

## Pancreatic abscess, a rare complication of peptic ulcer disease

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**Section:** Abdominal imaging

**Area of Interest:** Small bowel Stomach (incl. Oesophagus)

**Procedure:** Endoscopy

**Procedure:** Diagnostic procedure

**Imaging Technique:** Experimental

**Imaging Technique:** CT

**Special Focus:** Abscess Case Type: Clinical Cases

**Authors:** Tonolini Massimo, MD.

**Patient:** 84 years, male

### Clinical History:

84-year-old male suffering from appetite loss, malaise, intermittent low-grade fever since a few weeks, sent to emergency department by family physician under clinical suspicion of upper digestive tumour. Physically found dehydrated, with epigastric tenderness but no peritonism.

Emergency laboratory tests within normal limits, apart from elevated C-reactive protein (30 mg/L).

### Imaging Findings:

CT (Fig. 1) showed a vast abscess with some internal gas occupying the pancreatic region, with residual enhancing pancreatic parenchyma at body and tail, which abutted the contracted antropyloric tract with circumferential mural thickening with oedematous submucosa and hyperenhancing mucosa suggesting severe gastritis. Additionally, focused multiplanar reconstructions identified a focal communication between the pancreatic abscess and the inflamed pyloric-duodenal tract: the origin of fistulisation corresponded to endoscopic finding (Fig. 2) of a large ulcer at the posterior aspect of the proximal duodenum, of unclear peptic or neoplastic nature.

At laparotomy, surgical findings confirmed difficult dissection of lesser sac, presence of a large, foetid purulent and necrotic collection occupying the pancreatic region, fixed to the stomach and deformed pylorus. Abscess toilette and partial gastric resection with Billroth-II gastrojejunostomy were performed, as documented by early postoperative CT (Fig. 3) which excluded complications.

Histology confirmed severe transmural ulcerated peptic gastro-duodenitis with perivisceral inflammation, without malignant changes.

### Discussion:

Despite effective medications and anti-*Helicobacter pylori* (HP) eradication, peptic ulcers (PUs) of the distal stomach, pylorus and duodenal bulb remain a major health problem worldwide with a prevalence ranging from 1.5% in the USA to 10% in low-income countries, and still represent one of the main indications for emergency surgery. Whereas in industrialized regions HP-related PUs are declining, an increasing proportion of ulcers results from use of nonsteroidal anti-inflammatory drugs including cardioprotective aspirin, plus cofactors such as smoking and alcohol consumption. As a result, PUs are increasingly encountered in advanced age, predominantly in males, and may be complicated by haemorrhage, perforation, gastric outlet obstruction and fistulisation in descending order of frequency [1, 2].

Whereas PUs remain the first cause of intraperitoneal perforation, posterior ulcers may occasionally penetrate into

the retroperitoneum. Clinical presentation may be either hyperacute (epigastric pain, severe tenderness, fever) or insidious (abdominal or back pain, malaise weight loss). Leukocytosis, elevated acute phase reactants, serum amylase, lipase and hepatic transaminases are generally present. Surgical treatment via laparotomic approach is generally required, and often involves extensive dissection, gastric resection or duodenectomy [3-6]. When faced with more or less fluid-attenuation collections with peripheral enhancement, the diagnosis of retroperitoneal abscess is relatively straightforward: the vast majority result from superinfection of post-necrotic collections after severe acute pancreatitis, or exceptionally from haematogenous spread [7, 8]. The presence of air-attenuation components may result from gas-forming bacteria or from visceral fistulisation. Conversely, the underlying PU is easily overlooked at CT, since the non-distended stomach and duodenum are difficult to assess, particularly when peristaltic movements or retained content are present. Albeit endoscopy is the pivotal technique for PU diagnosis, it is invasive and often unfeasible in emergency: thus most patients with abdominal pain and unknown peptic disease presenting to emergency department undergo CT as the initial examination. As in this case, careful multiplanar CT interpretation may allow suggesting the correct diagnosis: antral, pyloric and proximal duodenal mural thickening with hyperenhancing mucosa and submucosal oedema reflect severe gastro-duodenitis and warrant endoscopy. The presence of perigastric or periduodenal fat inflammatory changes represent helpful ancillary finding. Albeit superficial ulcers are poorly or not identified, larger and/ or deeper PUs may be recognized as mucosal interruption with focal outpouching (corresponding to the ulcer “crater”) extending beyond the visceral wall. In elderly people, the key differential diagnosis is represented by ulcerated gastroduodenal tumours, which are heralded by soft-tissue attenuation mural thickening [9-12].

**Differential Diagnosis List:** Pancreatic abscess from perforated peptic ulcer of proximal duodenum., Superinfection of necrotizing acute pancreatitis, Pancreatic abscess from bacteraemia, Duodenal diverticulitis, Ulcerated carcinoma

**Final Diagnosis:** Pancreatic abscess from perforated peptic ulcer of proximal duodenum.

## References:

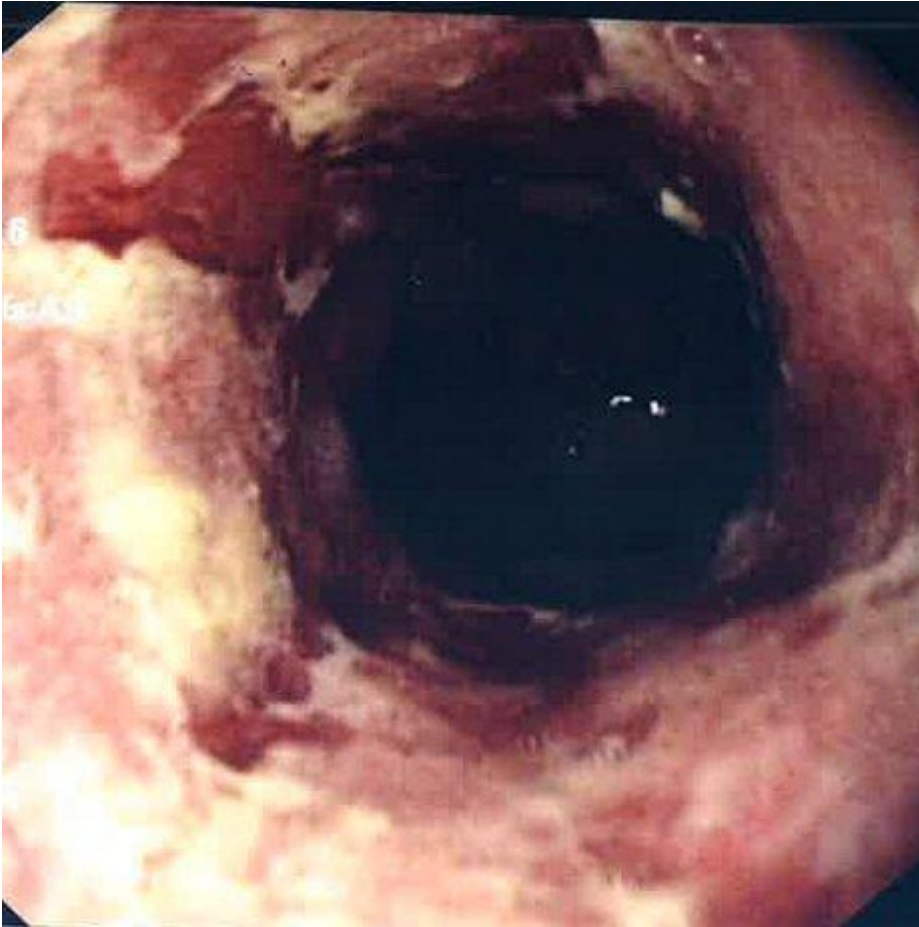
- Fashner J, Gitu AC (2015) Diagnosis and Treatment of Peptic Ulcer Disease and H. pylori Infection. *Am Fam Physician* 91:236-242 (PMID: [25955624](#))
- Agaba EA, Klair T, Ikedilo O, et al (2016) A 10-Year Review of Surgical Management of Complicated Peptic Ulcer Disease From a Single Center: Is Laparoscopic Approach the Future?. *Surg Laparosc Endosc Percutan Tech* 26:385-390 (PMID: [27661205](#))
- Kim MJ, Seo EK, Kang ES, et al (2015) Pyogenic pancreatic abscess mimicking pancreatic neoplasm: a four-case series. *Korean J Gastroenterol* 65:252-257 (PMID: [25896161](#))
- Sadatomo A, Koinuma K, Zuiki T, et al (2013) Retroperitoneal abscess associated with a perforated duodenal ulcer. *Clin J Gastroenterol* 6:373-377 (PMID: [26181834](#))
- Sturup J, Raahave D (1985) Retroperitoneal perforation of duodenal ulcer. *Annales chirurgiae et gynaecologiae* 74:299-300 (PMID: [4096485](#))
- Yoshida H, Onda M, Tajiri T, et al (1999) A case of abscess caused by a penetrating duodenal ulcer. *Hepatogastroenterology* 46:2379-2381 (PMID: [10522001](#))
- Sheu Y, Furlan A, Almusa O, et al (2012) The revised Atlanta classification for acute pancreatitis: a CT imaging guide for radiologists. *Emerg Radiol* 19:237-243 (PMID: [22160496](#))
- Zaheer A, Singh VK, Qureshi RO, et al (2013) The revised Atlanta classification for acute pancreatitis: updates in imaging terminology and guidelines. *Abdom Imaging* 38:125-136 (PMID: [22584543](#))
- Allen BC, Tirman P, Tobben JP, et al (2015) Gastroduodenal ulcers on CT: forgotten, but not gone. *Abdom Imaging* 40:19-25. (PMID: [25015399](#))
- Kitchin DR, Lubner MG, Menias CO, et al (2015) MDCT diagnosis of gastroduodenal ulcers: key imaging features with endoscopic correlation. *Abdom Imaging* 40:360-384 (PMID: [25117561](#))
- Guniganti P, Bradenham CH, Raptis C, et al (2015) CT of Gastric Emergencies. *Radiographics* 35:1909-1921

(PMID: [26562229](#))

Heller MT, Haarer KA, Itri JN, et al (2014) Duodenum: MDCT of acute conditions. Clin Radiol 69(1):e48-55 (PMID: [24239275](#))

**Figure 1**

a



**Description:** Endoscopic image showed a large ulceration at the posterior aspect of proximal duodenum, of unclear peptic or neoplastic nature. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

**Figure 2**

a



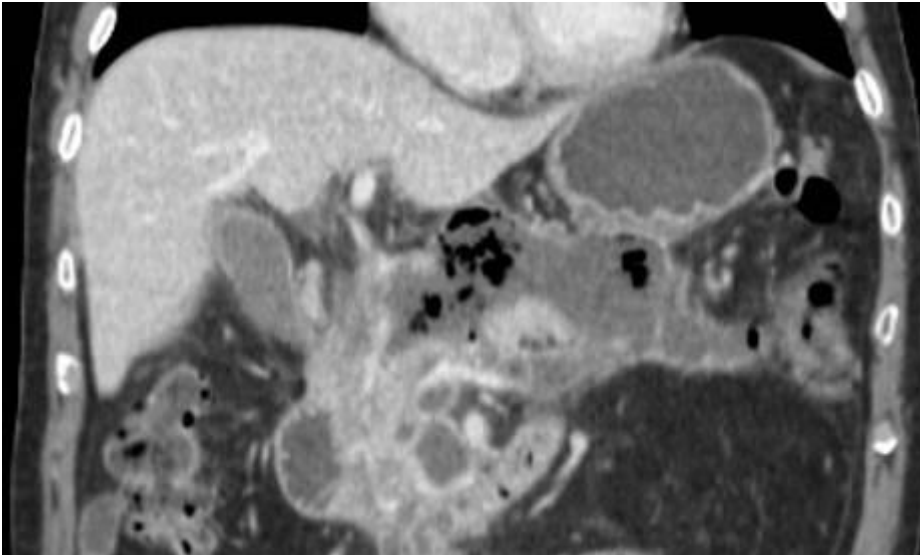
**Description:** Precontrast acquisition showed a large collection with mixed fluid and gaseous content occupying the entire pancreatic region, closely abutting the contracted antropyloric tract (arrow). No ascites. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

**b**



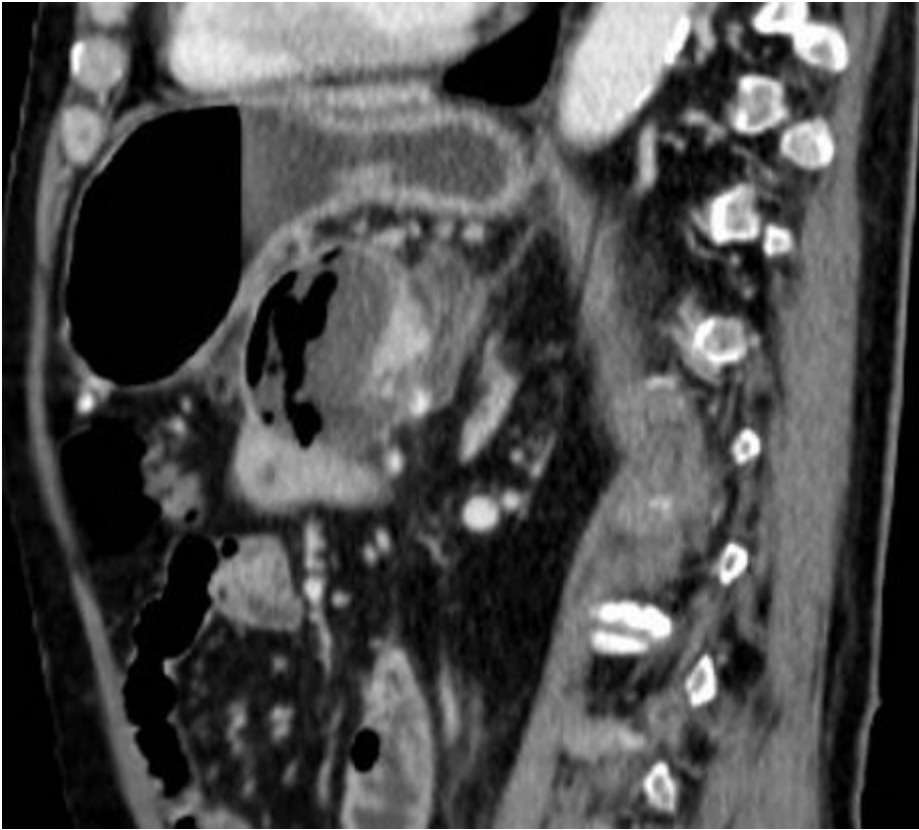
**Description:** Multiplanar post-contrast images (b...d) confirmed enlarged pancreatic region occupied by a large air/fluid collection with peripheral enhancement, consistent with an abscess. Note inflammatory stranding of the ventral surrounding fat. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

**c**



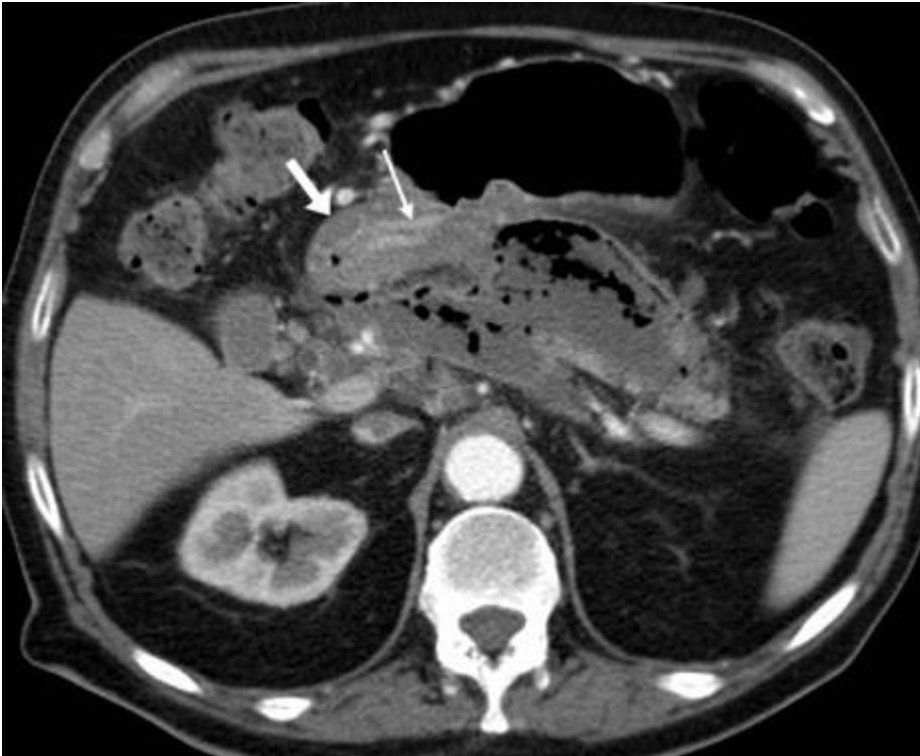
**Description:** Multiplanar post-contrast images (b...d) confirmed enlarged pancreatic region occupied by a large air/fluid collection with peripheral enhancement, consistent with an abscess. Note distended stomach. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

d



**Description:** Multiplanar post-contrast images (b...d) confirmed enlarged pancreatic region occupied by a large air/fluid collection with peripheral enhancement, consistent with an abscess. Note distended stomach, residual enhancing pancreatic parenchyma. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

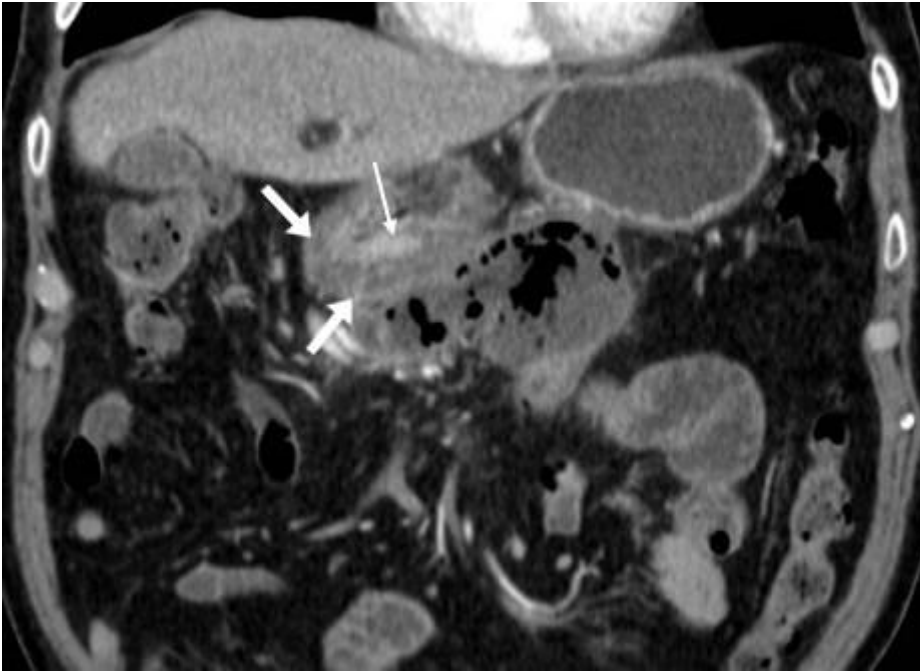
e



**Description:** Additionally, the contracted antropyloric tract showed circumferential mural thickening (arrows) with hypoattenuating oedematous submucosa and hyperenhancing mucosa (thin arrows) consistent with severe gastritis. Note pancreatic abscess. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)



f



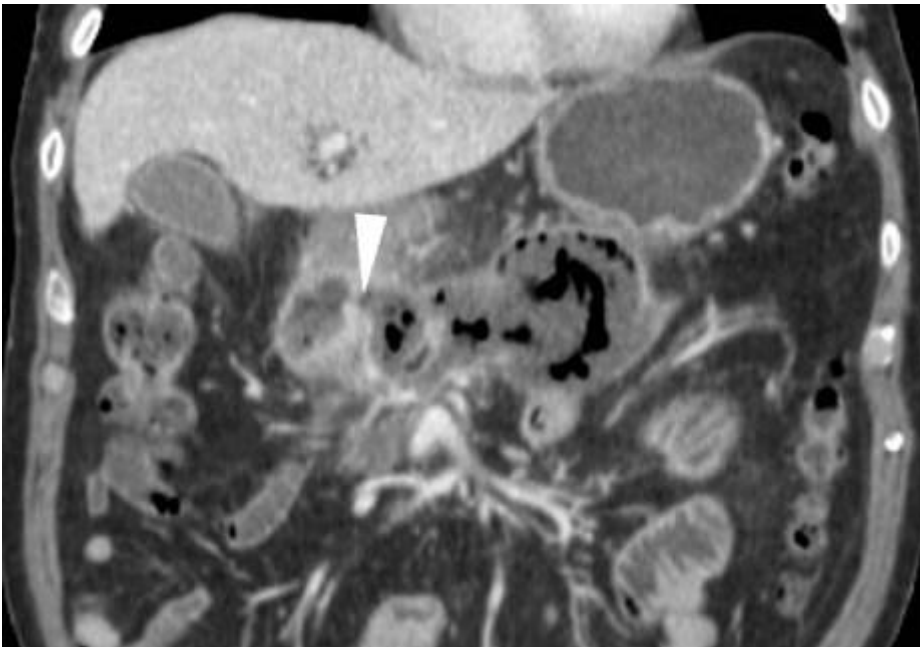
**Description:** Additionally, the contracted antropyloric tract showed circumferential mural thickening (arrows) with hypoattenuating oedematous submucosa and hyperenhancing mucosa (thin arrows) consistent with severe gastritis. Note pancreatic abscess. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

g



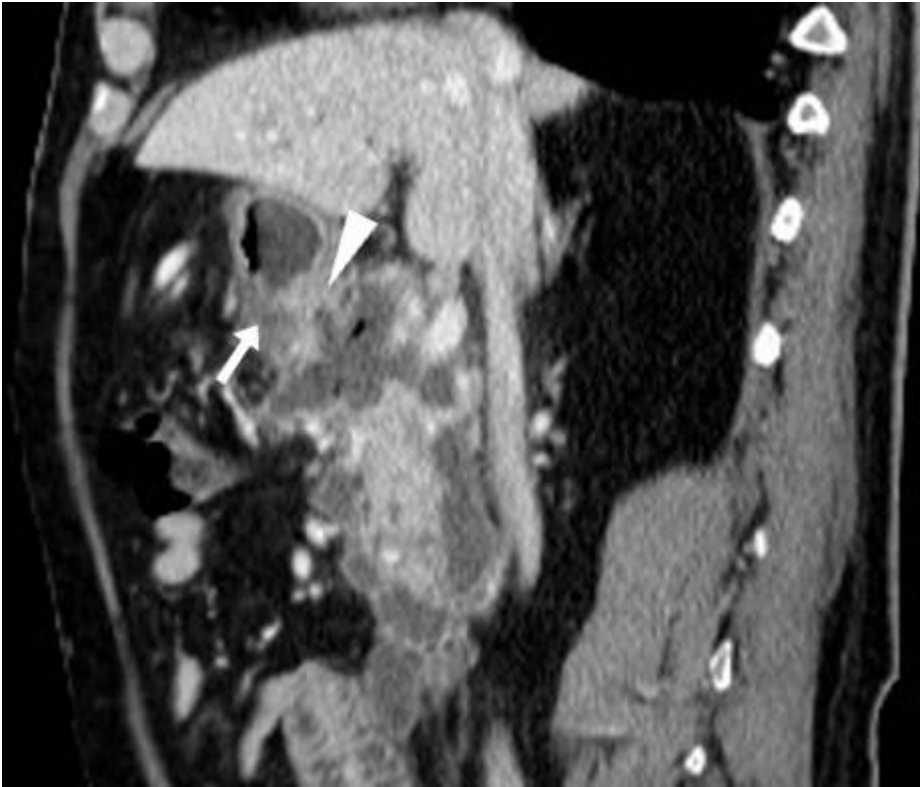
**Description:** Additional focused multiplanar reconstructions (g...i) identified focal communication (arrowheads) between pancreatic abscess and inflamed pyloric-duodenal tract with oedematous mural thickening (arrows). Note residual enhancing pancreatic parenchyma. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

h



**Description:** Additional focused multiplanar reconstructions (g...i) identified focal communication (arrowheads) between pancreatic abscess and inflamed pyloric-duodenal tract. Note distended stomach. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

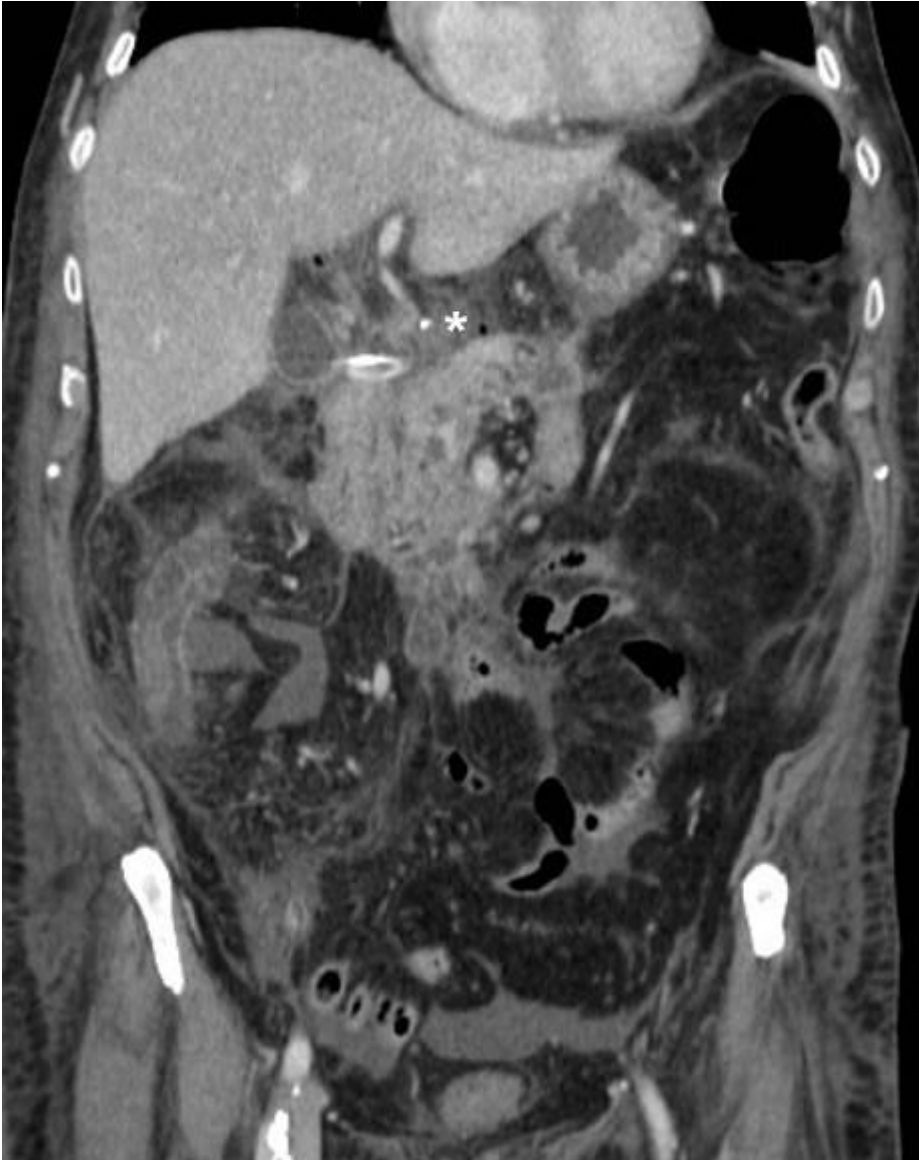
i



**Description:** Additional focused multiplanar reconstructions (g...i) identified focal communication (arrowheads) between pancreatic abscess and inflamed pyloric-duodenal tract with oedematous mural thickening (arrows). Note residual enhancing pancreatic parenchyma. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

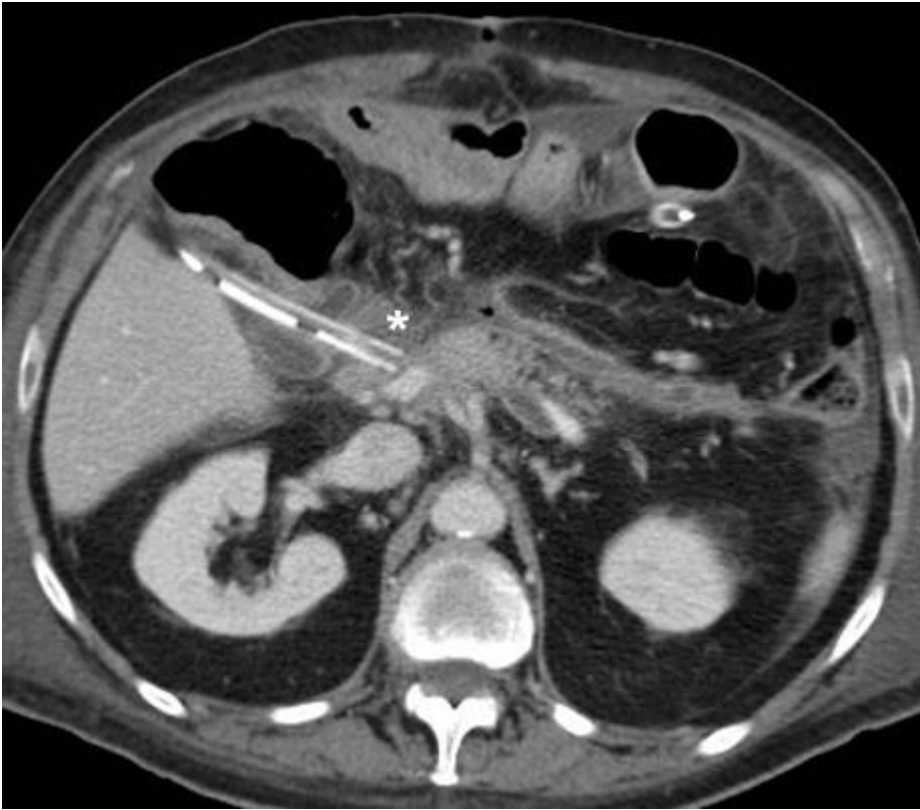
**Figure 3**

a



**Description:** Coronal (a) and axial (b,c) images showed post-surgical appearance after gastric resection with disappeared pancreatic abscess. Note drainage tube in place, minimal perianastomotic fluid (\*), normally enhancing residual pancreatic parenchyma. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

**b**



**Description:** Coronal (a) and axial (b,c) images showed post-surgical appearance after gastric resection with disappeared pancreatic abscess. Note drainage tube in place, minimal perianastomotic fluid (\*), normally enhancing residual pancreatic parenchyma. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)

**c**



**Description:** Coronal (a) and axial (b,c) images showed post-surgical appearance after gastric resection with disappeared pancreatic abscess. Note drainage tube in place, minimal perianastomotic fluid (\*), normally enhancing residual pancreatic parenchyma. **Origin:** Tonolini M, Radiology Department, "Luigi Sacco" University Hospital – Milan (Italy)