

Case Report

The silent stent ascent: asymptomatic retrograde migration of pancreatic duct stent post-pancreaticoduodenectomy

Vysheki Satchithanandha*, Ngee-Soon Stephen Lau, Roy Huynh, Charbel Sandroussi

Royal Prince Alfred Hospital, NSW Australia, University of Sydney, Australia

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*Correspondence:

Dr. Vysheki Satchithanandha,
E-mail: vysheki.s@gmail.com

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ABSTRACT

Transanastomotic stents are used to maintain pancreatic duct patency post Whipple's procedure to manage postoperative fistulas. We present a rare case of a 54-year-old male who presented with recurrent epigastric pain and vomiting post pancreaticoduodenectomy. Imaging demonstrated incidental pancreatic stent migration through the hepaticojejunostomy into the left biliary tree, without evidence of cholangitis. Pancreatic stent in a Whipple's procedure, demonstrates benefits in maintaining pancreatic duct patency and reduces pancreatic fistulisation. However, it is associated with potential complications including proximal stent migration into the biliary tree. In our case, the patient remained asymptomatic which makes it a unique case. The necessity of stent removal in asymptomatic cases remains a subject of consideration. However, the endoscopic retrieval is in preference to avoid surgical intervention to avoid the risks and complications of invasive procedures.

Keywords: Pancreaticoduodenectomy, Postoperative complications, Biliary tract, Bile ducts, Foreign body migration, Stents, Pancreatic ducts, Device removal

INTRODUCTION

Whipple's pancreaticoduodenectomy is performed for both benign and malignant lesions affecting the head of the pancreas and periampullary regions, with mortality and morbidity rates reduced to approximately 2-8% and 50-70%, respectively.¹ Pancreatic fistula remains a significant source of morbidity, leading to complications including sepsis, abscesses, bleeding, and death.² Pancreatic stents are thought to maintain the patency of the pancreatic duct and divert pancreatic enzymes away from the pancreaticojejunostomy anastomosis, resulting in decompression. Complications associated with pancreatic stents are rarely reported, but should be considered at the time of pancreaticojejunostomy. One unusual complication, the retrograde migration of the stent, which can pass through the hepaticojejunostomy

and into the intrahepatic biliary tree. Previous cases describe patients presenting with obstructive jaundice and cholangitis. We discuss a unique case of an incidental finding of retrograde stent migration where we confront the question of whether stent removal is imperative when it remains asymptomatic.

CASE REPORT

A 54-year-old male presented with longstanding epigastric pain associated with nausea and vomiting. He had undergone pancreaticoduodenectomy six months earlier for a suspicious pancreatic lesion, ultimately proven benign. The pancreaticojejunostomy was performed in a Cattel-Warren style using 6-0 PDS interrupted sutures for the inner duct to mucosa layer over a 5F infant feeding catheter as an internalised

pancreatic stent. The outer layer was completed using interrupted 2-0 silk sutures. Formation of the hepaticojejunostomy was performed circumferentially with interrupted 5-0 PDS sutures. The antecolic gastrojejunostomy was done side-to-side in two layers using 3-0 PDS. Postoperatively, the patient had a relatively uncomplicated recovery and was discharged on postoperative day 16.



Figure 1: CT scan demonstrating pancreatic stent migrated through the hepaticojejunostomy into left biliary tree.



Figure 2: CT scan 3 months prior demonstrating pancreatic stent in the correct position.

Since discharge, the patient had multiple presentations with epigastric pain and vomiting that had been attributed to narrowing of his gastrojejunostomy. He would undergo a gastroscopy with dilation of the anastomotic stricture with improvement of his symptoms. The patient's additional surgical history includes a left nephrectomy for renal cell carcinoma, sleeve gastrectomy for weight loss, laparoscopic cholecystectomy for cholecystitis, and laparoscopic appendectomy for appendicitis. His past medical history was unremarkable besides hypertension that is managed on oral amlodipine. On presentation, the patient had a computed tomography (CT) scan of the abdomen and pelvis, demonstrating that the pancreatic

stent had migrated through the hepaticojejunostomy into the left biliary tree (Figure 1,3). His most recent CT scan 3 months prior showed the pancreatic stent in the correct position (Figure 2). Given the patient's similar past presentations with resolution of symptoms following dilation of his narrowed gastrojejunostomy, it was assessed that the finding of retrograde stent migration was incidental rather than causative of his symptoms. The patient subsequently underwent a repeat gastroscopy with dilation of the gastrojejunostomy. Symptoms improved and he was discharged home. A decision was made to leave the displaced pancreatic stent in situ.

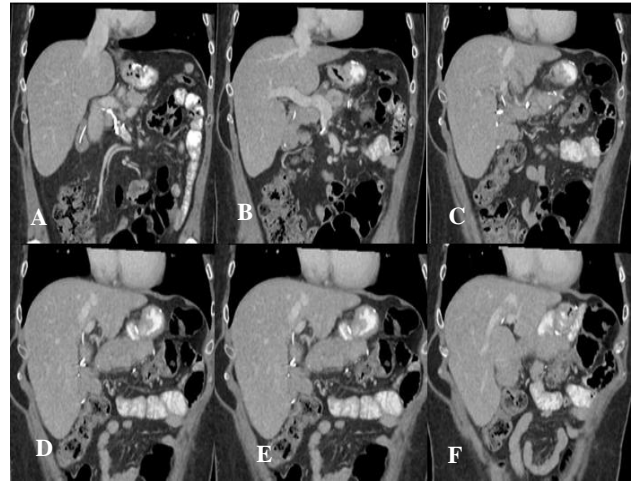


Figure 3 (A-F): Coronal slices of the retrograde migration of pancreatic duct stent.

The uniqueness of this case lies in the fact that the retrograde migration of the pancreatic stent into the left biliary tree did not provoke any discernible symptoms, setting it apart from reported cases where retrograde migration was accompanied by symptoms like pain or cholangitis. Four months following the initial discovery, a decision was made to proceed with the endoscopic removal of the pancreatic duct stent, despite the patient's persistent lack of symptoms. An enteroscope was used to access the efferent limb, allowing for the successful retrieval of the stent using a snare.

DISCUSSION

Transanastomotic stents aim to maintain pancreatic duct patency post Whipple's procedure to manage postoperative fistulas.⁴ Commonly, spontaneous antegrade pancreatic duct migration into the small bowel results in intestinal obstruction.^{5,6} Rarely, retrograde pancreatic stent migration through the hepaticojejunostomy and into the biliary tree can occur. Documented cases have been associated with symptoms such as pain, jaundice and cholangitis, however our case is unique as the patient remained asymptomatic. Management of the migration of stents poses a challenge. Only two cases of retrograde pancreatic stent migration post pancreaticoduodenectomy has been reported, all of which were successfully retrieved.

Table 1: Published reports.

Author	Symptoms	Management
Healey et al	Obstructive Jaundice + Bile leakage US proven retrograde migration of pancreatic stent to common hepatic duct	Paediatric colonoscope used to retrieve stent endoscopically
Goh et al	Episodic Cholangitis CT proven retrograde pancreatic duct stent migration to segment VI intrahepatic duct	2 attempts at percutaneous transhepatic retrieval were unsuccessful due to sharp acute angulation of segment VI duct. Interventional Radiology (IR)-assisted percutaneous cholangioscopic stent retrieval of stent was successful

Altered anatomy of pancreaticoduodenectomy results in the use of paediatric colonoscope for endoscopic cholangiopancreatography (ERCP) and if not feasible, surgical or percutaneous approaches may be considered. ERCP poses a threefold challenge post pancreaticoduodenectomy: accessing the afferent limb, reaching the ampulla or biliopancreatoenteric anastomosis, and successfully cannulating the bile or pancreatic ducts.⁷ Given these complexities, the risks associated with ERCP may justify a cautious approach, particularly to manage asymptomatic patients.

The silent ascent of this stent into the biliary tree prompts consideration of whether it may serve as a nidus for future cholangitis. While close monitoring is a feasible approach, its essential to recognise that cholangitis may result from biliary obstruction, biliary anastomotic stenosis, or the presence of foreign bodies. We elected to proceed with endoscopic retrieval of the pancreatic stent, although the patient remained asymptomatic. This choice helps circumvent the need for surgical intervention and mitigate potential consequences of a foreign body within the biliary tree.

CONCLUSION

This case highlights a rare complication of transanastomotic stent migration from the pancreatic duct through the hepaticojejunostomy after pancreaticoduodenectomy, which typically presents with symptoms of cholangitis, pain, or infection. However, the nuances of this case provoke contemplation raising the hypothesis that stent migration may not inherently necessitate intervention. Consequently, further investigation is needed to determine the true implications of asymptomatic pancreatic stent migration.

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