Endoscopic treatment of walled-off pancreatic necrosis complicated by delayed splenic artery hemorrhage

Authors: Mateusz Jagielski, Maciej Koziół, Maciej Jaworski, Grzegorz Jarczyk, Radosław Fajdek, Marek Jackowski

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Short title: Endoscopic treatment of WOPN complicated by splenic artery hemorrhage

Authors: Mateusz Jagielski¹, Maciej Koziel¹, Maciej Jaworski¹, Grzegorz Jarczyk¹, Radosław Fajdek¹, Marek Jackowski¹

¹Department of General, Gastroenterological and Oncological Surgery, Collegium Medicum Nicolaus Copernicus University, Toruń, Poland

Corresponding author:
Mateusz Jagielski, MD, PhD, Ass. Prof.
Department of General, Gastroenterological and Oncological Surgery, Collegium Medicum Nicolaus Copernicus University, Toruń, Poland
53-59 Św. Józefa St,
87-100 Toruń, Poland
Phone: +48 56 679-31-99
E-mail: matjagiel@gmail.com

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A 44-year-old man with a history of acute necrotizing alcohol-related pancreatitis diagnosed eight weeks earlier was admitted to our clinic to undergo interventional treatment for symptomatic walled-off pancreatic necrosis (WOPN). Contrast-enhanced computed tomography (CECT) of the abdomen and pelvis revealed a 130×97×82mm. necrotic collection in the pancreatic area. The patient underwent endoscopic transmural drainage of the WOPN, and a lumen-apposing metal stent (LAMS) [NAGI Stent 20x16mm, TaeWoong, South Korea] was inserted through the gastric wall under endoscopic ultrasound guidance. Signs of upper gastrointestinal bleeding appeared on day 4 of passive endoscopic drainage—hematemesis, melena and laboratory blood test results indicated characteristics of anemia. A gastroscopic examination (Figure 1A.) showed biliary contents in the stomach. Moreover, a completely obstructed transmural endoprosthesis containing numerous blood clots was observed. Abdominal CECT revealed a 115×97×77mm necrotic collection, filling with contrast agent and escaping from a perforated splenic artery (Figure 1B.). Therefore, the patient was eligible for endovascular treatment. Access through the left brachial artery was obtained, and a contrast agent was injected into the splenic artery, which confirmed leakage of contrast into the lumen of the WOPN (Figure 1C.). However, the contrast agent did not flow into the gastric lumen due to transmural endoprosthesis obstruction. A stentgraft [BeGraft peripheral 6x58mm, Bentley, Germany] was inserted into the splenic artery to bridge the site of contrast leakage in the vascular wall. Control arteriography did not show any signs of contrast media extravasation (Figure 1D.). On hospital day 8, the patient’s general condition had improved; therefore, endotherapy was continued. An endoscopic procedure was undertaken to unclog the transmural stent and insert a gastroscope through its lumen to gain access to the WOPN. The necrotic collection was flushed, resulting in the outflow of a large number of blood clots. Two plastic stents were inserted through the lumen of the LAMS. Passive transmural drainage continued for 48 more days. Following control
abdominal CECT (Figure 1E) that showed complete regression of the WOPN and symptom resolution without signs of recurrent gastrointestinal bleeding, endoscopic treatment was terminated and the stents were removed during an endoscopic procedure.

Endoscopic WOPN drainage is an effective therapeutic approach [1]. Using a LAMS for transmural drainage improves endotherapy results [1], but some publications describe increased number of adverse events related to LAMS [2]. Massive bleeding from a perforated splenic artery is associated with high mortality rates [3,4]. In the present case, perforation of the artery was a result of pancreatic juice affecting the vascular wall, as well as a drop in pressure within the necrotic collection following transmural cystostomy during the drainage procedure. Obstruction of the transmural metal stent prevented blood from entering the gastric lumen and limited the bleeding. Inserting a stentgraft into the splenic artery control the bleeding to the necrotic collection and enabled us to continue endoscopic treatment. In this report, we describe, to the best of our knowledge, the first case of successful endoscopic drainage of the WOPN complicated by delayed massive hemorrhage from ruptured splenic artery treated endovascularly [5].


References


Figure 1A. Gastroscopic view confirming completely obstructed transmural endoprosthesis containing numerous blood clots (arrow).
Figure 1B. Contrast-enhanced computed tomography of the abdomen showing leakage of contrast agent (arrow) from a perforated splenic artery.
Figure 1C. Arteriography confirming the leakage of contrast (arrow) to the lumen of walled-off pancreatic necrosis.
Figure 1D. Control arteriography. The stentgraft (arrow) inserted to the splenic artery is visible.
Figure 1E. Control contrast-enhanced computed tomography of the abdomen confirmed complete regression of walled-off pancreatic necrosis. The stentgraft (arrow) inserted to the splenic artery is visible.