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Case Report

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Subcutaneous emphysema after endoscopic retrograde cholangiopancreatography in a liver transplant recipient: A case report

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ABSTRACT

Endoscopic retrograde cholangiopancreatography (ERCP) is a widespread performed diagnostic and therapeutic tool for biliary and pancreatic disorders. Risk of perforation after ERCP is approximately 1%. ERCP-related perforation may be a severe lethal complication, and sometimes, it needs surgical intervention for the treatment. Surgical treatment options are based on the type, size, and location of the perforation. Here, we report a liver transplant recipient with subcutaneous emphysema, pneumomediastinum, and pneumoperitoneum after ERCP who was treated conservatively.

Keywords: ERCP, perforation, subcutaneous emphysema

Introduction

Endoscopic retrograde cholangiopancreatography (ERCP) is a widely used diagnostic and therapeutic tool for biliary and pancreatic disorders. Although it is a safe procedure in experienced hands; pancreatitis, cholangitis, bleeding, and perforation may occur as a complication after the intervention.[1] ERCP-related perforation may be a severe lethal complication, and sometimes, it needs surgical intervention for the treatment.[2] We aimed to report a liver transplant recipient with subcutaneous emphysema, pneumomediastinum and pneumoperitoneum after ERCP who was treated medically with close follow-up.

Case Report

Forty-two-year-old female patient who has undergone liver transplantation due to hepatitis B virus-related cirrhosis 6 years ago, applied to the outpatient clinic with the complaint of itching. Interestingly, all the laboratory parameters including AST, ALT, bilurubin, ALP, and GGT levels were in normal range. Blood tacrolimus level was 5.5 ng/mL. Then, magnetic resonance cholangiopancreatography was performed. Anastomotic stricture was visualized on the biliary tract. ERCP was planned for the treatment of anastomotic bile tract stricture. During the ERCP, normal anatomic Oddi sphincter was visualized. External sphincterotomy was performed and 7 French 12 cm biliary stent was placed through the biliary anastomosis (Fig. 1). Vital signs were normal but subcutaneous emphysema around the clavicles and neck was observed 4 h after the interventional procedure. Unenhanced thoracoabdominal computed tomography showed the presence of pneumomediastinum, pneumothorax, pneumoperitoneum, pneumoretroperitoneum, and massive subcutaneous emphysema of the face, neck, and chest wall (Fig. 2). The patient was closely monitored at the intensive care

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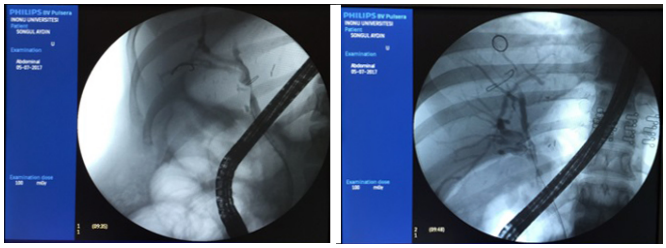

Figure 1. External sphincterotomy was performed and 7 French 12 cm biliary stent was placed through the biliary anastomosis.

Figure 2. Presence of pneumomediastinum, pneumothorax, pneumoperitoneum, pneumo-retroperitoneum, and massive subcutaneous emphysema of the face, neck, and chest wall.

unit. There were no clinical signs of peritonitis and fever. Mild elevation of white blood cell count (13000/mm^3), procalcitonin (1.69 ng/ml), and CRP (1.37 mg/dl) levels was observed 12 h after the intervention. Oral feeding was discontinued and intravenous imipenem cilastatin antibiotheraphy was initiated. Close clinical follow-up continued for 10 days without a surgical or radiological intervention. Subcutaneous emphysema, pneumomediastinum, and retroperitoneal air collections resolved spontaneously (Fig. 3). The patient was discharged without any complication.

Discussion

ERCP is a widely used procedure for management of biliary and pancreatic disorders. ERCP is a safe intervention, but it has the highest risk of procedure-related complications among endoscopic procedures. Despite advances in endoscopic technology and operator skills, complication rate after ERCP ranges between 10 and 12% and mortality rate ranges between 0.1 and 1.4 %.[3,4] Risk of perforation after ERCP is approximately 1%.[5] Severe abdominal

Figure 3. There was no free gas on the follow-up CT scan.

pain with leukocytosis, fever, tachycardia, and sometimes back pain are the most common clinical findings.[6]

Stapfer et al. describe four types of perforations according to anatomic location and severity of injury: Type I, lateral or medial duodenal wall; type II, periampullary injury during sphincterotomy; type III, bile or pancreatic duct injury; and type IV, presence of retroperitoneal air alone without a true perforation.[7] Most of the perforations are type II, occurring in 46 % of all cases.[8] Our case was also Stapfer type II ERCP-related perforation which has occurred during sphincterotomy.

To avoid complications such as sepsis and multiorgan failure, rapid diagnosis and treatment are required for perforations after ERCP. Nevertheless, management of ERCP-related perforations has changed to conservative management and challenging selection of patients requiring surgery. The primary management of suspected perforation includes nil per os, IV fluids, and broad-spectrum antibiotics.[2] Surgical treatment options are based on the type, size, and location of the perforation. Type I perforations, significant contrast leak, retroperitoneal collections, persistent biliary obstruction, unsuccessful conservative treatment, and signs of sepsis are the indications for surgery.[5] Jimenez et al. also showed that type I perforations require immediate surgery, type II and III perforations can be managed conservatively (without complications such as abdominal collections, peritoneal irritation, and/or sepsis) and type IV perforations respond to conservative treatment.[5] Our case was Stapfer type II with subcutaneous emphysema, pneumomediastinum, and pneumoperitoneum. Besides, our patient has no complications such as intra-abdominal fluid collection and sepsis, so we could treat our patient conservatively.

Some studies have suggested that endoscopically placed fully covered self-expandable metallic stents might be effective in type II and Type III perforations.[8] Plastic biliary stent was inserted through the anastomosis for our patient and no complication has occurred during the close follow-up.

Conclusion

ERCP-related perforations can be treated conservatively with close follow-up and each patient should be investigated for possible complications.

Disclosures

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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