History of a penetrating duodenal ulcer as a cause of acute necrotizing pancreatitis

To the Editor In the 9/2015 issue of the *Polish Archives of Internal Medicine* (*Pol Arch Med Wewn*), we published a clinical image titled "Penetrating duodenal ulcer as a cause of necrotizing pancreatitis", where we described a case of a female patient with a penetrating duodenal ulcer as a rare cause of acute pancreatitis (AP).[1] The consequence of acute necrotizing pancreatitis in this case was primary sterile walled-off pancreatic necrosis (WOPN), which became infected after transgastric passive drainage at another medical center.

The patient was admitted to our department for continued endoscopic treatment owing to infection at the WOPN. During gastroduodenoscopy, a perforation of the penetrating duodenal ulcer (diameter, 3 cm) was detected, which was determined to be the cause of AP. Communication between the lumen of the gastrointestinal tract and that of the necrotic cavity through the duodenal ulcer was confirmed. A nasocystic drain was guided through this perforation into the necrotic cavity. After 7 days of active transduodenal drainage, the WOPN gradually improved. The nasocystic drain was removed; however, the transmural endoprosthesis that was inserted into the necrotic area through the peptic ulcer perforation was retained to prevent recurrence of necrotic collection (FIGURE 1A; Supplementary material online, *Figure S1A–C*). After 3 months, control contrast-enhanced computed tomography (CECT) demonstrated complete regression of the WOPN; therefore, the transmural stent was removed. After 1 year of follow-up, no recurrence of collection was detected on CECT. Control gastroduodenoscopy demonstrated a diverticulum of the duodenal bulb (diameter, 3 cm) where the penetrating ulcer had previously been positioned (FIGURE 1B; Supplementary material online, *Figure S1D–F*). The patient is now in a good general condition and has regained full physical fitness and the ability to perform everyday activities.

Cholelithiasis and excessive alcohol consumption are the most common causes of AP, accounting for about 80% of cases.[2] Idiopathic AP is diagnosed in approximately 10% of patients.[2] Other rarer causes of AP include iatrogenic factors, use of some medicines, abdominal injuries, malformations of the pancreas, hereditary gene mutations, hypercalcemia, and hypertriglyceridemia.[2,3] A penetrating peptic ulcer is a very rare cause of AP.[2-5]

AP can lead to local consequences, in the form of pancreatic and peripancreatic fluid collection. According to the revised Atlanta classification, there are 4 types of fluid collection, which are distinguished by the duration and morphology

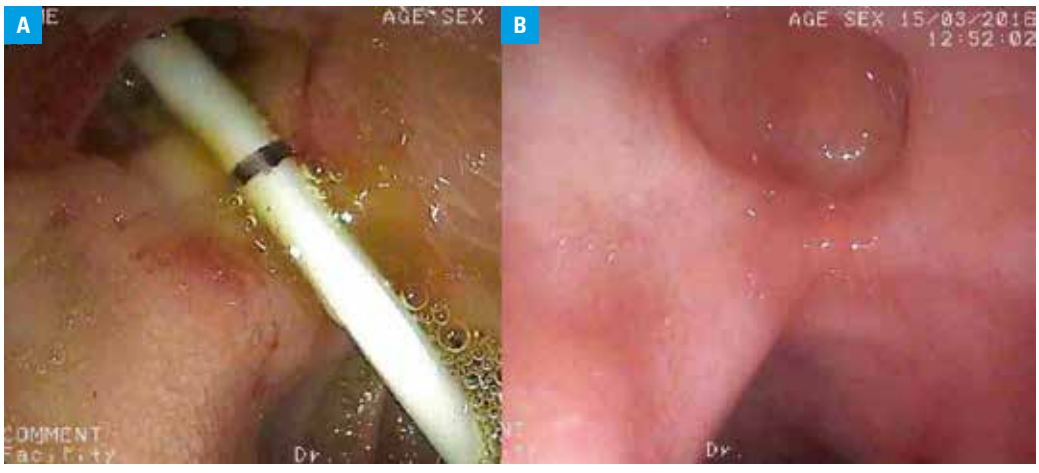

FIGURE 1 **A** – Transmural endoprosthesis inserted into the necrotic area through the peptic ulcer perforation; **B** – a diverticulum of the duodenal bulb detected in the area where the penetrating ulcer had previously been positioned

of AP: acute peripancreatic fluid collection, pancreatic pseudocyst, acute necrotic collection, and WOPN.[6,7] Endotherapy is typically an efficient and safe method for the treatment of patients with WOPN.[8] Transmural endoscopic drainage of pancreatic necrosis consists of the complete removal of necrotic tissues through a stoma formed between the lumen of the gastrointestinal tract and the lumen of a necrotic collection.[9] In the present case, passive drainage of WOPN was insufficient and led to infection of the necrotic area. The formation of an appropriate irrigation system that allows aggressive active drainage and the provision of passive drainage is key to the success of WOPN treatment.[8,9] To the best of our knowledge, the present case was the first description of successful drainage of WOPN through the perforation of a duodenal peptic ulcer.

Perforation of the gastrointestinal tract is detected in about 7% of patients with peptic ulcer disease.[10] As a result, chyme and air penetrate into the peritoneal cavity through the perforation. Furthermore, perforation of the peptic ulcer into the surrounding organs is likely, which is more often circumscribed to cases with duodenal ulcers. The majority of patients with a perforated peptic ulcer require surgery.[11,12] Conservative treatment ought to be reserved for patients in a stabile clinical condition.[11,12] The selection of treatment methods for perforation should primarily depend on the patients' clinical condition, followed by the experience of clinicians at a medical center.[11,12]

To the best of our knowledge, the description of the course and process of healing of the penetrating duodenal ulcer into the pancreas has not been published before. Therefore, images captured during control endoscopic examination (**FIGURE 1B**; Supplementary material online, *Figure S1D–F*) performed after an annual follow-up are useful to visualize the course and process of healing of the penetrating duodenal ulcer. Fibrosis and accretion of a pancreatic duodenal fistula may have occurred during ulcer healing, followed by the development of an acquired pseudodiverticulum, which is a bulge in the duodenal wall outside the bowels, resulting in the loss of muscle membrane.

Supplementary material online Supplementary material online is available with the online version of the article at www.pamw.pl.

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