

Spontaneous Closure of a Large Transmural Gastric Defect After Removal of a Migrated AXIOS Stent

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ABSTRACT

Pancreatic fluid collections occur in 5%–15% of acute complicated pancreatitis cases. Endoscopic drainage using lumen-apposing metal stents has become the treatment of choice with less incidence of complications, shorter hospital stays, and less cost. The AXIOS stent has proven to be safe and effective in several studies. Despite a low complication rate, bleeding, perforation, and stent migration were still reported. In this case, a patient presented for delayed AXIOS stent removal and was found to have stent migration with embedment in the gastric wall. The transmural defect that resulted after endoscopic stent removal was observed to close spontaneously without further need for intervention.

INTRODUCTION

Pancreatic fluid collections are a frequent complication of pancreatitis, out of which 5%–15% are pseudocysts.¹ Drainage is recommended when the pseudocyst is symptomatic or rapidly enlarging. Options to provide drainage of symptomatic pancreatic fluid collections include surgical, percutaneous, or endoscopic approaches. Minimally invasive endoscopic transmural drainage was found to be safe and is associated with a reduction in healthcare costs.^{2–4} Pseudocysts usually resolve after a single drainage procedure, with a median removal interval of 35 days.⁵

Cyst drainage using lumen-apposing metal stents (LAMS), such as the AXIOS stent (Boston Scientific, Marlborough, MA), have proven to be safe and effective. When first used with symptomatic pseudocysts drainage, there was a success rate of 100%, with 0% recurrence rate.⁵ The only complication was stent migration in 1 patient.⁵ Review articles showed 97% technical success rate and a 96% clinical success rate.⁶ There are only a few reported cases of stent migration to date.

CASE PRESENTATION

A 64-year-old man presented with abdominal pain. He has a medical history significant for acute pancreatitis, hypertension, and hyperlipidemia. Physical examination was significant for epigastric tenderness. Abdominal computed tomography (CT) scan showed a 12.4 × 0.4 × 12.5 cm pancreatic tail pseudocyst (Figure 1). The patient was scheduled for endoscopic ultrasound (EUS)-guided pseudocyst drainage but did not follow up because of financial issues.

Two months later, the patient presented again for persistent abdominal pain. Magnetic resonance imaging showed a pancreatic tail pseudocyst measuring 13.9 × 9.2 × 13.5 cm with thin irregular enhancement and adjacent inflammatory changes. An AXIOS stent was placed under EUS guidance without complications. The patient failed to follow up for planned stent removal after 30 days.

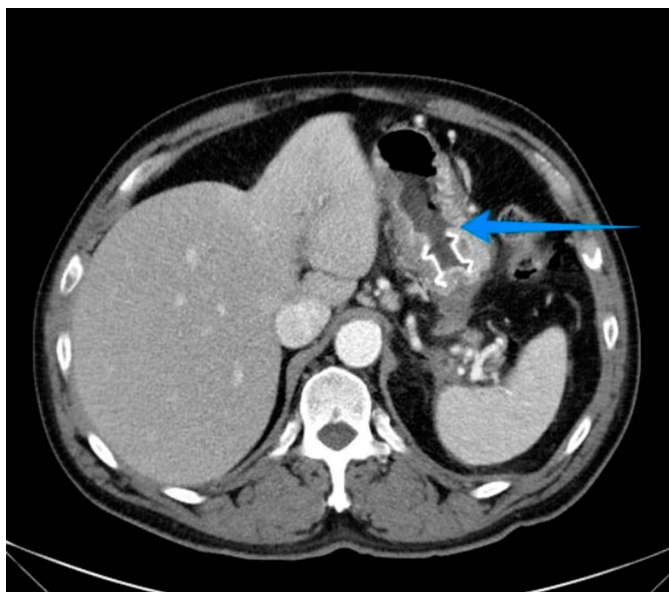


Figure 1. Computed tomography of the abdomen and pelvis showing the AXIOS stent migrated out of the pancreatic pseudocyst and embedded in the wall of the gastric body.

Six months later, the patient finally returned for stent removal. He was asymptomatic at that time. Abdominal CT scan showed the cystogastrostomy with the AXIOS stent. The pancreatic tail pseudocyst had decreased to 2.1×0.5 cm. The patient was scheduled for AXIOS stent removal. The stent was found to have migrated out of the pancreatic pseudocyst and was embedded in the wall of the gastric body (Figure 2). The AXIOS stent was removed by gentle traction using a rat tooth forceps. A large transmural defect was seen after the stent removal (Figure 3). A stat CT scan with oral contrast showed no evidence

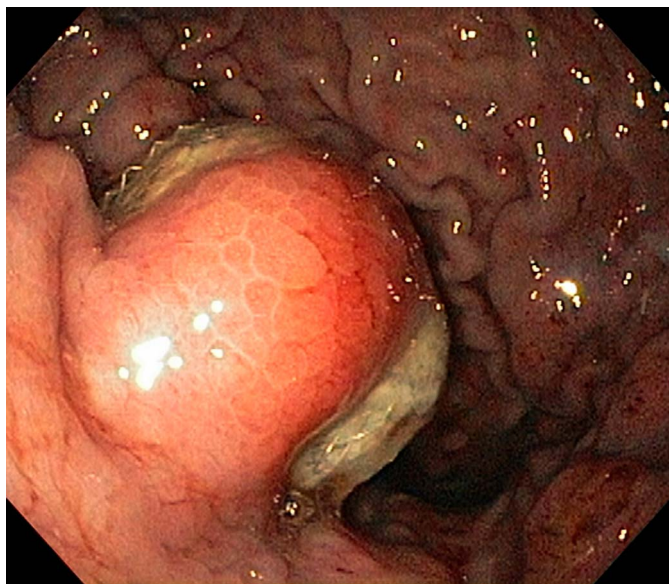


Figure 2. The AXIOS stent migrated and embedded in the gastric wall.

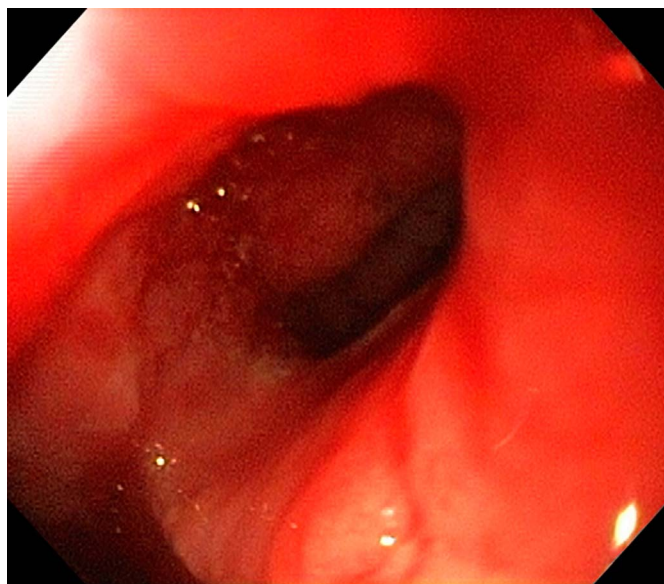


Figure 3. The transmural defect that resulted after endoscopic stent removal.

of gastric extraluminal contrast extravasation. A follow-up esophagogastroduodenoscopy (EGD) performed 2 months later showed a complete closure of the transmural defect.

DISCUSSION

Surgical, percutaneous, or endoscopic approaches may all be considered for pancreatic pseudocyst drainage. The surgical approach is associated with higher rates of morbidity (7%–37%) and mortality (6%), whereas the percutaneous cystic drainage is associated with infection or fistula formation (14%).^{7–9} Endoscopic cystogastrostomy is the preferred approach because it is associated with decreased re-intervention rate, reimaging rate, and a shorter hospital stay.¹⁰

EUS-guided drainage of pancreatic fluid collections has traditionally been performed using double-pigtail plastic stents after cystogastrostomy. The narrow lumen of double-pigtail plastic stents may cause premature occlusion in up to 18% of cases, resulting in frequent stent replacement.^{11,12} LAMS are designed to overcome the limitations of double-pigtail plastic stents. The AXIOS stent is the only approved LAMS in the United States; its wider diameter makes it more effective to drain solid necrotic components. In addition, its “dumbbell” configuration minimizes the risk for stent migration. Despite the unique design, stent migration can still occur occasionally.

EUS-guided pseudocyst drainage using LAMS has a technical success rate of 88% in 1 case series with no migration, and follow-up showed complete resolution of the cysts in all patients.¹³ Similarly, in another study, among 29 patients who received LAMS, 93% showed pseudocyst resolution and only 1 patient had stent migration.¹⁴

The overall complication rate for LAMS is low. Early complications include pneumothorax, pneumoperitoneum, perforation, infection, and minor and massive bleeding.⁶ Delayed LAMS migration rates were found in 3 studies to be 1%, 3%, and 6% (totaling 3 cases of stent migration in all reviewed studies).⁶ In our case, we observed how a LAMS became embedded in the gastric wall approximately 6 months after a pseudocyst was decompressed. We observed that such stent migration was of no clinical significance as the patient was asymptomatic before and after the eventual stent removal. Finally, we concluded that the transmural defect resulting from the stent removal would likely resolve spontaneously without the need for further endoscopic closure.

DISCLOSURES

Author contributions: A. Alshati wrote the manuscript and is the article guarantor. I. Srinivasan wrote and revised the manuscript. K-Y Chuang performed the procedure and revised the manuscript.

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Informed patient consent was obtained for this case report.

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