Minimally Invasive Extraction of Migrated Biliary Stent: *A Case Report*

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Introduction

- Endoscopic biliary stent placement is a widely utilized approach to relieve biliary strictures caused by benign and malignant biliary tree pathologies.
- Adverse events reported with ERCP-guided biliary stent placement are well-described with the most common complications being:
  - Occlusion (11.0%)[1]
  - Bile Leak (2.2%)[1]
  - Cholangitis (1.0%)[1]
- Sporadic cases of endo-biliary stent displacement have been reported, with some studies showing displacement and migration rates of up to 8.5%[2].
- Here, we present a case of an 90-year old female presenting with signs and symptoms of partial small bowel obstruction secondary to biliary stent migration.

Case Presentation

- A 90-year-old female with a history of pulmonary fibrosis and atrial fibrillation, cholangitis, and periampullary duodenal adenoma with existing metal common bile duct stent (exchanged 3 months prior to presentation).
- She presented to the emergency department with abdominal pain. Computed Tomography (CT) scan revealed evidence of partial bowel obstruction secondary to migrated biliary stent lodged in mid small bowel (Fig 1)
- Surgery and GI teams were consulted and agreed on a trial of non-operative management with serial abdominal x-rays. She had no progression of the stent location after 4 days (Fig 2)
- Patient underwent laparoscopic-assisted stent removal
  - Intraoperative fluoroscopy utilized to confirm location of stent (Fig 3)
  - Loop of small bowel exteriorized and was noted to be a site of prior anastomosis
  - An enterotomy made to extract stent (Fig 4, 5) and then closed in two-layers, bowel returned to abdomen
- Postoperative course complicated by postoperative ileus
- New metal biliary stent will be placed as an outpatient with GI

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Figure 1. Admission CT scan with metal stent in left lower quadrant

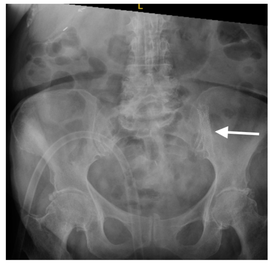


Figure 2. Abdominal X-ray with stent seen in left lower quadrant

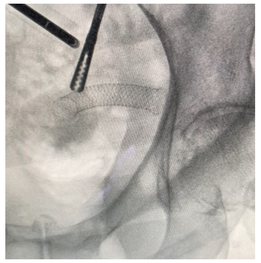


Figure 3. Intraoperative fluoroscopy used to identify stent location



Figure 4. Intraoperative small bowel enterotomy made at location of stent



Figure 5. Intraoperative stent extraction

Discussion

- Benign biliary strictures and duration of stent retention < 3 months has been independently associated with distal migration[3]
- Stents equipped with flaps to mitigate migration[4]
- No established protocol for management of migratory biliary stents to avoid perforation[5]
- 30% overall mortality rate with stent migration-induced intestinal perforation[6]
- Clinical judgement regarding patient factors, comorbidities, and prognosis should be considered when deciding between conservative vs. operative management

Conclusion

- We presented a minimally invasive approach to remove intraluminal foreign body causing bowel obstruction
- Dislodged biliary stents may pass spontaneously, however our patient had prior small bowel anastomosis preventing stent passage
- Fluoroscopic-laparoscopic localization and enterotomy for retrieval of migrated biliary stents is a novel approach
- Our patient had successful stent removal while avoiding a bowel resection or open surgical procedure

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