[1-14] Tumor involvement of the cystic duct orifice is a risk factor for acute cholecystitis after SEMS placement.[1] Theoretically, uncovered stents with their open interstices should allow for sufficient gallbladder drainage to avoid cholecystitis. However, the incidence of cholecystitis was similar between covered and uncovered SEMSs in 2 recent meta-analyses.[15,16] The absolute rates of acute cholecystitis in this setting is likely to increase with the widespread use of biliary SEMSs. Endoscopic management of cholecystitis after SEMS placement has not been described. Here we report a case series of 4 patients with acute cholecystitis after SEMS placement who underwent successful endoscopic management.

CASE 1

A 48-year-old woman with metastatic duodenal cancer initially presented with gastric outlet and biliary obstruction. She underwent concurrent duodenal and biliary stent placement. ERCP revealed a 3.5-cm distal biliary stricture. The gallbladder opacified with contrast examination and appeared normal. One 10-mm × 80-mm, fully covered biliary SEMS (Wallflex; Boston Scientific, Natick, Mass) was inserted with its proximal end in the common hepatic duct and distal end in the duodenum. The patient developed fever and abdominal pain 4 weeks later and was diagnosed with acute cholecystitis. She was treated with intravenous antibiotics and repeat ERCP with removal of the covered SEMS and placement of an uncovered SEMS (Wallstent; Boston Scientific). She recovered completely and remained well 15 months later.

CASE 2

A 50-year-old man presented with painless jaundice and weight loss. An abdominal CT scan revealed a mass in the head of the pancreas that was unresectable because of involvement of the superior mesenteric artery. The patient underwent EUS-guided FNA (EUS-FNA), and the cytology demonstrated pancreatic adenocarcinoma. The patient underwent simultaneous ERCP and cholangiography, which revealed a 1.5-cm distal biliary stricture without contrast opacification of the gallbladder. One 10-mm × 40-mm fully covered biliary SEMS (Wallflex) was inserted across the stricture. The patient's jaundice resolved, but he developed acute cholecystitis 2 weeks later. He underwent repeat ERCP with stent exchange to an uncovered SEMS (Wallstent), with complete resolution of his symptoms. The patient died because of progression of his primary cancer 8 months later.

Abbreviations: EUS-FNA, EUS-guided FNA; SEMS, self-expandable metal stent.

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Figure 1. Retrograde cholangiography revealed a mid-common bile duct stricture (*yellow arrow*), a mildly dilated cystic duct (*white arrow*), and a normal opacified gallbladder. The stricture was distal to the cystic duct take-off.

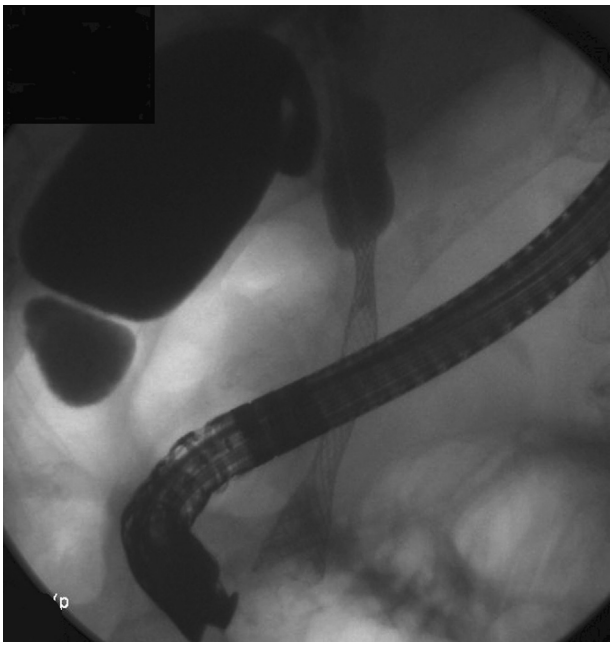

Figure 2. A fully covered self-expandable metallic stent was placed across the bile duct stricture, with its proximal end in the common hepatic duct.

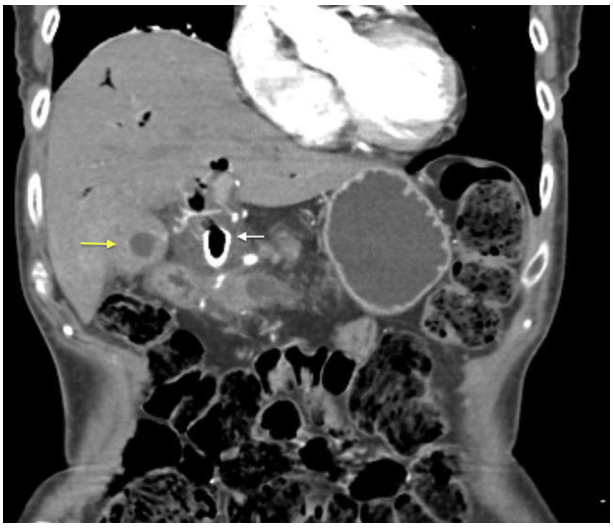

Figure 3. An abdominal CT scan revealed a gallbladder with a thickened wall and an adjacent abscess (*yellow arrow*). The biliary metallic stent appeared in place (*white arrow*). The patient was diagnosed with acute cholecystitis and a contained perforation because of cystic duct obstruction by a covered metallic stent.

CASE 3

An 83-year-old female presented with jaundice and weight loss and was found to have a mass in the head of the pancreas with liver metastasis. The patient underwent EUS-FNA, and cytology confirmed pancreatic adenocarcinoma. During the same endoscopic session, ERCP was performed, and cholangiography revealed a 2-cm mid-common bile duct stricture. The cystic duct was mildly dilated, but the gallbladder was normal (Fig. 1). One 10-mm × 60-mm fully covered SEMS (Wallflex) was inserted across the stricture (Fig. 2). The patient's jaundice resolved and gemcitabine therapy was started. The patient underwent a repeat abdominal CT scan 9 weeks later and was found to have acute cholecystitis with perforation and a contained abscess (Fig. 3). She was afebrile and asymptomatic. Intravenous antibiotic therapy was begun. A surgical consultation was obtained, and the recommendation was nonsurgical management, given her advanced age and comorbidities. A repeat ERCP was performed, with stent exchange to a 10-mm × 60-mm uncovered SEMS (Wallstent). The patient remained asymptomatic, but repeat abdominal imaging did not show any improvement in the gallbladder abscess. EUS-guided gallbladder drainage was not possible because of an oval-shaped gallbladder. ERCP was repeated, with placement of a fully covered SEMS inside the in situ stent (stent-in-stent technique[17]), and both stents were successfully removed 10 days later. A single 10F × 7 cm plastic biliary stent was inserted during the last ERCP session. Repeat imaging 4 weeks later showed significant improvement in abscess size and gallbladder wall thickening (Fig. 4). The patient remained well 3 months after her last ERCP.

CASE 4

A 16-year-old boy with known primary sclerosing cholangitis presented with jaundice. ERCP was performed, and cholangiography revealed a dominant mid-common