

## Dislocation of a metal stent to the lumen of a large infected pseudocyst: questions addressing the next steps in management

**To the Editor** We read with interest the article by Krupa et al.<sup>1</sup> We would like to congratulate the authors on this publication and their treatment results. They described a case of a 54-year-old patient with posttraumatic pancreatitis complicated by a large infected pancreatic pseudocyst. Endoscopic transmural drainage of the pancreatic fluid collection (PFC) in this critically ill patient was performed under endoscopic ultrasound (EUS) guidance using a lumen-apposing metal stent (LAMS). The authors reported that the stent migrated into the lumen of the pseudocyst 24 hours after the procedure, which was confirmed during control gastroscopy. Another EUS-guided cystogastrostomy was performed later, with placement of a fully covered self-expanding metal stent. This treatment led to complete resolution of symptoms and improvement in the patient's general health. The patient was therefore discharged from the hospital. The authors reported that during a hospitalization one month later, control abdominal computed tomography showed that the PFC had regressed. Both stents were thereafter removed endoscopically with the forceps. The patient remained well after 6 months of follow-up.

EUS-guided transmural drainage is a common treatment for patients with symptomatic PFCs.<sup>2</sup> While numerous reports of endoscopic treatment of PFCs have been published, several aspects of endotherapy are still unclear.<sup>3</sup> We would like to kindly ask what is the primary treatment strategy for patients with PFCs and associated acute pancreatitis in the authors' medical centers? Are LAMs inserted transmurally during endotherapy to treat PFCs in every patient? Are plastic stents used in some patients for passive transmural drainage? Universal insertion of metal stents during the endoscopic treatment of PFCs remains controversial.<sup>3,4</sup>

Distal/external (into the lumen of the gastrointestinal tract) or proximal/internal (into the lumen of the PFCs) migration of LAMS is considered a rare complication of pancreatic endotherapy.<sup>5</sup> Distal dislocation of transmural

metal stents occurs more often than proximal dislocation.<sup>5</sup> Despite this, proximal migration is believed to be a more serious clinical problem due to the high risk of perforation of the collection. Krupa et al<sup>1</sup> reported that proximal migration of the metal stent into the lumen of the collection was discovered 24 hours after stent insertion, which was confirmed during control gastroscopy. How did the authors suspect distal stent migration before its confirmation? Were there any specific symptoms of the dislocation? Did the authors decide to perform a control imaging examination that identified the stent migration because of a lack of clinical improvement after endoscopic drainage?

Another interesting, yet unclear, aspect is the treatment strategy for patients with metal transmural stent dislocation into PFC lumens. How was the dislocated stent removed? Were the forceps used to grasp it under fluoroscopic guidance alone or under endoscopic guidance through the insertion of a fiberscope into the pseudocyst lumen? Why was endoprosthesis removed with the forceps instead of other less traumatic endoscopic instruments, such as the polypectomy snare or Dormia basket? Perhaps other instruments were inefficient on initial removal attempts?

The answers to those questions would be important for other endoscopists to guide the treatment of patients with such complications. Considering the wealth of experience at the authors' medical center, these answers would be valuable and necessary.

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**Authors' reply** We are very pleased that our colleagues found the article interesting and clinically relevant. We would like to respond to their questions and clarify some points.

**Question: We would like to kindly ask what is the primary treatment strategy for patients with PFCs and associated acute pancreatitis in the authors' medical centers? Are LAMSs inserted transmurally during endotherapy to treat PFCs in every patient? Are plastic stents used in some patients for passive transmural drainage?**

The occurrence of pancreatic fluid collection (PFC) is a complication of severe acute pancreatitis. PFC can be divided into 4 subtypes: acute PFCs, acute necrotic collections (ANCs), pseudocysts, and walled-off necrosis (WON).<sup>1</sup> Pseudocysts have clear contents and WON has variable amount of solid necrotic debris.<sup>1</sup> Acute PFCs and ANCs usually resolve with conservative management and do not require interventions. Pseudocysts and WON may be asymptomatic or may cause symptoms such as pain, early satiety, upper gastrointestinal bleeding, nausea, and vomiting. In our department, in an asymptomatic patient, we adopt the wait-and-watch approach. The probability of spontaneous resolution of a pseudocyst ranges from 8% to 85%, depending on the size, as well as etiology and location.<sup>2</sup> In symptomatic patients, we perform endoscopic ultrasound (EUS)-guided cyst drainage. We use plastic pigtail stents for EUS-guided drainage of noncomplicated pseudocysts as the first step and metal stents for drainage of WON. In this particular case, the patient was septic and critically ill. Metal stents are shown to be more efficient and require fewer reinterventions compared with plastic

stents.<sup>3,4</sup> There are also fewer adverse events seen with metal stents, hence our choice. Metal stent insertion is associated with less technical difficulty and reduced procedure duration in PFCs.<sup>5</sup> This is extremely important in a sick patient, especially when there is high likelihood of reintervention for debridement or necrosectomy.

**Question: How did the authors suspect distal stent migration before its confirmation? Were there any specific symptoms of the dislocation? Did the authors decide to perform a control imaging examination that identified the stent migration because of a lack of clinical improvement after endoscopic drainage?**

It is our standard practice to assess the patient clinically and perform a transabdominal ultrasound one day after the procedure. In our patient, there was no clinical improvement or cyst size reduction on ultrasound. This led to the suspicion of stent blockage or migration, which was confirmed during subsequent gastroscopy.

**Question: How did the authors remove the dislocated stent? Were the forceps used to grasp it under fluoroscopic guidance alone or under endoscopic guidance through the insertion of a fiberscope into the pseudocyst lumen? Why was endoprosthesis removed with the forceps instead of other less traumatic endoscopic instruments, such as the polypectomy snare or Dormia basket? Perhaps the other instruments were inefficient on the initial removal attempts?**

The dislocated stent was removed under endoscopic guidance with grasping forceps during the first attempt. The gastroscope was inserted through the lumen of the second metal stent. In fact, the tip of the migrated stent was visible in the lumen of the second metal stent, which can be seen in Figure 1D in our publication.<sup>1</sup> Of course, we had fluoroscopy facilities and other accessories, such as polypectomy snare and Dormia basket, easily available if needed. There is no single endoscopic technique for removal of a dislocated stent in this situation. Endoscopic accessories used for retrieval of a migrated stent have to be tailored to the individual patient, and access to fluoroscopic guidance is required.

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