CASE REPORT | ENDOSCOPY

Migration of a Lumen-Apposing Metal Stent into the Colon

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ABSTRACT

The introduction of lumen-apposing metal stents (LAMS) has been an important development in the management of pancreatic fluid collections. Stent migration out of pancreatic fluid collections into the stomach has been reported, despite the special anti-migratory design of the bi-flanged stent. Data on stent migration rates remain sparse, with some studies suggesting a migration rate of 3.3–5%. There have been no reported cases of LAMS migration outside of the stomach. We describe the first reported case of a transgastric LAMS migrating from the stomach and passing into the colon.

INTRODUCTION

Endoscopic ultrasound (EUS)-guided drainage and endoscopic debridement of pancreatic and peripancreatic fluid collections has become the standard of care for the management of symptomatic pancreatic pseudocysts and walled-off necrosis. Historically, double-pigtail biliary stents as well as covered self-expandable metal stents have been used to create a cyst-gastrostomy/duodenostomy tract to allow drainage and debridement of these collections. The recent introduction of the lumen-apposing metal stent (LAMS) allows more efficient and effective management of pancreatic fluid collections.1-3 Published data on LAMS also suggest a low overall rate of complications.1-5 Stent migration into the stomach has been described.4 Per the American Society of Gastrointestinal Endoscopy (ASGE) guidelines on foreign bodies in the gastrointestinal tract, objects <2.5 cm in diameter may pass through the pylorus.6 The maximum diameter of the AXIOS (Boston Scientific, Marlborough, Massachusetts) is the stent’s flange diameter, and stents are available with flange diameters of 21 mm and 24 mm. Based on these measurements, the AXIOS stent may travel through the pylorus into the small bowel; it is unknown whether the stent is capable of traversing the entire small bowel to the colon.

CASE REPORT

A 69-year-old woman was referred for evaluation and management of progressive early satiety, abdominal pain, and recent fevers of up to 101°F 6 weeks after recovering from acute necrotizing gallstone pancreatitis. Computed tomography (CT) showed a complex, heterogeneous 9-cm walled-off fluid collection adjacent to the pancreatic tail (Figure 1). Other possible causes of infection were ruled out, and the patient was diagnosed with infected walled-off necrosis. She underwent EUS-guided transgastric drainage of the walled-off necrosis using a 15-mm cautery-enhanced LAMS with a flange diameter of 24 mm (AXIOS, Boston Scientific, Marlborough, Massachusetts) (Figure 2). The LAMS was balloon-dilated over a guidewire to ensure adequate drainage from the cyst cavity into the gastric lumen, and initial debridement was performed.

Follow-up CT a week after LAMS deployment showed nearly complete resolution of walled-off necrosis, and the LAMS was appropriately positioned in the gastric wall (Figure 3). Repeat CT scan a few weeks later did not show re-accumulation of peri-pancreatic fluid; however, the stent had migrated out of the cyst-gastrostomy and into the gastric lumen (Figure 4). The patient was scheduled for endoscopic removal of the stent a few days later.

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endoscopic evaluation, the AXIOS stent was noted to have migrated out of the gastric cavity and was visible in the pelvis on fluoroscopy (Figure 5). A flexible sigmoidoscopy was performed, and the AXIOS stent was retrieved from the rectum with a rat-tooth forceps.

**DISCUSSION**

To our knowledge, this is the first reported case of the migration of a LAMS out of the stomach and into the colon. Itoi et al reported the first experience with the AXIOS stent in 2012. Their series included 20 patients who underwent transgastric or transduodenal placement of a 10-mm AXIOS stent (15 of 20 patients had symptomatic pancreatic pseudocysts). Patients were followed for 6 months, and only 1 patient was reported to have a stent migration into the stomach. A case series from Spain in 2013 included 9 patients who underwent placement of a 10-mm AXIOS stent for drainage of pancreatic pseudocysts and walled-off necrosis. No late migration was reported (mean follow-up 50 ± 1.3 weeks). A subsequent, prospective, multicenter study conducted by Shah et al enrolled 33 patients who underwent EUS-guided peri-pancreatic fluid collection drainage, with 30 patients undergoing placement

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**Figure 1.** Computed tomography showing large, walled-off necrotic collection in the pancreatic tail region.

**Figure 2.** Endoscopic view after deployment of a lumen-apposing metal stent.

**Figure 3.** Computed tomography 1 week after deployment of lumen-apposing metal stent showing resolution of walled-off necrosis. Lumen-apposing metal stent is appropriately positioned in the gastric wall.
of either a 15-mm or a 10-mm (lumen diameter) AXIOS stent. Their analysis showed a 15.2% overall complication rate with stent migration in only 1 patient, although further details of migration were not provided. In 2015, a large retrospective study from Europe described 93 patients who underwent AXIOS stent placement, with only 1 case of stent migration into the cyst cavity during necrosectomy. Aside from these larger studies, there is also a case report describing the migration of an AXIOS stent into the esophagus.

As LAMS becomes more widely used with expanding applications, we will likely continue to learn more about acute and delayed complications and the rates at which they occur. In theory, stent migration should be a rare phenomenon with lumen-apposing, covered, self-expanding metal stents due to their stent design. Further studies are needed to ascertain the true incidence of migration and other delayed complications.

DISCLOSURES
Author contributions: SK Mahmood wrote the manuscript and is the article guarantor. P Kaimakliotis edited the manuscript.

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