



A Rare Cause of Obstructive Jaundice: Afferent Limb Syndrome

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Introduction

- Afferent Limb Syndrome (ALS) is an uncommon and potentially life threatening complication after upper gastrointestinal tract surgery defined as an obstruction causing accumulation of bile, pancreatic fluid, and other proximal small bowel secretions with subsequent proximal distention of afferent limb [1-4]
- Occurs most commonly following a Billroth II reconstruction, but more rarely can present after other upper gastrointestinal reconstruction surgeries such as an esophagojejunostomy
- Causes of obstruction:
 - Bowel kinking
 - Anastomotic narrowing
 - Anastomotic ulceration
 - Adhesional disease
 - Malignancy
- The following is an uncommon presentation of a patient with history of gastroadenocarcinoma with esophagojejunostomy surgery presenting with symptoms concerning for obstructive jaundice who was found to have ALS

Case Presentation

- An 84 year old female with a past medical history pertinent for gastric adenocarcinoma with total gastrectomy with esophagojejunostomy and chemotherapy one year prior presents with subacute epigastric and right upper abdominal pain with associated early satiety, globus sensation, recent 20 pound weight loss, and new onset jaundice.
 - The right upper quadrant pain was intermittent for one month, sharp and throbbing in nature, post-prandial, and 5 out of 10 on the pain scale
 - She endorsed early satiety after small quantities of food with no associated regurgitation, but did report intermittent gagging. No fever, chills, cough, constipation, rectal bleeding, pruritis, shortness of breath or chest pain was reported.
- Past Medical History:** gastric adenocarcinoma now post-resection and adjuvant chemotherapy currently on active surveillance, recent Varicella Zoster Virus infection, Gastroesophageal Reflux Disease, Ductal Carcinoma in situ
- Past Surgical History:** left breast lumpectomy, open total gastrectomy with esophagojejunostomy with jejunostomy tube placement with subsequent removal
- Physical examination:
 - General: No acute distress, appears comfortable
 - HEENT: normocephalic, scleral icterus
 - CV: normal S1/S2, regular rate and rhythm
 - Pulm: No increased work of breathing or accessory muscle use
 - Abdominal: soft, mild tenderness to palpation of the right upper quadrant and epigastric abdominal region, normoactive bowel sounds
 - Skin: warm, dry, jaundice, no visible rash, abdominal surgical scars well healed
 - Neurological: alert and oriented to time, place and self, non-focal exam, no asterixis

Hospital Course

- Initial laboratory investigations demonstrated abnormal liver chemistries compared to prior laboratory findings which was concerning for biliary obstruction (Table 1)
- Right upper quadrant abdominal ultrasound showed dilation of the biliary tree without an obvious source of obstruction
- CT scan of the abdomen and pelvis with IV contrast identified a dilated duodenum and a proximal jejunum with an abrupt transition point most suggestive of ALS. There was also significant intrahepatic and extrahepatic bile ducts dilation and distention of the gallbladder (Figure 1)
- Surgery was consulted for an open laparotomy, which showed several tumor implants including a large tumor at the site of the previous jejunostomy causing mechanical obstruction of the biliopancreatic limb. There were also extensive adhesions throughout the abdominal cavity
- A palliative bypass with duodenojejunostomy with open cholecystectomy and jejunostomy tube was performed
- The patient experienced an intestinal obstruction postoperatively which was managed conservatively and then resolved
- Due to the disease burden and ongoing discomfort, the patient and family opted for hospice care
- The patient died shortly at home surrounded by loved ones

Discussion

- ALS is a mechanical obstruction after upper GI tract surgery. Patients will often develop and present with symptoms of sepsis, jaundice, and elevated liver chemistries
- Radiographic diagnosis can be made when the CT scan of the abdomen shows characteristic findings of a fluid filled, dilated, U-shaped, transversely oriented cystic mass located in the middle of the abdomen
- Surgical intervention is the preferred treatment for ALS with revision of the prior anastomosis. Alternative interventions include palliative bowel decompression with venting enterostomy or endoscopic techniques such as enteral stent placement, endoscopic balloon dilation or endoscopic enteroenterostomy

Results

	03/2021 (Current)	10/2020	Normal Range
Sodium (mmol/L)	141	142	136-145
Albumin (g/dL)	3.5	4.3	3.8-5.3
Creatinine (mg/dL)	0.45	0.58	0.60-1.20
AST (U/L)	161*	32*	8-20
ALT (U/L)	245*	18	8-20
ALP (U/L)	1279*	120	20-70
Bilirubin Direct (mg/dL)	2.1*	0.0	0.0-0.3
Bilirubin Total (mg/dL)	3.3*	0.7	0.1-1.0
Lipase (U/L)	363*	n/a	16-63
INR	1.2	n/a	0.8-1.2
Hemoglobin (g/dL)	12.9*	12.8*	14-18
White Blood Count (10 ³ /uL)	10.39	4.56	4.50-11.00
Platelet Count (10 ³ /uL)	291	231	150-400
Abdominal Ultrasound	The common bile duct is markedly distended, 1.3cm caliber. There is at least, diffuse, intrahepatic bile duct dilation. No shadowing gallstone. The gallbladder lumen is distended. Sludge layers dependently in the lumen of the gallbladder		

Table 1: Laboratory Test Results
 Initial laboratory results at current presentation (03/2021) are compared with results from last known baseline (10/2020)



Figure 1: CT Scan of the Abdomen and Pelvis with IV Contrast
 Marked intrahepatic and extrahepatic bile ducts dilation, distended gallbladder, and marked dilated duodenum with abrupt transition point in the proximal jejunum suspicious for a closed-loop obstruction

Conclusion

- ALS should be considered in the differential diagnosis in patients with new onset jaundice and prior history of upper gastrointestinal reconstruction surgery
- Laboratory testing usually demonstrates elevated liver chemistries
- CT Scan is the preferred method to diagnosis ALS with the characteristic finding of a dilated U-shaped cystic mass in the middle of the abdomen
- Treatment typically requires surgery to relieve the obstruction and revision of the prior anastomosis

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