

# Active bleeding due to pancreatitis diagnosed by contrast enhanced CT

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The authors present the case of a 55 - year - old male patient in whom an active bleeding developed in to pancreatitis, which was diagnosed by the contrast enhancement CT. So the verification of the process is rare but, the necessity and the advantage of contrast material administration during CT is emphasized. Finally, they summarize the special CT appearances of active bleeding which is definitive enhancement of contrast developed in the centre of the lesion.

*Key words: pancreatitis-diagnosis; gastrointestinal hemorrhage-diagnosis; tomography, x-ray computed; radiographic image enhancement*

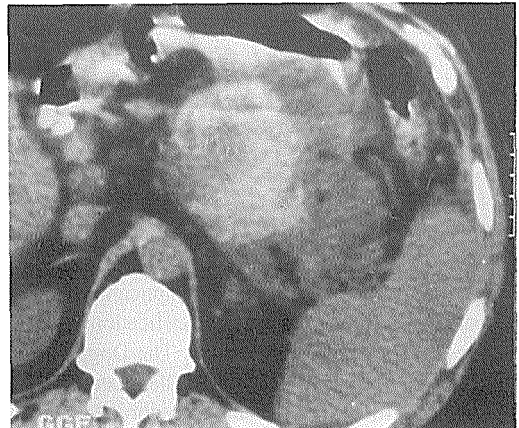
## Introduction

The course of acute pancreatitis can be mild, medium, and severe. The history, physical and laboratory findings are primary in setting up the diagnosis. Among the imaging systems CT is the most appropriate method in defining severity and complications of the acute phase.<sup>1</sup> Follow up examinations of chronic pancreatitis can be performed by the ultrasound (US). When clinical and laboratory data suggest bleeding, Doppler US and angiography are needed.

## Case report

A 55-year-old male patient was admitted to the surgical department of Markusovszky Hospital because of the abdominal pain and vomiting. In his previous history the medical treatment for chronic pancreatitis and laparotomy for a pseudocyst were mentioned. His physical and laboratory findings were all normal: Hb: 7,7 mmol/l., HCT: 0,36, WBC: 7,4 G/l., serum amylase: 233 U/l., serum lipase: 160 U/l., but the elevated serum bilirubin: 23 mmol/l. The chest and the abdom-

inal radiography were negative. A Levin tube was introduced to the stomach, and the patient received infusion. His condition improved so much that he was able to walk to the department of radiology where the abdominal US was carried out: a 7 cm diameter low echogenicity, well circumscribed mass was seen behind the stomach. For the better visualisation a CT examination was performed: the head and body of the pancreas were swollen, but the tail could not be well discerned. In the lesser sac, a high, mixed density mass appeared, similar to that found by the US (Fig-

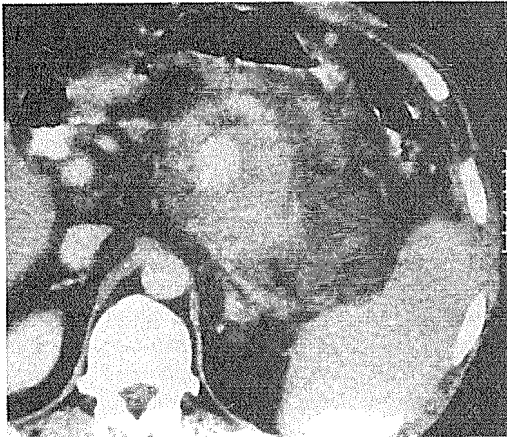


**Figure 1.** On native CT scan a well circumscribed high density mass can be seen in the region of the lesser sac.

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ure 1). After the administration of contrast material a definitive enhancement developed in the centre of the lesion (Figure 2). These US and CT findings prompt-



**Figure 2.** After contrast material administration a definitive enhancement developed clearly showing the rupture of the lienal artery pseudoaneurysm.

ed us to diagnose pancreatitis caused by the active bleeding from the ruptured pseudoaneurysm of the lienal artery. Unfortunately, we were not able to perform angiography and the needed embolization because our equipment did not actually work, being under repair. Next day the patient's condition worsened dramatically. He went into shock, and vomitted blood. Emergency laparotomy revealed that the stomach was filled with blood, and that a 3 cm long rupture appeared on the posterior wall. A large, bloody, necrotic cavity was found in the region of the pancreatic tail. The source of the bleeding was the artery lienalis aroded in the bottom of this cavity. Splenectomy and ligation of the lienal artery were performed. The patient was treated in the intensive care unit, but he died after a few days.

### Discussion

Enzymes released as a consequence of pancreatitis may cause the formation of peripancreatic vessels. Pseudoaneurysm formation or, in rare cases, active bleeding can develop. In case of the suspected active bleeding, a life-threatening complication, a rapid correct diagnosis, and the verification of the source of bleeding are imperative. The Doppler US and the selective angiography are the examinations of choice in these cases. When bleeding is proved, the percutaneous embolization is a possible therapeutic approach.<sup>2</sup>

The symptom-free active abdominal bleeding is rare. It may be incidentally revealed by CT after the blunt abdominal trauma.<sup>4,7</sup> In the acute phase of pancreatitis a contrast, enhanced dynamic CT examination can exactly define the boundaries of intact and damaged parenchyma. In addition, the active bleeding causes characteristic changes observable by a contrast enhancement. Jeffrey et al. summarized the CT features of active bleeding, not due to pancreatitis but based on their own experience and literature data.<sup>8,9</sup>

**Circumscribed form:** On native scans the density of haematoma is higher (70-80HU) than the surrounding organs' density. After the contrast material administration, a definitive enhancement can be seen within the haematoma (130-150HU).

**Diffuse form:** The high density area in the peritoneal cavity or the extraperitoneal space with massive enhancement after the contrast material. It is important to mention that the degree of contrast enhancement is similar to the enhancement of the neighbouring vessels in both forms.

When bleeding invades into a preformed pseudocyst, and the patient is free of symptoms, the high density of the pseudocyst content on native scans may call our attention to bleeding, and the degree of contrast enhancement can verify its presence.

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