

CASE REPORT

십이지장 궤양 출혈의 내시경 지혈술 후 발견된 분리췌장

최용혁, 윤순만, 김은비, 오영민, 김근모, 이지선¹, 박선미, 윤세진

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A Rare Case of Pancreas Divisum Accompanied by Acute Pancreatitis Following Endoscopic Hemostasis for Duodenal Ulcer Bleeding

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Peptic ulcer bleeding is treated using endoscopic hemostasis using clips or bands. Pancreas divisum (PD), a congenital anomaly of the pancreas, usually has no clinical symptoms; however, pancreatitis may occur if there are disturbances in the drainage of pancreatic secretions. We report an unusual case of PD accompanied by acute pancreatitis, following endoscopic band ligation for duodenal ulcer bleeding. A 48-year-old woman was admitted to our hospital due to melena. An upper endoscopy revealed a small ulcer with oozing adjacent minor papilla. An endoscopic band ligation was performed on this lesion. Acute pancreatitis developed suddenly 6 hours after the band ligation and improved dramatically after removal of the band. Magnetic resonance cholangiopancreatography was performed, revealing complete PD. Endoscopic band ligation is known as the effective method for peptic ulcer bleeding; however, it should be used carefully in duodenal ulcer bleeding near the minor duodenal papilla due to the possibility of PD. (*Korean J Gastroenterol* 2017;69:248-252)

Key Words: Peptic ulcer; Endoscopic hemostasis; Pancreatitis

INTRODUCTION

Peptic ulcers are the most common cause of upper gastrointestinal bleeding, and it accounts for about 50% of all upper gastrointestinal bleeding cases. In these patients, endoscopic therapy with thermal coagulation, injection therapy, and/or mechanical therapy using clips or bands are usually performed to reduce bleeding, length of hospital stay, mortality, and cost.¹ Most patients with peptic ulcer bleeding who undergo endoscopic treatment seem to show improvement. Pancreas divisum (PD) is a common congenital anomaly of

the pancreas due to abnormal fusion between the ventral and dorsal pancreatic ducts during fetal development.² Most exocrine secretions in PD drain through the dorsal pancreatic duct and the minor papilla. Patients with PD usually have no clinical symptoms. However, abdominal pain or acute pancreatitis may occur if pancreatic secretions fail to drain properly.² We report a very unusual case of complete PD accompanied by acute pancreatitis, following endoscopic hemostasis with band ligation for duodenal ulcer bleeding adjacent to the minor papilla, in an otherwise healthy woman.

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CASE REPORT

A 48-year-old woman was admitted to our hospital due to melena, general weakness, and nausea. The patient had no underlying diseases and no history of medications, including non-steroidal anti-inflammatory drugs. She was a nonsmoker and nondrinker. Vital signs revealed a blood pressure of 128/76 mmHg, pulse rate of 77 per minute, and temperature of 37.0°C. The abdomen of our patient was soft and flat, with normoactive bowel sounds. Physical examination revealed anemic conjunctiva, and digital rectal examination revealed a black, tarry stool. Nasogastric tube irrigation showed an old-blood color. The initial laboratory results showed that he-

moglobin (Hb) was severely decreased to 5.9 g/dL (normal range, 12-16 g/dL), but no additional abnormalities were found. Endoscopy revealed blood in the duodenal bulb and the second portion of the duodenum. A suspicious lesion of Dieulafoy-like ulcer with oozing (Forrest classification Ib) was discovered on the opposite side of the superior duodenal angle, and endoscopic band ligation was performed on the lesion (Fig. 1). The patient developed severe abdominal pain 6 hours after this procedure. Physical examination revealed epigastric abdominal tenderness with no rebound tenderness, as well as hypoactive bowel sounds. Laboratory tests showed a white blood cell count of $10.2 \times 10^3/\mu\text{L}$ (normal range, $4.0\text{-}10.0 \times 10^3/\mu\text{L}$), Hb of 5.9 g/dL, aspartate transaminase

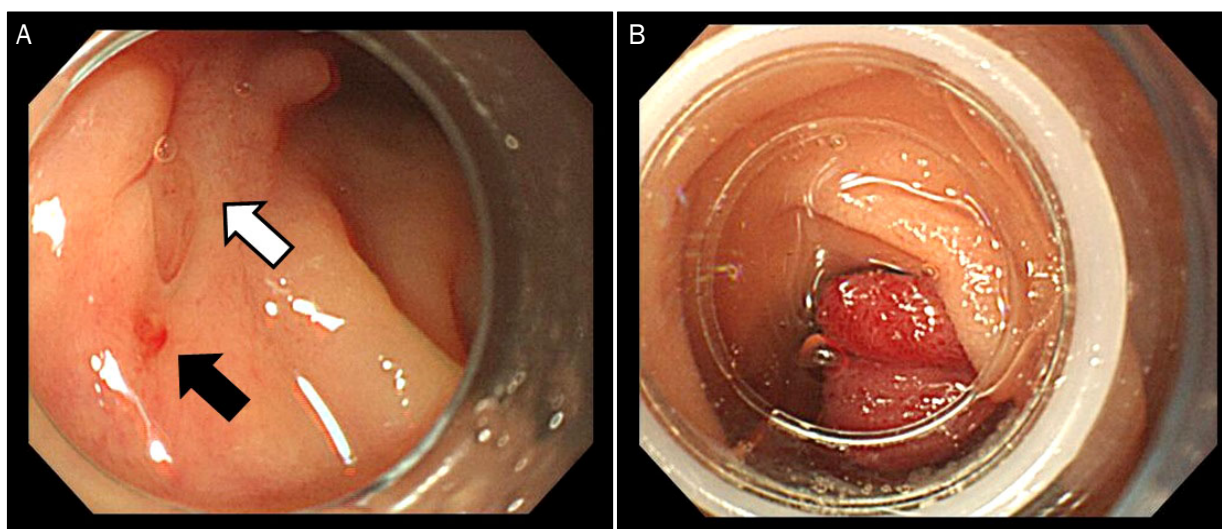


Fig. 1. Endoscopy showing a small ulcer with oozing (black arrow) adjacent to the suspicious minor papilla (white arrow) on the opposite side of superior duodenal angle (A) and state of endoscopic band ligation (B).

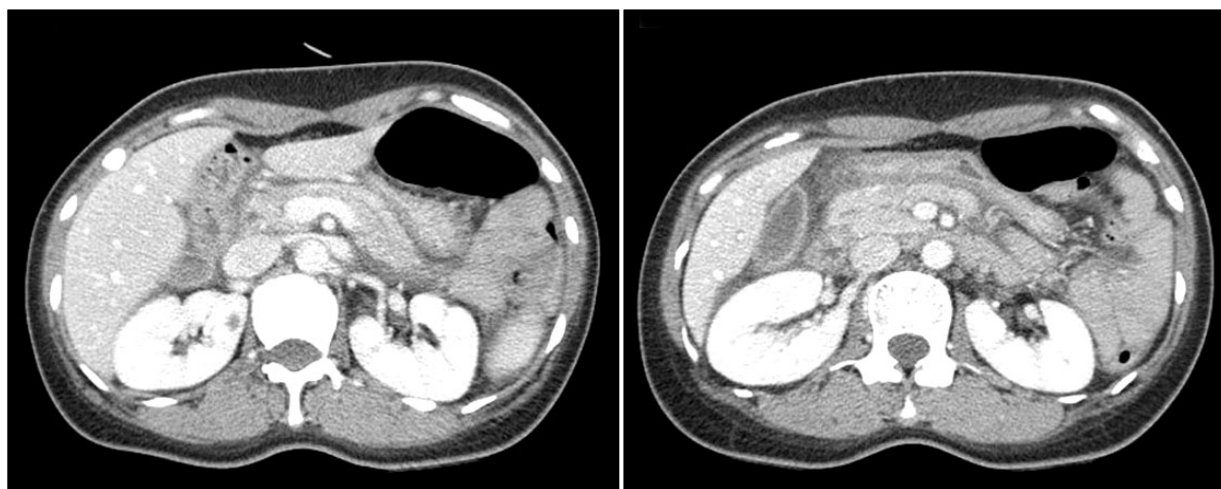


Fig. 2. CT scan revealing diffuse swelling of the pancreas with peripancreatic fat infiltration and a small amount of fluid collection. CT, computed tomography.

of 17 IU/L (normal range, 0-40 IU/L), alanine transaminase of 10 IU/L (normal range, 0-40 IU/L), total bilirubin of 0.78 mg/dL (normal range, 0.2-1.1 mg/dL), serum amylase of 2,960 U/L (normal range, 13-53 U/L), and serum lipase of 5,710 IU/L (normal range, 13-60 IU/L). Computed tomography (CT) revealed diffuse swelling of the pancreas with peripancreatic fat infiltration and a small amount of fluid collection (Fig. 2). Acute pancreatitis was identified based on the patient's symptoms, laboratory findings, and CT scan. We suspected PD accompanied by acute pancreatitis due to minor duodenal papilla obstruction by an endoscopic band ligation for the duodenal ulcer located near the minor papilla. We

immediately removed the band using endoscopic cap and forceps (Fig. 3).

After the endoscopic band removal, abdominal pain was alleviated, serum amylase decreased to 1,500 U/L, serum lipase decreased to 2,140 U/L, and follow-up endoscopy showed no more bleeding from the lesion. Three days later, her symptoms were completely resolved and laboratory tests showed a white blood cell count of $4.6 \times 10^3/\mu\text{L}$, Hb of 10.4 g/dL, serum amylase of 68 U/L, and serum lipase of 37 IU/L. Magnetic resonance cholangiopancreatography (MRCP) revealed complete PD, with the dorsal pancreatic duct directly connected to the accessory pancreatic duct, which drained

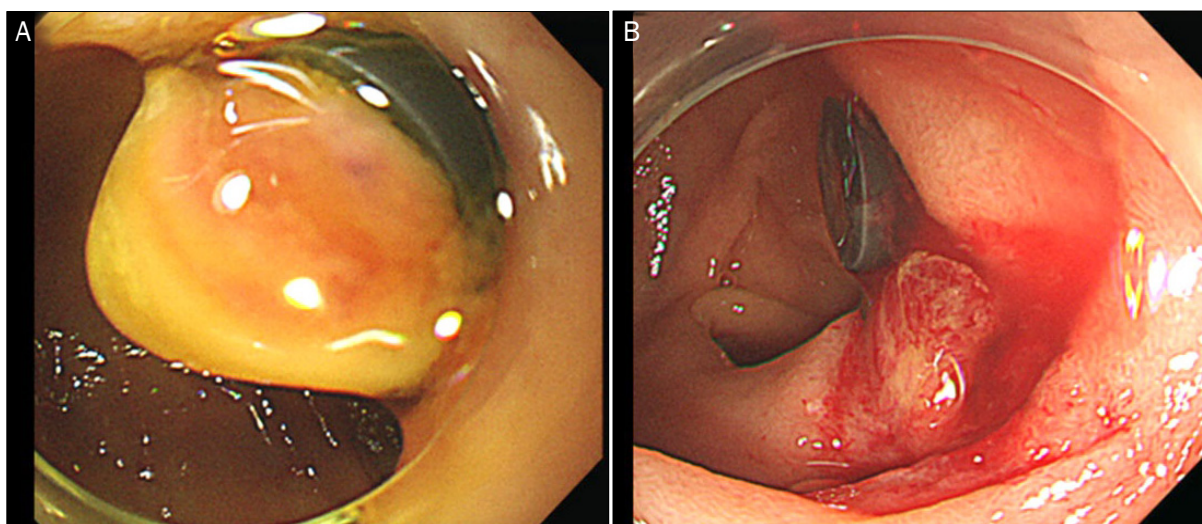


Fig. 3. Endoscopy showing the placed band for duodenal ulcer (A) and removal of the band using endoscopic cap and forceps (B).

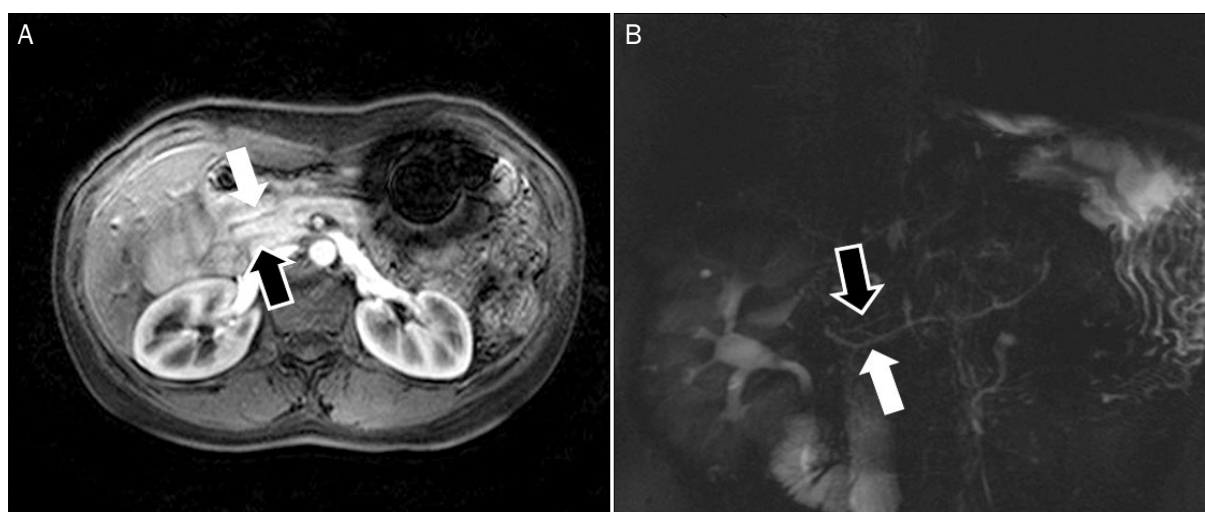


Fig. 4. Axial gadolinium-enhanced T1-weighted image (A) and MRCP image (B) showing the dorsal pancreatic duct (white arrows) directly connected to the accessory pancreatic duct, which drained into the minor ampulla. There was no communication between the ventral duct (black arrows) and the dorsal duct, but the ventral duct entered the major ampulla (A, B). MRCP, magnetic resonance cholangiopancreatography.

into the minor ampulla. There was no communication between the ventral and dorsal ducts; but the ventral duct entered the major ampulla (Fig. 4). The patient did not develop any subsequent attacks of acute pancreatitis during a six-months follow-up period.

DISCUSSION

Upper gastrointestinal bleeding, that is secondary to peptic ulcer disease, is a common medical condition that results in high morbidity. Patients often present hematemesis, melena, or both. The diagnosis of bleeding ulcer is typically made using an upper endoscopy. Most patients with bleeding ulcers can be managed acutely with fluid resuscitation, blood transfusions, proton pump inhibitor therapy, and endoscopic intervention.³ Endoscopic therapy is indicated for the treatment of most ulcers with stigmata of recent hemorrhage that increase the risk of recurrent bleeding. Endoscopic treatment is effective to control active bleeding, prevent re-bleeding, and minimize blood transfusion requirements. It also reduces the mortality rate of patients with peptic ulcers involving active bleeding, non-bleeding vessels, and adherent clots, and it decreases the need for surgery and angiography.³ Various endoscopic hemostatic methods are available, including injection therapy, thermal coagulation, hemostatic clips, band ligation, fibrin sealant (or glue), and combination therapy.⁴ Currently, most patients are treated with either thermal coagulation therapy or hemostatic clips, in conjunction with or without injection therapy.^{4,6} Although the endoscopic hemoclip was first taken into consideration in our case, the location of the lesion was relatively difficult to approach with a hemoclip. Moreover, we thought that thermocoagulation using heater probe might pose as a risk for perforation due to the thin wall of the duodenum. Due to this, an endoscopic band ligation was performed initially on the lesion. The safety and efficacy of the band ligation to treat bleeding from small-sized nonfibrotic acute peptic ulcers of the stomach, duodenum, and Billroth II anastomosis have been demonstrated in previous studies.⁷ Other case series have shown the benefits of endoscopic band ligation for controlling peptic ulcer bleeding, especially when the standard techniques have failed.^{3,8,9}

PD is a common congenital anomaly and variant of the

pancreatic duct system, with a prevalence of 7.5% on endoscopic retrograde cholangiopancreatography (ERCP) and 9.3-10.8% on MRCP. It results from an abnormal fusion of the ventral and dorsal pancreatic ducts during fetal development.² PD is divided into two categories: Complete and incomplete. Complete PD consists of a small ventral duct that drains through the larger major papilla and a larger dorsal duct that drains through the smaller minor papilla.² In some cases, the entire pancreatic ductal system drains through the minor papilla via the dorsal duct.¹⁰ Incomplete PD lacks adequate communication between the ventral and dorsal pancreatic ducts, usually with an extremely small branch.^{11,12} There are no differences in the incidence of symptoms or in the clinical and endoscopic treatment outcomes between complete and incomplete PDs.¹³ In complete PD, the main pancreatic duct is the dorsal pancreatic duct, and most of the pancreatic juice drains through the minor duodenal papilla. Because the minor duodenal papilla is smaller than the major duodenal papilla, a large amount of secretions can put a significant load on the minor duodenal papilla.^{11,14} Most patients with complete PD are asymptomatic, and the relationship between complete PD and pancreatitis has been controversial. However, in some cases, complete PD has been suggested to cause acute pancreatitis, chronic pancreatitis, or pancreatic abdominal pain, as a result of disturbed pancreatic drainage the minor duodenal papilla.^{11,15} In our patient, the symptoms occurred due to an obstruction of pancreatic juice drainage by the endoscopic band ligation at the minor duodenal papilla. Acute pancreatitis after endoscopy usually occurs by local mechanical trauma to the pancreas or over-insufflation of the duodenum, irritating the pancreas.¹⁶

In most cases, PD is best diagnosed using ERCP, MRCP, or endoscopic ultrasonography. The treatment of PD remains contentious, but with advancements of ERCP techniques, these procedures are not only the gold standard for diagnosing PD, but also play a role in the therapy of PD, as they may relieve pain and delay the progression of chronic pancreatitis.¹⁷ Asymptomatic patients in whom PD is incidentally found on abdominal imaging (CT scan or MRCP), and those who have no abnormalities of the pancreas or clinical history of pancreatitis, require no additional evaluation or treatment for PD. The goal of endoscopic therapy in patients with PD is to resolve the disturbance of pancreatic exocrine drainage by opening the minor sphincter.¹⁸ In the present case, we re-

solved the obstruction of pancreatic exocrine flow by immediate removal of the endoscopic band. Endoscopic band ligation is as effective as other endoscopic techniques for mechanical hemostasis of peptic ulcer bleeding; however, it should be used carefully in duodenal ulcer bleeding near the minor duodenal papilla due to the possibility of PD.

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