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Case Report

General Surgery

**ABSTRACT:**

Endoscopic Retrograde Cholangiopancreatography (ERCP) is a widely used procedure for the treatment of biliary and pancreatic pathology, however, several complications can occur. Among these, duodenal perforation has an incidence of 0.08-1%, but its mortality can increase to 23% when severe sepsis occurs, requiring urgent surgical treatment.

KEY WORDS: Intestinal perforation, diagnosis, complications, mortality, surgery, operative procedures.

Introduction

Endoscopic Retrograde Cholangiopancreatography is a diagnostic and therapeutic method for the management of pancreatic and biliary pathology, which is considered a safe procedure. Complications may occur in 12% of cases, of these duodenal perforation (DP) represents 0.09-1.8%. Despite its low incidence, its high mortality requires early diagnosis and timely treatment [1].

DP leads to complications such as sepsis, multiorgan failure, and death in 23% of cases. Tomography (CT) is essential for diagnosis with a high specificity close to 90%, since it allows evidence of contrast extravasation and air leak into the retroperitoneal space [2,3].

There is controversy between conservative or surgical management of post-ERCP duodenal injuries, therefore, management must be individualized according to the type of injury, the time of evolution and the germs involved [4,5]. In the present work, a successful case of a patient with duodenal perforation after ERCP, with polymicrobial and fungal infection, is addressed.

Case report

A 57-year-old man, with no significant medical history, diagnosed with cholecystocholedocholithiasis. ERCP is performed with difficult cannulation, so a sphincterotomy is performed with a pre-cut technique. 24 hours after the procedure, the patient presents with abdominal pain, tachycardial, diaphoretic, and febrile. On physical examination, subcutaneous emphysema that compromises the abdominal, pectoral, and cervical areas right side. CT shows free air in the retroperitoneum, pneumomediastinum, and subcutaneous emphysema (Figure 1 A-B); Due to a

exploration of the abdominal cavity and retroperitoneal area. During the surgical act, drainage of the retroperitoneal hematoma was performed, no macroscopic perforation was observed at the duodenal level. Five days after favorable evolution and oral tolerance, a medical discharge was decided.

Twenty-four hours after discharge, the patient reported vomiting of abundant retention food content, which did not subside after administration of prokinetics and antiemetics. It was decided to carry out a control tomography where stenosis of the second duodenal portion and the presence of two collections, one at the level of the hepatic hilum and the other in the Morrison space (Figure 2 A-B), were observed. Broad-spectrum antibiotics were started empirically.

Multidisciplinary management is performed with the gastroenterology, internal medicine and infectology services; we performed upper gastrointestinal endoscopy, finding stenosis of the second duodenal portion with impossibility of passing the endoscope to the distal after insufflation; no intraluminal lesions are evident (Figure 3 A-B). A new laparotomy was performed plus retroperitoneal collection drainage plus gastrojejunal anastomosis, collection cultures were taken. The culture reports *Candida albicans*, intravenous antifungal treatment is started, completing 21 days. Later favorable evolution.

Discussion

DP represents 0.09-1.8% of ERCP complications and is associated with a high mortality rate of around 23% depending on the type, location and time of diagnosis of the injury [3]. Therefore, early diagnosis and timely treatment can prevent fatal complications [6]. Cabrera et al. reported a mortality of 23.08% in patients with multiple organ failure and

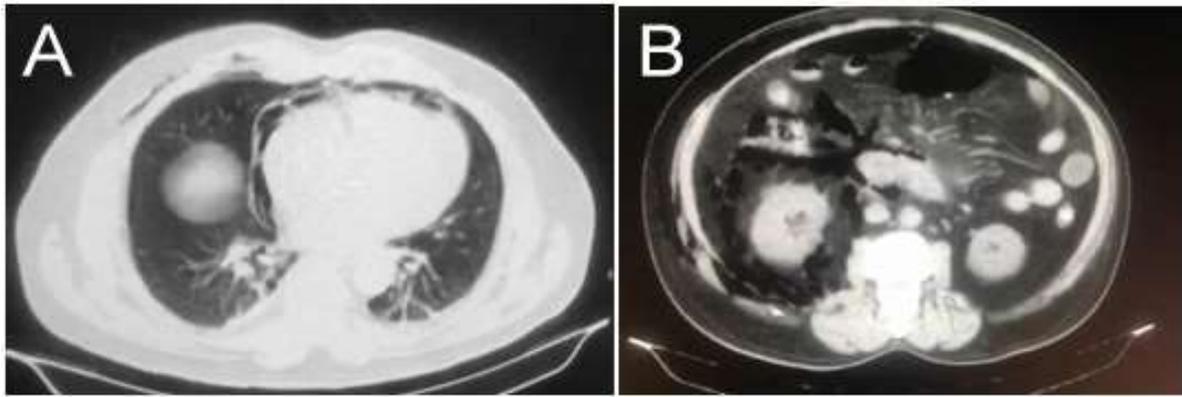


Figure 1. Chest tomography. Axial- subcutaneous emphysema and pneumomediastinum (A). Abdominal tomography. Axial-retroperitoneal free air (B).

sepsis [1]. Patil et al. found a higher mortality of 32% at 90 days, in patients with deferred surgery due to failure of conservative management and intra-abdominal sepsis [7].

There are several risk factors that predispose to DP depending on the patient and the technique used. Patil et al. reported that 30% of perforations occurred in patients with difficult cannulation, 20% by precut technique, and 8% with a history of incision at the level of the papilla [7].

The diagnosis of PD is based on clinical, paraclinical and radiological criteria. Abdominal pain is the first manifestation, among other signs such as tachycardia, fever, peritoneal irritation, subcutaneous emphysema accompanied by leukocytosis, metabolic acidosis [3,9,10]. Koc et al. proposes that patients with criteria for systemic inflammatory response syndrome (SIRS) or septic shock associated with abdominal pain are indicative of surgery, as well as the presence of peritonitis [11].

CT is a fundamental tool in the diagnosis of DP with a high specificity of 90%. The presence of free air in the retroperitoneum could be managed conservatively if the patient's hemodynamic status allows it; conversely, an intra-abdominal collection should be treated surgically, as there may be continuous leakage of bile or pancreatic juice through the perforation [1,11,12].

Several treatment algorithms have been proposed due to the variety of forms of presentation of DP. Stapfer et al. classifies duodenal injuries into four types taking into account the mechanism of injury and location, guiding treatment [8]. Kumbhari et al., propose that type I injuries should be managed surgically and in type II, III and IV injuries, conservative treatment can be chosen depending on the patient's hemodynamic status [12].

The prognosis of PE depends on the derived complications, among the most compromising are retroperitoneal collections and polymicrobial infections [13,14]. Yeasts are isolated in 28% of cases, with *Candida Albicans* being the most prevalent [13]. Early empirical antibiotic therapy plays a primary role in patients with intra-abdominal sepsis considering the local epidemiology and the prevalent germs of the gastrointestinal tract, in addition, some current guidelines recommend starting empirical antifungal therapy in these patients [2,13,14].

Conclusion

DP is a rare complication of ERCP that carries high mortality without early diagnosis and timely treatment. CT is a fundamental tool in patients with suspected

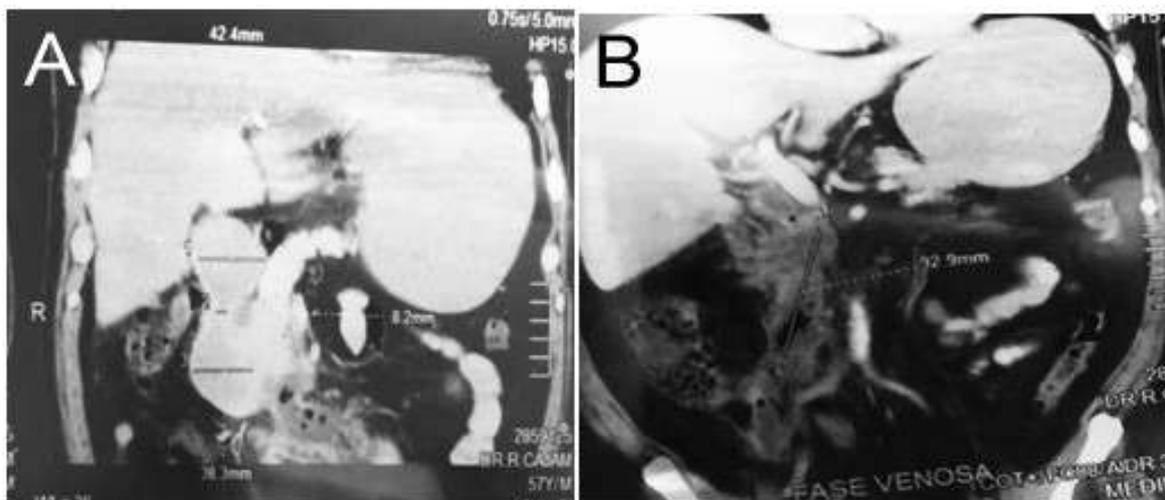


Figure 2. Abdominal tomography. Coronal-stenosis of the second portion of the duodenum (A). abdominal tomography. Coronal-collection at the level of the hepatic hilum.

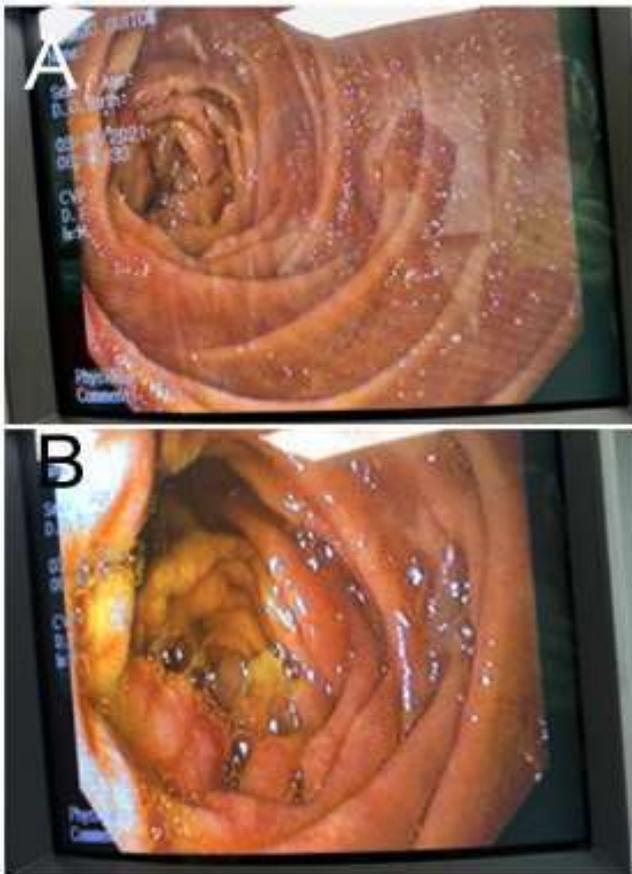


Figure 3. Upper gastrointestinal endoscopy-stenosis of the second duodenal portion without intraluminal lesions that do not allow distal passage (A-B).

duodenal perforation. The presence of retroperitoneal collections associated with a septic condition is indicative of urgent surgical resolution.

Conflicts of Interests

The authors declare no conflict of interest.

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