

A patient with abdominal pain and obstructive jaundice

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QUESTION

A 77-year-old female was referred to our clinic due to abdominal pain, icterus, and suspicion of ileus. She had undergone gastric surgery twenty years ago and had a history of hypertension. Her physical examination revealed mild tachycardia, hypotension, icteric skin, sclera, diffuse abdominal tenderness along with mechanic rumble in the upper abdomen, and normoactive bowel sounds in lower quadrants. There was no rigidity or rebound in her abdominal examination. She had no trouble defecating and experienced vomiting that contained no food. Laboratory studies showed increased bilirubin levels (total bil: 16 mg/dL, direct bil: 12 mg/dL), a high C-reactive protein (150 mg/dL) level and white blood cell count (15000 μ L), increased alkaline phosphatase and gamma-glutamyltransferase levels (456 U/L and 380 U/L, respectively), and mildly in-

creased transaminase levels. Electrolyte imbalance was not observed. Air-fluid levels could not be observed in the upright plain radiography, but intense gas was present, thereby rendering the ultrasound unremarkable. Oral intake was stopped; a nasogastric catheter was inserted, but no drainage was observed. The patient was hydrated with intravenous fluids and given appropriate antibiotics. Computed tomography scan showed an enlarged intestinal loop and a mass lesion-occupied proximal site of that loop (Figure 1). Besides this, the oral radiocontrast agent could be seen through the rectum, and prominent dilated left intrahepatic bile ducts were observed. Magnetic resonance cholangiopancreatography revealed an enlarged image of both intra- (especially left) and extrahepatic bile ducts and a very close relationship between the extrahepatic bile ducts and the dilated loop (Figure 2).

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Figure 1. a, b. Coronal (a) and axial (b) views of the proximally obstructed loop by a mass lesion (arrow)

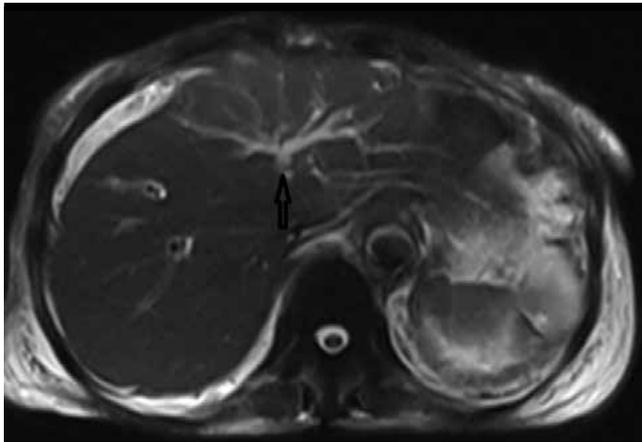


Figure 2. The dilated left intrahepatic bile duct is shown by an arrow

ANSWER

Afferent Loop Syndrome

On the basis of the computed tomography (CT) images that show a proximally obstructed loop, which has communication with the extrahepatic bile ducts and no passage problem with respect to the contrast agent from the stomach to the rectum, the clinical conditions, and patient history, we suspected afferent loop syndrome (ALS). Gastroscopy was performed. Anastomosis was observed between the remnant stomach and loops. The efferent loop was intact but the afferent loop was occupied by a malignant lesion originating from the anastomosis (Figure 3). A diagnosis of ALS was made. The malignant lesion occupied a segment that was 4-5 cm in length. After this segment was forcefully passed using the endoscope, we were able to reach the end of the afferent loop that communicated with the bile ducts (hepaticojejunostomy tract). There was a purulent flow from the bile ducts into the loop and abundant fluid, which consisted of the intestinal secretion and purulent material, in the obstructed loop (Figure 4). When endoscopic decompression was successfully accomplished, not only the patient's abdominal pain was relieved immediately but also a decrease in the bilirubin levels and inflammatory marker was detected within 24 hours. After the clinical and laboratory recovery with a few endoscopic decompression sessions, the patient was referred for general surgery.

ALS is a mechanical complication that occurs following the construction of a Billroth II-type gastrojejunostomy anastomosis. A segment of small intestine is left between stomach and jejunum after anastomosis. This loop conducts the bile, pancreatic fluid, and intestinal secretion to the anastomosis and hence is termed as an afferent loop. Increased intraluminal pressure and distension due to accumulated enteric secretions are the main reasons underlying the development of ALS. Effect of the increased



Figure 3. A malignant lesion obstructing the conjunction between the anastomosis and afferent loop

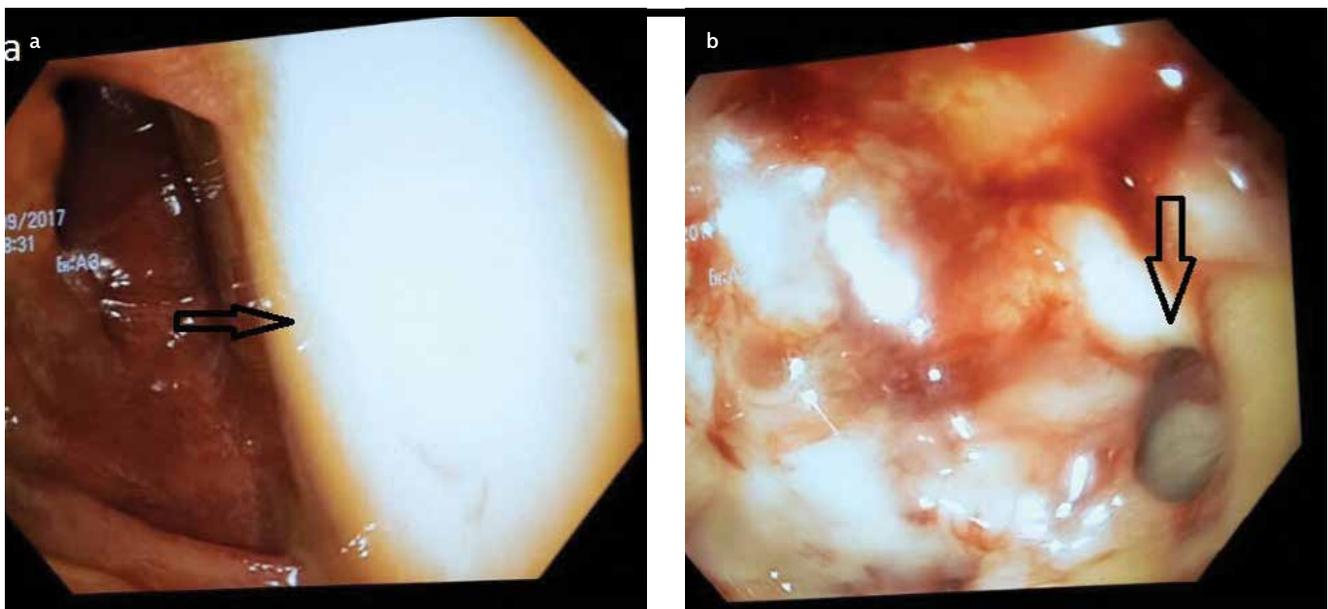


Figure 4. a, b. Afferent loop full of purulent material (a); purulent flow from the bile duct belonging to the hepaticojejunostomy tract (b)

luminal pressure in the biliopancreatic system can lead to dilatation of bile ducts, cholangitis, and acute pancreatitis. Also, increased pressure may cause ischemia and subsequent perforation of the intestinal wall (1). Patients may experience vomiting containing no food due to an unobstructed efferent loop, which maintains the food passage. Internal hernia, volvulus, foreign bodies, cancer, and scarring after ulceration of anastomosis are the various causes of ALS caused by obstructing the loop. For the diagnosis, CT has been advocated as a first choice radiologic method in a study (2). In case of obstructive jaundice along with ALS, magnetic resonance cholangiopancreatography can be helpful. Direct visualization of anastomosis and loops by gastroscopy offers diagnostic yield to the physician (3).

Informed Consent: Informed consent was obtained from the patient who participated in this study.

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