Case Report

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ERCP in a patient with Billroth II gastrectomy: a rare case report

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Introduction: Gangrenous cholecystitis is a serious complication of untreated gallbladder inflammation, necessitating immediate intervention. The primary resolution involves cholecystectomy, the surgical removal of the gallbladder. The Billroth II gastrectomy, named after Theodor Billroth, addresses gastric conditions by removing a portion of the stomach and reconnecting the remaining section to the small intestine. Endoscopic retrograde cholangiopancreatography (ERCP) is a minimally invasive procedure that diagnoses and treats bile duct and pancreatic duct disorders, using an endoscope to access the ducts, administer contrast dye, and perform interventions like stone removal and stent placement. It aids in managing conditions such as bile duct stones, strictures, pancreatic tumors, and pancreatitis.

Case report: A 25-year-old male with a history of gastric ulcer and Billroth II anastomosis presented with right hypochondrium pain, fever, and vomiting. Examination and imaging indicated gallbladder edema, abscess, and fluid collection. Laparotomy revealed severe adhesions around the gallbladder, which were released, and an abscess was drained. Postsurgery, a biliary fistula was suspected, leading to the proposal of an ERCP procedure. During ERCP, a plastic stent was inserted to aid bile drainage.

Discussion: Therapeutic ERCP effectively treats biliary exudate, including in patients with Billroth II gastrectomy. Using a side-viewing duodenoscope simplifies accessing Vater's papilla. This successful procedure had no complications, such as pancreatitis or bleeding, and the patient remained stable.

Conclusion: ERCP in patients with a prior Billroth II gastrectomy is a risky procedure with potential complications. However, it can be considered as an alternative to avoid additional surgery if performed by experienced specialists with the necessary equipment.

Keywords: Billroth II, ERCP, gangrenous cholecystitis

Introduction

Gangrenous cholecystitis is a severe complication of acute cholecystitis, which is the inflammation of the gallbladder. It occurs when the inflammation is left untreated or becomes so severe that the blood supply to the gallbladder is compromised, leading to tissue death or gangrene. Gangrenous cholecystitis is a medical emergency that requires immediate intervention. The main treatment for gangrenous cholecystitis is surgical removal of the gallbladder, a procedure known as cholecystectomy.

Billroth II gastrectomy, a surgical procedure attributed to the renowned surgeon Theodor Billroth, is employed for the treatment of various stomach conditions. This operative technique involves the excision of a specific segment of the stomach, usually the lower part, and subsequently reconnecting the remaining portion to the small intestine. It is commonly performed in cases of gastric ulcers, gastric cancer, or severe complications arising from peptic ulcers. By eliminating the affected segment of the stomach and rearranging the digestive tract, this surgery aims to alleviate symptoms, improve digestion, and enhance the patient's overall quality of life.

ERCP, which stands for endoscopic retrograde cholangiopancreatography, is a medical procedure used for both diagnostic and therapeutic purposes in the treatment of disorders affecting the bile ducts, pancreatic ducts, and gallbladder. This minimally invasive technique involves the insertion of a flexible endoscope through the mouth, esophagus, stomach, and into the duodenum, enabling access to the openings of the bile and pancreatic ducts. By injecting contrast dye, the X-ray imaging system can detect any obstructions, irregularities, or abnormalities present in the ducts. ERCP plays a crucial role in

HIGHLIGHTS

- The patient had an Billroth II gastrectomy, and later suffered a gangrenous cholecystitis.
- The endoscopic retrograde cholangiopancreatography normally crosses through the duodenum, we were able to perform it through the incoming loop of the jejunum.
- An endoscopic retrograde cholangiopancreatography was performed and treated the condition without any complication.

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the removal of gallstones, dilation of narrowed ducts, placement of stents, and collection of tissue samples for further examination. This procedure proves particularly beneficial for diagnosing and treating conditions such as bile duct stones, strictures, pancreatic tumors, and pancreatitis.

In our paper, we present a case study of a patient who was treated for biliary exudate by ERCP and performed a B-II gastrectomy. It is important to highlight that the patient initially presented with nonspecific symptoms. And we highlight the challenges encountered in managing this unique case as per the Surgical CAse REport (SCARE) 2023 guidelines[1].

Case report

We present a case of a 25-year-old male patient who arrived at the emergency department with severe pain in the right hypochondrium, accompanied by a high fever and vomiting. The patient's medical history revealed a past gastric ulcer that had progressed to gastric perforation, necessitating a distal gastrectomy with a B-II anastomosis procedure. Additionally, he had a history of cortisone and rheumatism medication use, which he resumed after recovering from the surgery, along with daily cigarette consumption for the past 6 years.

On clinical presentation, the patient exhibited tenderness in the right hypochondrium of the abdomen, but his chest appeared normal. His blood pressure was measured at 15/8 mmHg, while his pulse rate was elevated at 144 beats per minute. The complete blood count revealed an elevated platelet count of 749 000/µl and a white blood cell count of 12 410/µl. Notably, the patient did not display any signs of clinical or sub-clinical jaundice.

An abdominal ultrasound performed in the emergency department displayed a sonographically homogeneous liver, ruling out cystic lesions or bile duct dilation. However, the gallbladder exhibited gallstones and 5 mm wall edema, accompanied by a small amount of free fluid between the intestinal loops (Fig. 1). Subsequently, a computed tomography scan was conducted, corroborating the ultrasound findings.

Given the patient's toxic condition and fresh wound, a diagnostic laparotomy was performed instead of laparoscopy or percutaneous methods. The procedure revealed severe adhesions surrounding the gallbladder, which were meticulously released. An abscess around the gallbladder was identified and drained, with subsequent lavage of the abdominal cavity. Notably, only the necrotic portion of the gallbladder fundus was excised, preserving the remainder of the gallbladder (Fig. 2).

Following the operation, the patient experienced persistent biliary leakage from the drain for a week, indicating the presence of a biliary fistula. To address this complication without subjecting the patient to another surgical procedure, an ERCP was performed.

The ERCP aimed to alleviate pressure on the common bile duct and subsequently resolve the biliary fistula. A lateral vision endoscope was advanced through the existing B-II anastomosis to reach the papilla, enabling selective catheterization of the common bile duct. Notably, there were no dilatations or defects observed in the common duct, right hepatic duct, or left hepatic duct.

To facilitate effective bile drainage and alleviate pressure, a simple casting of the papilla was performed. Subsequently, a 10 cm-long, 8.5 FR STENT PIGTAIL plastic mesh was meticulously placed, ensuring optimal bile flow. The stent was scheduled for removal after 48 h. The patient was followed up for 6 months after discharge from the hospital and was in good condition without any recorded complications related to intervention during the follow-up period.

Discussion

Manifestations of gallbladder disease range from intermittent abdominal pain (symptomatic cholelithiasis) to potentially life-threatening illness (gangrenous cholecystitis)[2].

Treatment of gangrenous cholecystitis in a patient with Billroth II gastrectomy presents a complex clinical scenario that requires careful management. Gangrenous cholecystitis is a serious condition characterized by inflammation and necrosis of the gallbladder, often necessitating urgent intervention. When combined with a history of Billroth II gastrectomy, which involves the removal of part of the stomach and reconstruction of the digestive tract, additional considerations come into play.

The potential use of ERCP introduces a challenging clinical situation that requires careful consideration and expertise. In our case, the use of ERCP was considered due to the patient's status because he had two past apportion in a short time.

Therapeutic ERCP proves to be an effective treatment option for individuals with biliary exudate. Biliary exudate refers to the presence of abnormal fluid buildup in the bile ducts, often caused by infections, inflammation, or obstruction. During therapeutic ERCP, a flexible endoscope is carefully maneuvered through the

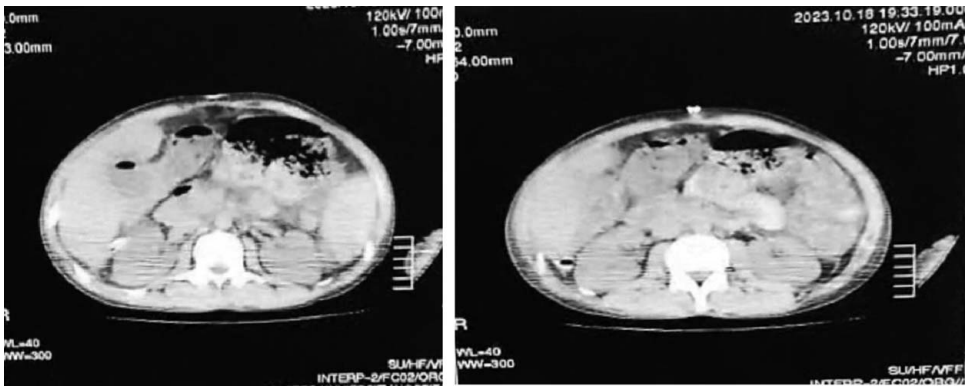

Figure 1. Showing the Edema of the gallbladder wall and the free fluid in the intestinal loop.

Figure 2. Showing the abscess around the gallbladder.

digestive tract to access the affected areas. The procedure allows for targeted interventions to address the underlying cause of the biliary exudate. This may involve the removal of obstructions, such as gallstones or tumors, that are hindering the normal flow of bile. Additionally, therapeutic ERCP can facilitate the placement of stents to keep the ducts open, allowing for proper drainage and reducing the accumulation of exudate. By effectively addressing the specific issue causing biliary exudate, therapeutic ERCP aims to alleviate symptoms, promote healing, and restore normal biliary function.

Patients with altered anatomy may present challenges during ERCP, often requiring the use of device-assisted enteroscopy to access the biliopancreatic system. However, in cases where a B-II partial gastrectomy has been performed and the afferent limb with the intact Vater's papilla is accessible, a conventional side-viewing duodenoscope can be used to reach this anatomical structure. This approach eliminates the need for device-assisted enteroscopy, simplifying the procedure. The choice of approach for ERCP in patients with altered anatomy should be made by an experienced gastroenterologist or endoscopist based on individual assessment[3], In our case, we use the stander ERCP.

The main reasons for ERCP failure are the failure to reach the papilla and the failure of selective duct cannulation as a result of surgically-altered anatomy[4], In our case, the gastroenterologist retched the papilla without any obstacles.

In patients with B-II gastrectomy, the incidences of post-ERCP pancreatitis, perforation, and bleeding have been estimated to be 0–9.1%, 0–18.2% (especially when using a side-viewing endoscope), and 0–7.7%, respectively. Furthermore, asymptomatic hyperamylasemia has been reported to occur in 13.3%. Fortunately, our patient did not experience any of these complications and remained in good health following the procedure and throughout the observation period[3].

The challenges in managing this case include the fact that the patient underwent a B2 procedure outside the country, and it was difficult to communicate with his original doctor to understand the details of the intervention he performed. The major challenge that existed was the development of a postsurgical biliary stricture in a highly inflamed area.

To our knowledge, this intervention in such a case is among the few documented in the medical literature.

Conclusion

The therapeutic use of ERCP in patients who have undergone a previous B-II operation carries many risks and complications resulting from this intervention, but this intervention remains an option that avoids these patients from another surgical procedure if the appropriate expert hands and equipment are available. Future research and clinical practice should emphasize the optimal management and follow-up of patients with B-II anatomy undergoing ERCP. This includes studying the effectiveness of different techniques, investigating long-term outcomes and complications, developing tailored guidelines, and evaluating advanced imaging modalities and therapeutic interventions to improve the success and safety of ERCP procedures in this patient population.

Ethical approval

This study is a case report, and our institution does not require ethical approval for such research, but they require obtaining the consent of the patient and the doctor supervising the case.

Consent

Written informed consent was obtained from the patient for publication and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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