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# Asymptomatic and early pseudoaneurysm of posterior superior pancreaticoduodenal artery and right gastric artery complicating acute pancreatitis: A case report



Savino Occhionorelli<sup>a</sup>, Lucia Morganti<sup>a,\*</sup>, Lorenzo Cappellari<sup>b</sup>, Rocco Stano<sup>b</sup>,  
Dario Andreotti<sup>a</sup>, Giorgio Vasquez<sup>b</sup>

<sup>a</sup> Department of Morphology, Surgery and Experimental Medicine, University of Ferrara and S. Anna University Hospital of Ferrara, Ferrara Italy

<sup>b</sup> Department of Surgery, Acute Care Surgery Service, S. Anna University Hospital, Ferrara Italy

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## ABSTRACT

**INTRODUCTION:** Arterial pseudoaneurysm is a rare and life-threatening complication of pancreatitis, seen more often in chronic than in acute pancreatitis. It involves mostly the splenic artery, while only in 10% of the case it appears in pancreaticoduodenal and gastric artery. This case report described an asymptomatic pseudoaneurysm of the posterior superior pancreaticoduodenal artery and of the right gastric artery, which occurred after 13 days from the episode of acute pancreatitis and, then it was treated with vascular angioembolization.

**PRESENTATION OF CASE:** A 71 year-old female was admitted to the Emergency Surgery Department for severe acute pancreatitis. After 13 days from the onset, pseudoaneurysms were detected with a control contrast-enhanced computed tomography and they were localized in a branch of the right gastric artery and in a branch of the posterior superior pancreaticoduodenal artery. The patient underwent angiography and the pseudoaneurysms were treated with platinum coil embolization, without complications or further bleeding.

**DISCUSSION:** This is an unusual case because of the low incidence of arterial pseudoaneurysm as acute pancreatitis complication (1.3–10%), and the uncommon localization in the pancreaticoduodenal arteries. **CONCLUSION:** It is important to be aware of pancreatitis-related arterial pseudoaneurysms, as they have a mortality of 90% if not recognized and treated, not only in chronic but also in acute pancreatitis, and to work out a scheduled follow-up with abdominal computed tomography or pancreatic contrast-enhanced ultrasound in order to control and prevent late onset complications.

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## 1. Background

Severe acute pancreatitis (SAP) is associated with a high rate of complications and significant mortality, as high as 8%–39% [1]. Although the major causes of death are secondary infection of pancreatic necrotic tissue and, subsequently multiple organ failure [2], peripancreatic arterial pseudoaneurysm (AP) is still a rare but life-threatening complication, seen most often in patients with chronic pancreatitis [3]. AP is due to wall erosion of vessels crossing the inflammation area, and its rupture can lead to haemorrhagic complications, which require immediate intervention [4,5]. AP involves the splenic artery in up to 50% of cases [6], and usually appears after weeks to months from an episode of acute

pancreatitis [7–9]. Contrast-enhanced computed tomography (CECT) is the gold standard to detect such kind of complications, and its use is recommended not only in the initial phase of SAP but also and mainly in the late phase [10]. Because of the low incidence of AP as acute pancreatitis complication (1.3–10%), the high rate of mortality due to its rupture (40–90%), and the uncommon localization in the pancreaticoduodenal arteries (10%) [6], the authors decide to report the case of an asymptomatic pseudoaneurysm of the posterior superior pancreaticoduodenal artery and of the right gastric artery, which occurred after 13 days from the episode of acute pancreatitis and then, it was treated with vascular angioembolization.

\* Corresponding author.

E-mail addresses: [savino.occhionorelli@unife.it](mailto:savino.occhionorelli@unife.it) (S. Occhionorelli), [mrglcu@unife.it](mailto:mrglcu@unife.it) (L. Morganti), [l.cappellari@ospfe.it](mailto:l.cappellari@ospfe.it) (L. Cappellari), [r.stano@ospfe.it](mailto:r.stano@ospfe.it) (R. Stano), [ndrdr@unife.it](mailto:ndrdr@unife.it) (D. Andreotti), [vsg@unife.it](mailto:vsg@unife.it) (G. Vasquez).

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**Fig. 1.** The first CECT scan revealed a severe acute pancreatitis. Any images related to a right gastric artery pseudoaneurysm were present.

## 2. Case presentation

### 2.1. Presenting concerns

A 71 year-old female came to the Emergency Room of Sant' Anna University Hospital of Ferrara (Italy), complaining abdominal pain spread to all quadrants, with nausea and vomiting, and anuria from one day.

### 2.2. Clinical findings

Personal history was characterized by obesity (Body Mass Index of 33.3 kg/cm<sup>2</sup>), diabetes, arterial hypertension, chronic renal failure, severe osteoporosis, hypothyroidism, previous appendectomy and ovariectomy for a mature cystic ovarian teratoma. No history of alcohol abuse was reported. At admission, the laboratory results (neutrophilic leukocytosis:  $41.51 \times 10^3/\mu\text{l}$  total white blood cells with  $37.07 \times 10^3/\mu\text{l}$  neutrophil; amylases: 251 U/L; lipases: 816 U/L; C-reactive protein: 34.1 mg/dl; procalcitonine: 10.93 ng/ml) and the CECT (**Fig. 1**) revealed an acute severe pancreatitis, which involved the whole pancreatic gland and presented peripancreatic, perihepatic and perisplenic free fluid, with a modified CT severity index [11] of 8 (range 0–10). Moreover, the CECT



**Fig. 3.** Selective angiography of celiac trunk and of superior mesenteric artery showed a pseudoaneurysm localized in a branch of the right gastric artery and in a branch of the posterior superior pancreaticoduodenal artery.

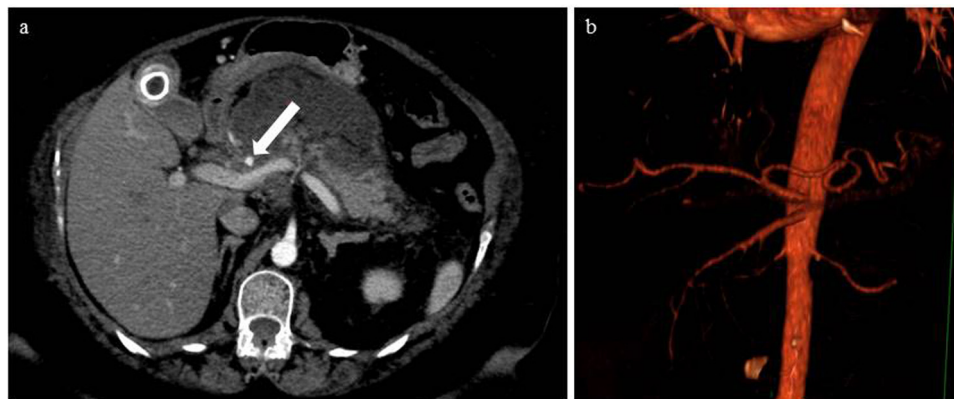
showed cholelithiasis and partial thrombosis of the splenic vein until its confluence with the superior mesenteric vein. So she was admitted to the Department of Emergency Surgery, a medical therapy was established and the patients was strictly observed, without alteration of vital signs. At day five, a control CECT showed a stability of the radiological imaging, with a contemporary improvement of laboratory tests and clinical conditions.

### 2.3. Diagnostic focus and assessment

After 13 days from admission, patient's clinical conditions were improving and she was completely asymptomatic; by the way, another control CECT was planned before transferring the patient to a medical ward. It revealed an organized fluid collection of  $11 \times 6.5$  cm in the body of the pancreas and the appearance of a 7 mm pseudoaneurysm of the right gastric artery inside the collection (**Fig. 2 a-b**). Selective angiography of celiac trunk and of superior mesenteric artery showed a pseudoaneurysm localized not only in a branch of the right gastric artery, but also in a branch of the posterior superior pancreaticoduodenal artery (**Fig. 3**).

### 2.4. Therapeutic focus and assessment

The pseudoaneurysms were angioembolized successfully with platinum coils MRI-compatible, without any complications (**Fig. 4**).



**Fig. 2.** a Control CECT after 13 days from acute pancreatitis onset revealed the presence of a 7 mm pseudoaneurysm of the right gastric artery (arrow). b 3D reconstruction of Aorta and its principal branches (celiac trunk and superior mesenteric artery).

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