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Case Report

Duodenal obstruction following laparoscopic high anterior resection secondary to a peripancreatic fluid collection

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ABSTRACT

We report a rare case of an 82-year-old female who developed acute duodenal obstruction 11 days following an elective laparoscopic high anterior resection for rectosigmoid cancer. Computed tomography scan of the abdomen and pelvis identified a large peripancreatic fluid collection causing compression at the junction of the third and fourth parts of the duodenum. The patient was successfully treated with endoscopic ultrasound-guided fine-needle aspiration of the collection with complete resolution of her obstructive symptoms. Analysis of the aspirate revealed normal amylase and lipase levels. It is hypothesised that the source is most likely pancreatic in nature despite the normal amylase and lipase levels, which can be seen in chronic pancreatitis, as there appeared to be evidence of previous peripancreatic inflammation intra-operatively within the lesser sac during the mobilisation of the splenic flexure. This case serves as an important reminder of the extra care required when mobilising the splenic flexure, particular in the presence of previous peripancreatic inflammation, and highlights the successful management of the obstruction with a minimally invasive transgastric approach to aspirate the collection.

Keywords: Peripancreatic collection, Anterior resection, Colorectal surgery

INTRODUCTION

Postoperative small bowel obstruction is a known potential complication following colorectal surgery. In this setting it is more commonly caused by adhesions or internal hernias. Obstruction of the duodenum following colorectal surgery secondary is a much rarer occurrence with no cases reported in the literature. Peripancreatic fluid collections developing after non-pancreatic abdominal surgery are also uncommon. The literature to date has not described a case of duodenal obstruction caused by a sterile, peripancreatic fluid collection following a laparoscopic anterior resection.[1] We present this unusual case to highlight a potential, albeit rare, complication and discuss its diagnostic and management challenges.

CASE REPORT

An 82-year-old female was diagnosed with rectosigmoid adenocarcinoma following a colonoscopy performed for per rectal bleeding. Her background is significant for stage 2 chronic kidney disease, hypertension, hypercholesterolaemia, impaired glucose tolerance, anxiety, and chronic pain from fibromyalgia. She lives alone at home independently and she does not smoke. Her staging computed tomography (CT) scans did not demonstrate any distant disease and given her level of functional independence and quality of life, she underwent an elective laparoscopic anterior resection. Intraoperatively, during the mobilization of the splenic flexure and upon entering the lesser sac, there appeared to be inflammatory adhesions around the pancreatic tail. This necessitated careful dissection, and no obvious pancreatic injury was identified during the operation. She had an uncomplicated recovery following a planned admission to the intensive care unit and had regained bowel function and tolerated a full diet by post-operative day 6. She was discharged home on the eighth postoperative day. The final histopathology demonstrated a high-grade adenocarcinoma of the

rectosigmoid, 43 mm in size, with clear margins and no nodal involvement (pT3pN0R0, stage IIA).

Three days following her discharge home (post-operative day 11), she re-presented to the emergency department with nausea, vomiting, left sided abdominal pain and inability to tolerate oral intake including fluids. At this point, she was still passing flatus and opening her bowels. Her observations were all within normal limits with no fevers, her abdominal examination revealed a mildly distended abdomen without features of peritonism. Her surgical wounds were healing well without signs of infection.

Investigations

Biochemically, her renal function was intact with no significant electrolyte disturbance. Her full blood count demonstrated a normal haemoglobin level but mild leucocytosis with left shift. Her liver function tests and lipase were normal. A CT scan of the abdomen and pelvis was performed, which demonstrated a large 6×5×7 cm fluid-filled cystic structure adjacent to the inferior border of the pancreatic body and tail (Figure 1). This peripancreatic fluid collection was causing intrinsic compression at the junction of the third and fourth parts of the duodenum resulting in a mechanical duodenal obstruction (Figure 1).

Differential diagnoses

The primary differential diagnosis was that of an acute duodenal obstruction secondary to a peripancreatic fluid collection. This collection is likely related to a pancreatic leak resulting from an iatrogenic injury during her laparoscopic anterior resection. Other differential diagnoses included post-operative pancreatitis and an associated acute peripancreatic fluid collection, pseudocyst from previous episodes of pancreatitis, haematoma formation or non-pancreatic post-surgical inflammatory fluid collection. Her staging CT scans did demonstrate an atrophic pancreas which can be seen in chronic pancreatitis, however there were no pre-existing pseudocyst formation making it less likely. Her normal lipase and haemoglobin and otherwise clinical stability on re-admission made acute pancreatitis or haematoma formation also less likely.

Treatment

The patient was initially managed conservatively with nasogastric tube insertion for gastric decompression, indwelling catheter insertion and intravenous fluid resuscitation.

The interventional radiology and upper gastrointestinal surgery team were consulted for advice regarding the best route and method of drainage of the collection. Given the acute nature of the presentation and fluid collection, the decision was made to perform an endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) rather than creating a formal cystgastrostomy or drain percutaneously, to avoid the risk of an uncontained pancreatic leak. She was commenced on totally parenteral nutrition whilst awaiting her drainage.

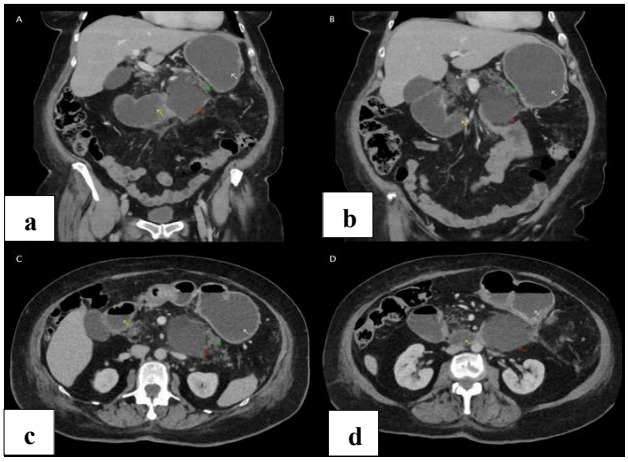

Figure 1: CT abdomen pelvis post-operative day 11, (a) coronal slice demonstrating the peripancreatic collection (red arrow) in relation to the third part of the duodenum (yellow arrow), distended stomach (white arrow), pancreatic tail (green arrow), (b) coronal slice demonstrating compression on the duodenum at the duodenojejunal flexure by the peripancreatic collection (red arrow), and (c and d) axial slices demonstrating the peripancreatic collection (red arrow) in relation to other structures – duodenum (yellow arrow), stomach (white arrow), pancreas (green arrow).

The EUS revealed a well-circumscribed, unilocular fluid collection measuring over 6 cm in diameter, located approximately 1.6 cm from the gastric wall. Using a 19-gauge needle under EUS and Doppler guidance, the collection was almost completely drained in a single pass. Approximately 140 ml of straw-coloured fluid was aspirated. Fluid analysis showed normal levels of lipase and amylase. Microbiological culture grew scant amounts of *Klebsiella oxytoca*, which was considered a potential contaminant as the specimen was collected endoscopically and therefore was not treated with antibiotics.

DISCUSSION

This case presents a rare complication of duodenal obstruction following laparoscopic anterior resection secondary to a large peripancreatic collection. This is most likely from a pancreatic source from iatrogenic injury during the anterior resection. It could also be a consequence of a significant post-surgical inflammatory response. Post operative peripancreatic fluid collections are more commonly associated with pancreaticoduodenal surgery, but it has been described in a retrospective study on pancreatic injuries following laparoscopic splenic flexure mobilization that one of the patients developed a

peripancreatic fluid collection that was managed conservatively.[1]

Typically, a fluid collection originating from a pancreatic source is expected to have very high levels of amylase and lipase, often many times higher than the levels found in the blood. This is because the fluid originates from a leak in the pancreatic ductal system, releasing enzyme-rich pancreatic juice into the surrounding tissues. However, in the setting of long-standing chronic pancreatitis, this may not be the case, although less common, an acute peripancreatic fluid collection may have low amylase and lipase levels due to extensive parenchymal destruction.[2]

Regardless of the exact aetiology, given the location and hypothesized pancreatic origin of the fluid collection, the principles of management in this case followed those seen in guidelines for the management of peripancreatic fluid collections following pancreatitis.[3] Management is often guided by whether the patient is symptomatic. Most commonly, symptomatic patients undergo percutaneous drainage or endoscopic drainage whereas asymptomatic patients may be observed, with consideration of serial imaging.[4] Endoscopic drainage is a relatively new method of drainage in comparison to surgical or percutaneous drainage but is becoming more commonplace and even the preferred method when feasible due to the improved outcomes.[5,6]

The management with EUS-FNA for this patient proved to be therapeutic, leading to relief of the patient's obstructive symptoms. The primary factor which led to endoscopic drainage over a radiologically guided percutaneous approach was the location of the collection and easier access transgastrically. In addition, given the acuity of the fluid collection (post-operative day 11), there was concerns for potentially creating an uncontained pancreatic leak which would have placed the patient at risk of significant morbidity.[7] Therefore, an aspiration was only performed endoscopically, rather than creating a formal endoscopic cystgastrostomy or place a drain percutaneously.

CONCLUSION

This case underscores the importance of careful mobilization of the left colon, particularly the splenic flexure, during laparoscopic anterior resections to avoid the potential complication of pancreatic injury. It also highlights that it is important to consider non-pancreatic aetiologies in the differential diagnosis of post-operative obstruction, even when the fluid collection is located peripancreatically. It demonstrates the utility and safety of EUS-FNA as a primary management strategy in rare cases such as this.

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