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Case Report **Gastroenterology**

A Rare Cause of Afferent Loop Syndrome: A Case Report

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Abstract

We report a case of a 25-year-old female, with a history of gastrojejunal anastomosis 6 years ago for pyloric stenosis due to intentional corrosive ingestion, who was admitted for jaundice related to the common bile duct stones diagnosed at MRI. The patient had undergone Endoscopic retrograde cholangiopancreatography (ERCP) and upper endoscopy that allowed the diagnosis of afferent loop syndrome related to pyloric stenosis and duodenal stenosis. The afferent loop syndrome was related to hyper pressure in this afferent loop and was managed surgically by performing a jejuno-duodenal anastomosis.

Keywords: Afferent loop syndrome, corrosive ingestion.

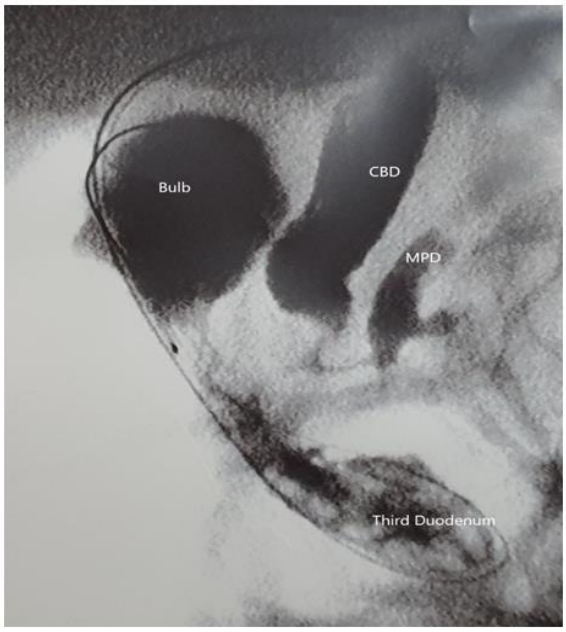
BACKGROUND

The afferent loop syndrome described for the first time in 1881 [1], corresponds to acute or chronic obstruction of the digestive afferent loop after a partial gastrectomy combined with a Billroth II type gastrojejunal anastomosis [1-11]. This obstruction can be linked to an internal hernia, angulation of the anastomosis, tumoral or non-tumor anastomotic stenosis, adhesions, or digestive motility disorders [1]. Computed tomography is the gold standard for the imaging management of this syndrome [1,3], the clinical expression of which can be misleading. We reported the observation of an afferent loop syndrome revealed by obstructive jaundice and diagnosed by endoscopic retrograde cholangiopancreatography (ERCP).

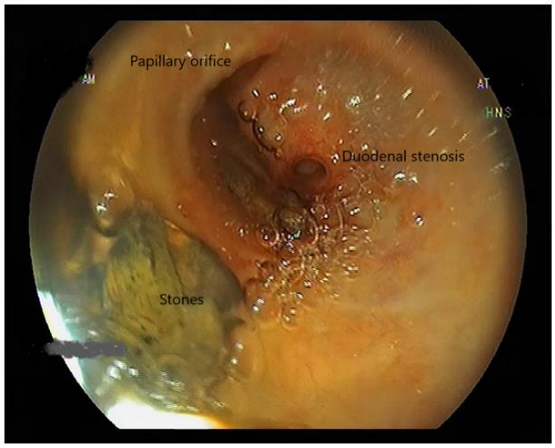
CASE PRESENTATION

A 25-year-old female was admitted for the management of cholestatic jaundice that appeared 2 months ago associated with pain at the right quadrant. In his history, we note intentional corrosive ingestion with necrosis of the 1st jejunal loop and pyloric stenosis for which she had benefited from jejunal resection a gastro-jejunal anastomosis. Clinical examination revealed conjunctival and cutaneous jaundice. The biochemical tests showed hepatic cholestasis: Total bilirubin: 14,7 mg/dL, Gamma-glutamyl transferase: 193 UI/L , alkaline phosphatase: 1333 UI/L. Abdominal ultrasound showed dilation of the common bile duct (CBD) at 12mm with stones. The Cholangiopancreato-Magnetic resonance imaging (CP-MRI) confirmed the dilation of the CBD and the presence of stones (Figure 1). An ERCP was scheduled. Upper endoscopy revealed pyloric stenosis and afferent loop stenosis at 15 cm from the gastrojejunal orifice which was successfully dilated but we encountered another complete stenosis on the afferent loop related to a complete mucosal epithelization. The papilla was not found either in axial or lateral endoscopy. A guidewire was placed through the pyloric stenosis with opacification via a catheter showed a dilated bulb and D2 with spontaneous opacification of the CBD and main pancreatic duct (MPD), and a narrowed D3 (Figure 2). Dilation of pyloric stenosis was performed with the debacle of bile and stones. Endoscopy through the pyloric stenosis showed no shape of the papilla with stones coming to and fro the CBD via the papilla orifice and a complete mucosal epithelization of D3 (Figure 3). The post-endoscopy suites were marked by the occurrence of cholangitis, which progressed well under antibiotic therapy. The patient was subsequently referred for surgical management of her duodenal stenosis and underwent a jejunoduodenal anastomosis.

Figure 1: Cholangiopancreato-Magnetic resonance imaging image showed afferent loop syndrome



Figue 2: Fluoroscopic image showed afferent loop syndrome with spontaneous opacification of the CBD and main pancreatic duct (MPD)



Figue 3: Endoscopic image showed papillary orifice and duodenal stenosis

DISCUSSION

Afferent loop syndrome after gastric surgery was first reported by Wolfer in 1881 [2, 10, 12]. With modern surgical techniques, the prevalence has been reduced to 0.3% of cases, almost always when the afferent loop has been anastomosed to the greater curvature of the stomach after a Billroth II gastrectomy [2, 12]. The afferent loop can obstruct mechanically, or rarely functionally, thus creating the afferent loop syndrome. This complication can occur in the early postoperative follow-up, following edema of the anastomotic zone, a hematoma at the origin of the efferent loop, a retrograde intussusception or a kink, especially if the afferent loop is too long, it can also occur late following a flange, an internal hernia, gastric stenosis, a neoplasm of the afferent loop near or at the level of the gastrojejunal anastomosis [3, 9, 12]. Rarely, it may be related to obstruction by an enterolith [4, 12, 13]. A recurrence of gastric cancer remains a rare cause [5, 12]. Functional obstruction can also occur unusually if the liquid from the afferent loop, after flowing into the stomach, returns there without filling the efferent loop of the gastrojejunostomy [6, 12]. Clinical diagnosis is considered difficult. Functional complaints are nonspecific and often misleading [2, 4]. In the event of partial stenosis, patients often accuse vague epigastric pain, postprandial heaviness, abdominal cramps, bilious vomiting. But in the event of total obstruction, intraluminal hypertension occurred with a probable venous obstruction and risk of digestive hemorrhage, perforation, and the reflux of the biliopancreatic secretions at the level of the biliary tree source of cholangitis and/or pancreatitis [12].

Jaundice remains an exceptional revelation of the afferent loop syndrome [4]. In our case, the afferent loop syndrome was revealed by jaundice related to hyper pressure in this afferent loop. In a series by Sung *et al*, including 672 cases of Billroth II partial gastrectomy, the afferent loop syndrome represented only 2% of the complications [9], none of them was revealed by jaundice, making this very rare clinical manifestation. Sporadic cases have been reported in the literature where the cause of jaundice was an afferent loop syndrome on tumor recurrence [1, 12]. Biochemically, increased serum pancreatic enzymes (serum amylase, serum lipase) or cholestasis with or without jaundice [12, 14] are possible and should suggest a malignant cause first. This can be explained by a dilation of the bile ducts secondary to the significant pressures of the dilated afferent loop [8, 12]. Imaging plays a decisive role in the management of this syndrome, due to the lack of specificity of certain clinical manifestations and the possibility of serious complications, such as digestive perforation [9, 12], cholangitis, or pancreatitis in case of late diagnosis [2]. Ultrasound and computed tomography (CT) can also highlight the mechanism responsible for the obstruction of the afferent loop as well as its possible impact on the biliopancreatic duct system. MRI shows the same

aspects as CT, with the advantage of coronal sections which allow easy recognition of the "U" aspect of the afferent loop; cholangiopancreatography-MRI can be used at the same time as the examination to assess the consequences on the biliary and pancreatic tracts [1]. Surgery is usually necessary to free the mechanical obstruction [3-10]. But endoscopic management of the obstructed afferent loop has also been reported by other authors [7, 9, 14, 15].

CONCLUSION

The afferent loop syndrome is a complication that rarely occurs after a gastrojejunal anastomosis. Diagnosis is usually made by imaging and treatment is usually surgical, but endoscopic treatment may be an effective method for both diagnosis and therapeutic of afferent loop syndrome.

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