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CASE REPORT | ENDOSCOPY

Bleeding From Buried Cholecystogastrostomy Lumen-Apposing Metal Stent: The Double Pigtail Catheter Rescue Treatment

Sergio A. Sánchez-Luna, MD[1], Morgan Wong, DO[1], and Tarun Rustagi, MD[1]

[1]*Division of Gastroenterology and Hepatology, The University of New Mexico School of Medicine, Albuquerque, NM*

ABSTRACT

Lumen-apposing metal stents (LAMS) allow transmural drainage of the gallbladder for endoscopic management of acute cholecystitis in nonsurgical candidates. Delayed bleeding from cholecystogastrostomy or gallbladder after the LAMS placement has not been reported. There are no data for the replacement of LAMS with plastic stents to prevent recurrent delayed bleeding. We present a case to describe an alternative treatment approach for cholecystogastrostomy bleeding related to a buried LAMS.

INTRODUCTION

Acute cholecystitis is a common cause of emergency department presentation with a significant percentage of this population carrying significant comorbidities or found to be too unstable for cholecystectomy.[1] Such patients who are deemed unfit or high risk for surgery were previously treated with percutaneous transhepatic gallbladder drainage (PTGBD). However, complications are common. Lumen-apposing metal stents (LAMS), initially used for drainage of pancreatic fluid collections (pseudocysts and walled-off necrosis), have become increasingly used with great efficacy and success, with a noted decrease in hospital stays, pain scores, and repeated interventions for endoscopic gallbladder drainage in comparison to PTGBD in acute cholecystitis in nonsurgical candidates.[2] Despite the high success rate, given the recent increase in the LAMS utilization, new complications continue to arise. Common complications noted with LAMS gallbladder drainage included postprocedural stent migration, intraprocedural stent migration, and recurrent cholecystitis. Delayed complications from LAMS include bleeding and buried stent syndrome. Late bleeding is mostly because of underlying coagulopathy.[1]

CASE REPORT

A 61-year-old man with a history of decompensated alcoholic cirrhosis with a model for end-stage liver disease of 17, status post-transjugular intrahepatic portosystemic shunt for a history of bleeding esophageal varices, presented with hematemesis. His medical history was also significant for endoscopic ultrasound-guided cholecystogastrostomy using a cautery-enhanced transgastric LAMS (15 × 10 mm) or endoscopic gallbladder drainage for the management of acute cholecystitis, 8 months before this admission. Given decompensated cirrhosis, the patient was deemed high risk for surgical intervention. The patient preferred endoscopic drainage over PTGBD. On current admission, his vital signs were stable. Initial hemoglobin was 10.9 g/dL and international normalized ratio was 1.3. Esophagogastroduodenoscopy showed no evidence of esophageal or gastric variceal bleeding but revealed a buried cholecystogastrostomy LAMS with blood clots (Figure 1). Suction of blood clots revealed partial inward migration of the LAMS within the gallbladder and a firm blood clot was noted at the distal end of the stent (Figure 2).

Mild active bleeding, thought to be secondary to an erosion of the gallbladder mucosa from the stent's flange, was noted. No protuberant vessel was noted, and thus, no further endoscopic therapy was performed at that moment. During repeat

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Correspondence: Tarun Rustagi, MD (tarunrustagi06@gmail.com).

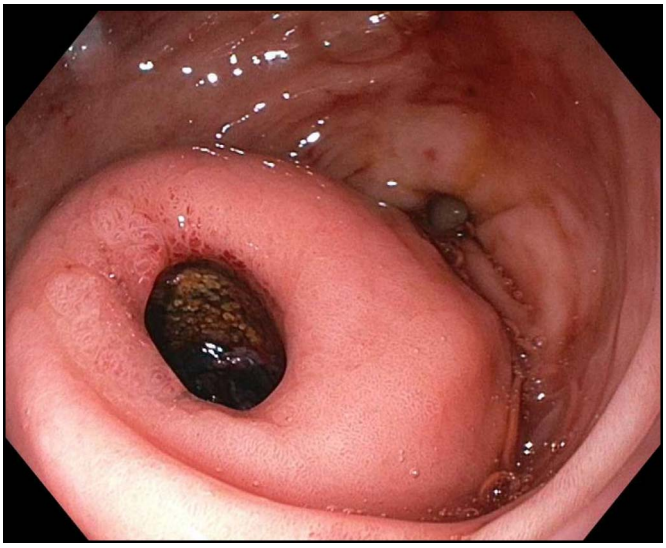

Figure 1. Esophagogastroduodenoscopy showing a buried cholecystogastrostomy lumen-apposing metal stent.

esophagogastroduodenoscopy the next day, the LAMS was removed by grasping the proximal (gastric) flange of the LAMS using a rat-toothed forceps. The stent was removed to prevent ongoing injury with resultant erosion and bleeding from the stent's flange and to prevent the stent from getting completely buried into the gallbladder. The opening of the cholecystogastrostomy tract was wide enough to allow LAMS retrieval, without the need for previous balloon dilation, revealing a granular and friable gallbladder mucosa (Figure 3). Given the partial atrophy of the gallbladder, upsizing to a larger LAMS (15 or 20 mm size), with even an increased risk of erosion from the inner flange of the stent, was not an option. Secondly, given the thickness of the gastric antral wall and increased length of the existing cholecystogastrostomy tract, repeat LAMS (fixed saddle length of 10 mm) placement would have likely resulted in a buried stent again. Therefore, transgastric double-pigtail plastic stent placement was performed. A 0.025-inch angled guidewire was passed and allowed to coil twice within the gallbladder lumen under endoscopic guidance. Two 7 Fr × 4 cm double-pigtail plastic stents were placed across the cholecystogastrostomy for continuous long-term endoscopic drainage of the gallbladder without the risk of bleeding from the LAMS and the risk of buried stent syndrome (Figure 4). No procedure-related adverse events were noted, and the patient was discharged after 2 days. He continues to do well without evidence of recurrent acute cholecystitis or recurrent upper gastrointestinal bleeding during the 15-month follow-up.

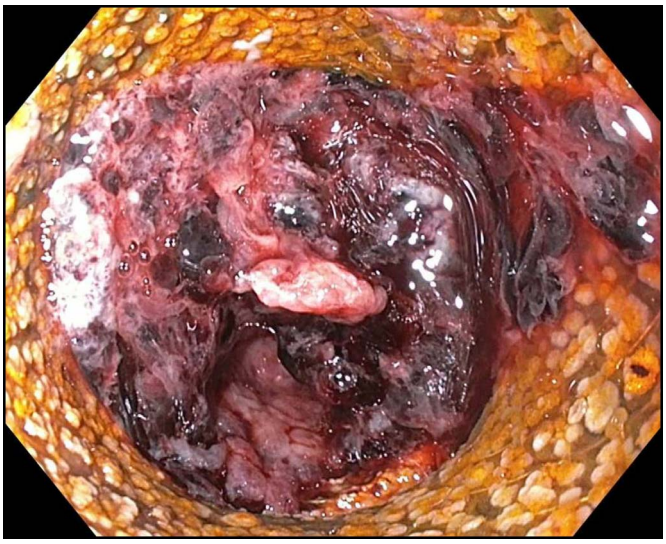

Figure 2. Firm blood clot at the distal end of the lumen-apposing metal stent.

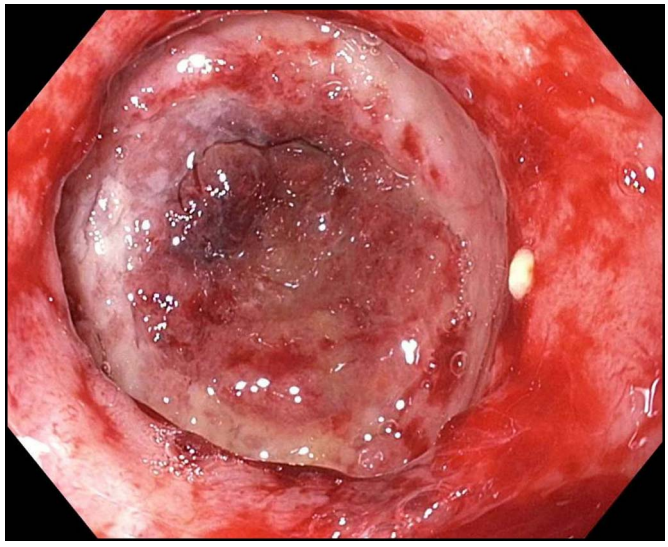

Figure 3. Retrieval of lumen-apposing metal stent revealed a granular and friable gallbladder mucosa.

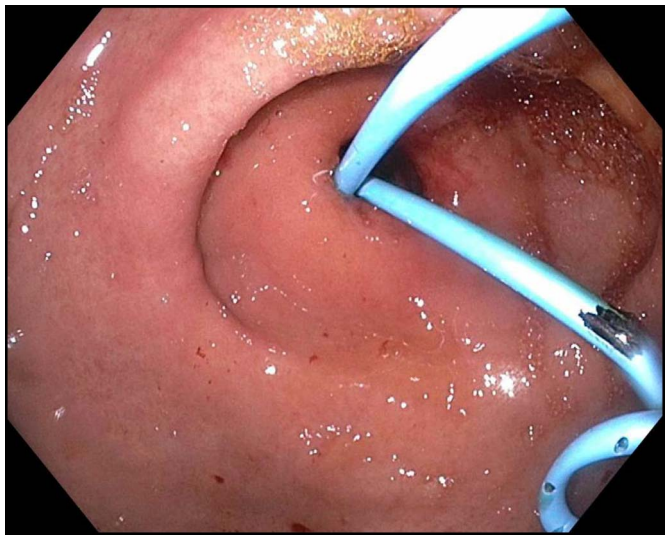

Figure 4. Two double-pigtail plastic stents were placed across the cholecystogastrostomy for continuous longterm endoscopic gallbladder drainage.

DISCUSSION

Given the absence of data for the replacement of the LAMS with plastic stents to prevent delayed bleeding, we describe an alternative treatment approach for bleeding from a buried cholecystogastrostomy LAMS. Patil et al described the technical feasibility and efficacy of the LAMS for gallbladder drainage and reported no major acute complications, no stent migration, and no bleeding.[1] The only study that reported side effects of LAMS over a longer term (3 months) was the study by Walter et al, where patients did not undergo stent removal until 3 months, which resulted in significant tissue overgrowth in 3 patients.[3] The first case series of buried gastric LAMS was reported by Irani and Kozarek, and the 3 reported cases were treated with pigtail stents (only 1 of the 3 cases involved gallbladder drainage in a cirrhotic patient with acute cholecystitis).[4] Nevertheless, all the cases needed balloon dilation and none of them were in the setting of acute bleeding. Seerden and Vleggaar described the endoscopic removal of a buried LAMS used for cholecystogastrostomy using balloon dilation and rat-toothed forceps, although this case did not involve long-term gallbladder drainage because this was a planned removal 4 months after the patient presented with acute acalculous cholecystitis.[5]

The LAMS-in-LAMS rescue treatment is another modality that has been described as a treatment modality in buried LAMS after endoscopic ultrasound-guided gallbladder drainage, but the case by Ligresti et al involved early migration (1 month) and the patient did not present with an upper gastrointestinal bleeding, but rather as recurrent jaundice in a patient with a malignant distal biliary stricture.[6] To our knowledge, this is the first to be reported of late bleeding (8 months) from LAMS in a cholecystogastrostomy successfully treated with the removal of LAMS and replacement with 2 double-pigtail plastic stents for long-term endoscopic transmural gallbladder drainage.

DISCLOSURES

Author contributions: All authors contributed equally to this manuscript. T. Rustagi is the article guarantor.

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Informed consent was obtained for this case report.

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