

An Unusual Cause of Small Bowel Obstruction Ten Years After Pancreatic Surgery

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Abstract

Case Report

Background : Migration of biliary stents is a recognized complication, but distal migration causing small bowel obstruction remains rare, particularly long after pancreatic surgery. **Case Presentation:** An 87-year-old man with a history of pancreaticoduodenectomy for ampullary carcinoma and subsequent metallic biliary stent placement for benign biliary stricture presented with acute mechanical small bowel obstruction. Computed tomography revealed a tubular hyperdense intraluminal foreign body in the distal ileum with upstream bowel dilatation. Surgical exploration identified a calcified enterolith containing a migrated metallic biliary stent. Enterotomy and extraction were successfully performed. **Conclusion :** Late distal migration of biliary stents should be considered in the differential diagnosis of bowel obstruction in patients with previous biliary interventions, even many years after stent placement. Prompt surgical management ensures favorable outcomes.

Keywords : Case report, Biliary stent migration, Enterolith, Pancreatoduodenectomy, Intestinal obstruction.

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INTRODUCTION

Biliary stenting is widely used in the management of malignant and benign biliary obstruction. Although generally safe, stent-related complications may occur, including occlusion, cholangitis, and migration.

Distal migration of biliary stents is relatively uncommon and is usually asymptomatic. However, in rare cases, migrated stents may act as a nidus for enterolith formation and lead to intestinal obstruction. We report a rare case of late small bowel obstruction caused by migration of a metallic biliary stent ten years after pancreaticoduodenectomy.

CASE PRESENTATION

An 87-year-old male patient with a medical history of diabetes mellitus, arterial hypertension, and ischemic heart disease was admitted to the emergency department with signs of acute intestinal obstruction.

His surgical history was significant for a pancreaticoduodenectomy performed ten years earlier

for ampullary carcinoma. The postoperative course had been complicated by obstructive jaundice secondary to benign biliary stricture, for which a metallic biliary stent was inserted.

The patient presented with a two-day history of abdominal pain, profuse vomiting, and cessation of flatus and bowel movements.

On physical examination, he was conscious and hemodynamically stable. Abdominal examination revealed marked distension with diffuse tenderness, without guarding or rigidity. Bowel sounds were absent. A reducible, non-strangulated abdominal hernia was noted.

Computed tomography of the abdomen and pelvis demonstrated marked dilation of the stomach, jejunal loops, and proximal ileum upstream of a well-defined tubular intraluminal structure measuring approximately 7 cm in length and 4.7 cm in diameter. The lesion was spontaneously hyperdense with a central lumen, located in a median pelvic ileal loop, consistent with a foreign body causing mechanical obstruction.

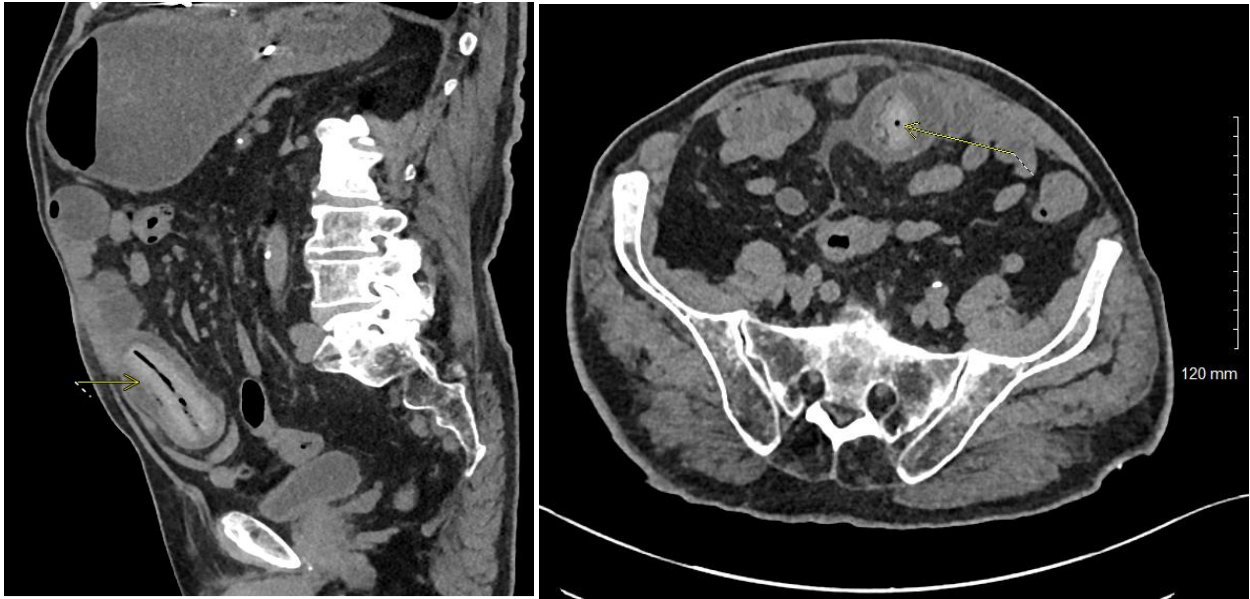


Figure 1 : Coronal and sagittal CT images showing a hyperdense intraluminal foreign body with a central lumen, responsible for upstream small bowel dilatation

Given the diagnosis of acute mechanical small bowel obstruction, surgical intervention was indicated. A midline laparotomy was performed. After extensive adhesiolysis, a firm intraluminal mass was palpated within an ileal loop, with significant proximal bowel distension.

Exploration through a midline laparotomy was technically challenging due to extensive intra-abdominal adhesions, requiring meticulous and laborious

adhesiolysis, a common finding in patients with multiple previous abdominal surgeries.

Intraoperative findings:

A distal ileal loop was the site of a mobile but completely obstructing stone-like impaction, located approximately 80 cm from the jejunoleal junction. The remaining small bowel appeared viable, with no signs of irreversible ischemic injury so no bowel resection was required.



Figure 2 : Intraoperative view of an ileal loop obstructed by an intraluminal foreign body causing proximal bowel distension

Surgical procedure:

A 5-cm longitudinal enterotomy was performed on the antimesenteric border in a macroscopically healthy segment. Extraction revealed a cylindrical mass of lithiasic consistency, extremely hard in nature.

Specimen analysis:

Sectioning of the enterolith demonstrated a metallic biliary stent at its core, acting as a crystallization nucleus (nidus).



Figure 3 : Sectioned enterolith revealing a metallic biliary stent at its center

Closure:

To compensate for tissue loss and prevent iatrogenic stricture formation, the enterotomy was closed transversely using a Heineke–Mikulicz technique with a continuous extramucosal suture of 3-0 absorbable material.

Postoperative recovery was uneventful. The patient resumed bowel function on postoperative day one, tolerated early oral feeding, and was discharged on postoperative day three. The total hospital stay was four days.

DISCUSSION

Migration of biliary stents is a known complication, with reported rates ranging from 5% to 10%, depending on stent type and indication. Distal migration is more common than proximal migration and is usually clinically silent, with spontaneous passage through the gastrointestinal tract in most cases. However, severe complications such as bowel perforation, bleeding, fistula formation, or intestinal obstruction have been rarely reported.

Small bowel obstruction secondary to migrated biliary stents is exceptional and typically involves the distal ileum, where luminal diameter is narrower and peristalsis is reduced. In some cases, the stent may act as a foreign body and serve as a nidus for enterolith formation, as observed in our patient. Chronic stasis, altered intestinal anatomy following pancreaticoduodenectomy, advanced age, and impaired motility likely contributed to the delayed presentation occurring ten years after stent placement.

Mechanism of Stent Migration

In normal anatomy, the sphincter of Oddi acts as a physiological barrier preventing unintended proximal or distal migration of biliary stents. Following pancreaticoduodenectomy, the biliodigestive anastomosis is widely patent, eliminating this natural

protective mechanism. Peristaltic activity of the afferent jejunal limb may therefore facilitate distal displacement of the stent into the small bowel.

Although uncovered or partially covered metallic stents are designed to promote tissue ingrowth and anchorage, the exceptionally long interval of ten years in this case suggests a progressive loss of adhesion, possibly related to chronic pressure necrosis or gradual tissue remodeling, ultimately allowing release of the device into the intestinal lumen.

Enterolith Formation

This aspect represents a key strength of the present report. A foreign body retained for a prolonged period within the intestinal lumen promotes local stasis and chronic mucosal inflammation. This environment, often characterized by alkaline pH, favors precipitation of calcium salts and biliary pigments.

In our patient, the migrated biliary stent acted as a structural scaffold for slow mineral accretion, progressively increasing in diameter until reaching a critical size (>4 cm), at which point spontaneous passage through the ileocecal valve became impossible, resulting in complete mechanical small bowel obstruction.

Computed tomography is the imaging modality of choice, allowing precise localization of the obstructing lesion and identification of a hyperdense tubular intraluminal structure associated with upstream bowel dilatation. Differential diagnoses include gallstone ileus, bezoars, and other ingested foreign bodies.

Management strategies depend on the clinical presentation and location of the migrated stent. Endoscopic retrieval may be feasible in proximal gastrointestinal locations. However, surgical intervention remains the treatment of choice in cases of distal migration complicated by complete mechanical obstruction, failed endoscopic management, or

associated complications. Enterotomy with extraction is usually sufficient, and bowel resection is rarely required unless ischemia or perforation is present.

This case emphasizes the importance of long-term follow-up in patients with biliary stents and highlights the need for heightened awareness of rare but potentially serious late complications.

CONCLUSION

Although uncommon, late distal migration of biliary stents may lead to serious intestinal complications such as small bowel obstruction. This case reminds surgeons that small bowel obstruction occurring years after pancreaticoduodenectomy should not only raise suspicion for adhesive disease or tumor recurrence, but also prompt consideration of migrated endoprosthetic material as a potential cause. Early diagnosis and appropriate surgical management are essential to achieve favorable outcomes.

Declarations

Conflict of Interest: The authors declare no conflict of interest.

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Ethical Approval: Not applicable.

Informed Consent : Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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