Case report

MR cholangiopancreatography (MRCP) in the diagnosis of afferent loop syndrome presenting with obstructive jaundice

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Abstract

Magnetic resonance cholangiopancreatography (MRCP) is a noninvasive imaging technique that capitalizes on the ingenuity of magnetic resonance imaging (MRI) to visualize static fluid-filled structures without use of contrast agents. A case of afferent loop syndrome presenting with obstructive jaundice is presented, diagnosed using this imaging modality. The patient, who had undergone Billroth II partial gastrectomy for benign ulcer 15 years ago, was admitted for jaundice, nausea and vomiting.

MRCP showed dilatation of biliary and pancreatic ducts as well as a dilated afferent loop. No tumorous lesion was detected as the cause of the afferent loop obstruction. Intraoperatively, adhesive band near the anostomosis was seen. After adhesiolysis jaundice disappeared completely. This is the second case in the literature, describing the MRCP findings of obstructive jaundice secondary to a chronic afferent loop obstruction.

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1. Introduction

The afferent loop syndrome corresponds to an acute or chronic obstruction of the afferent loop following a partial gastrectomy with Billroth-II gastrojejunal anastomosis [1]. In acute afferent loop syndrome, patients may present 2 or 3 weeks postoperatively with a rapidly deteriorating clinical condition. Chronic afferent loop syndrome may present any time; even many years after initial surgical procedure, with postprandial fullness and vomiting, abdominal pain, and, rarely obstructive jaundice [1–3]. Only several cases of obstructive jaundice secondary to chronic afferent loop obstruction have so far been published [4–7]. We present the second case in the literature using magnetic resonance imaging (MRI) and Magnetic resonance cholangiopancreatography (MRCP) in the diagnosis of obstructive jaundice due to chronic afferent loop obstruction.

2. Case report

A 67-year-old women, who had undergone Billroth II partial gastrectomy 15 years ago for a benign ulcer, was admitted with a 2-week history of jaundice. Four weeks prior to admission, she noted the onset of pruritis, nausea and vomiting.

On physical examination skin was icteric. There was an upper abdominal scar from previous surgery. Physical examination results were otherwise unremarkable. Laboratory tests included elevated alkaline phosphatase: 420 U/l (normal, 40–100 U/l), bilirubin:11 mg/dl (normal, 2 mg/dl), and amylase:270 U/l (normal, 30–110 U/l). MRCP was performed by using oblique fat saturated heavily T2 weighted (TR 8000, TE 1200, duration:8 s, FOV:250 mm) breath hold images covering biliary tree and pancreatic ducts. We also performed conventional MR studies including SPIR TSE T2 axial and Proton Density TSE coronal images. MRCP images showed dilatation of the intrahepatic, extrahepatic bile ducts and pancreatic duct. Gallbladder was large. Images of the adjacent structures clearly demonstrated a dilated, fluid-filled afferent loop and cutoff at the site of gastrojejunostomy anastomosis (Fig. 1a and b). Dilatation of the afferent loop, common bile duct...
and pancreatic duct were also shown on SPIR TSE T2 weighted axial and proton density weighted coronal images (Figs. 2 and 3). No tumorous lesion was detected as the cause of the afferent loop obstruction.

Intraoperatively adhesive band near the anostomosis was seen. After adhesiolysis jaundice and the other symptoms of the patient disappeared completely.

3. Discussion

Afferent loop syndrome is an uncommon complication following a Billroth-II procedure. The syndrome may present in an acute or chronic manner. Chronic afferent loop syndrome may present any time; even many years after initial surgical procedure [1]. Secondary to kinking, adhesions, strictures, anastomic ulcer, and neoplasm involving the afferent bowel, obstruction to the flow of pancreatic and biliary secretions can occur and result in the so-called afferent loop syndrome [1,4,8]. The back pressure from the dilated afferent loop can cause biliary dilatation, gallbladder dilatation and acute pancreatitis. Symptoms and clinical findings of chronic afferent loop syndrome include abdominal pain, bilious vomiting, postprandial fullness and, rarely, obstructive jaundice [9].
First instance of obstructive jaundice secondary to afferent loop obstruction was described by Rajkumar [3]. On that case, diagnosis was established by exploratory laparotomy and intraoperative T-tube cholangiography. So far, several cases of afferent loop syndrome presenting with obstructive jaundice have been reported, which were diagnosed using radiographic barium examinations, ultrasound (US), computed tomography (CT) and operation [4–7]. The first case of MRCP and MRI findings of obstructive jaundice secondary to a chronic afferent loop obstruction has recently been published [8]. Our presentation is remarkable for being the second such case in the literature.

MRCP produces projectional and cross-sectional images, unlike US and CT, which are only cross-sectional studies. MRCP is a valuable method in visualizing pancreaticobiliary anatomy and abnormalities. In our case, both MRCP and MRI proved to be useful in demonstrating the abnormalities of the biliary and pancreatic duct as well as showing the dilated afferent loop.

MRCP is highly sensitive and specific for biliary and pancreatic duct pathology. This imaging study also demonstrated the dilated afferent limb of jejunum in our case. Our case justifies the use of MRCP and conventional MR in patients with suspected postsurgical complications, like those involving not only pancreatic and biliary structures but also surrounding bowel loops.

References