Primary pancreatic actinomycosis: A case report and literature review

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Actinomycosis is a rare disease caused by *Actinomyces israelii*, a commensal of the gastrointestinal and female genital tract that can acquire pathogenicity after penetration of tissues favored by breaks in mucous membranes. Pancreatic involvement is extremely rare.[1]

These lesions can mimic malignancy and be overtreated with unnecessary surgery and risks.

According to our knowledge, there are only 12 cases reported in the literature [Table 1]. A history of previous pancreatic surgery or stenting is frequently reported.[2] Unfortunately, the diagnosis is often made after the surgery when medical therapy is the only treatment required.

Our case involves a 63-year-old man with a 6-month history of abdominal pain, nausea, anorexia, and weight loss. Ten years before, he developed acute necrotizing pancreatitis which required necrosectomy. Blood test findings revealed elevated white blood cell count, polymerase chain reaction, and cholestatic indices.

CT detected a hypoattenuating solid large mass, in the pancreatic head region, measuring 87 mm × 77 mm, with encasement of the portal and superior mesenteric veins, upstream dilatation of the pancreatic duct, and duodenal compression [Figure 1a]. These findings suggested locally advanced neoplasia.

The patient was referred to our endoscopic unit to perform an EUS with fine-needle biopsy (EUS-FNB).

We preliminary performed an upper endoscopy that identified duodenal stenosis making not possible to pass through the superior duodenal flexure.

Endosonography showed a normal "salt and pepper" pattern in the pancreatic body and tail but a dilated main pancreatic duct (MPD). From the bulb, it was possible to highlight the lesion [Figure 2a] and EUS-FNB was performed with a 20G ProCore fine needle. Histopathological analysis showed granulomatous inflammation with *Actinomyces* colonies [Figure 2b].

The patient quickly recovered with complete relieve of the symptoms and CT neoplasm disappearance after 1 month of intravenous ampicillin therapy [Figure 1b]. Currently, he is in follow-up, well, and symptoms-free.

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Table 1. Pancreatic actinomycosis cases reported in the literature

Author	Location	Believed cause	Method of diagnosis	Treatment	Alive
Addeo, 2019	Head	Chronic pancreatitis	Surgery (EUS-FNA failed)	Not assessed	Yes
Sogabe Y, 2018	Head-body	Cholecystectomy, biliary stenting	EUS-guided FNB	Ampicillin-sulbactam	Yes
Jeo SJ, 2017	Tail	MPD stenting in chronic pancreatitis	EUS-guided FNB	Ampicillin-sulbactam	Yes
F. de Clerk, 2015	Tail	MPD stenting in chronic pancreatitis	Surgery	IV amoxicillin/ clavulanic acid	Yes
Maestro, 2013	Body	Not assigned	EUS-guided FNB	IV penicillin	Yes
Kuesters S, 2010	Head	Pancreatic duct drainage in chronic pancreatitis	Surgery	Ceftriaxone, metronidazole	Yes
Sahay SJ, 2010	Head	Pancreaticojejunostomy	EUS-guided FNB	IV tazocin	Yes
Lee JH, 2010	Head	Not assigned	Surgery	Penicillin	Yes
Jha A, 2010	Body-tail	Whipple's procedure	Surgery	IV penicillin	Yes
Samsouk M, 2008	Head	Pancreaticojejunostomy	EUS-guided FNB	Amoxicillin	Yes
Harsch IA, 2001	Head	MPD stenting in chronic pancreatitis	Analysis on MPD stenting	Not assessed	Yes
Parsons HH, 1931	Head-body-tail	Not assigned	Surgery	Not assessed	Died

MPD: Main pancreatic duct, IV: Intravenous

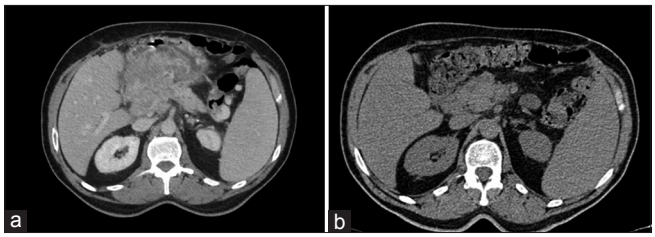

Figure 1. (a) Pretreatment computed tomographic scan showing a wide, irregular, hypoattenuating mass, in the head of the pancreas, with a tumor-like appearance; (b) One month later after antibiotic therapy, computed tomographic scan showing a complete resolution with no more evidence of the mass

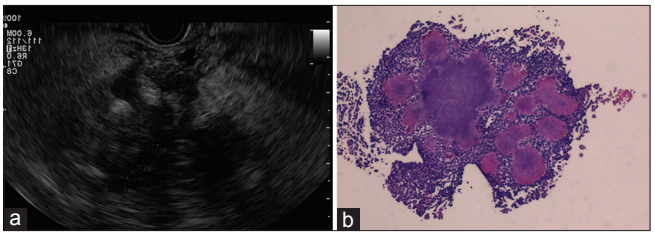

Figure 2. (a) EUS view of the pancreatic head lesion which is with poorly defined margins; (b) Hematoxylin and eosin section showing a marked neutrophilic inflammation with multiple *Actinomyces* colonies

Pancreatic actinomycosis can mimic neoplasms. This should be taken into account, especially in patients with previous pancreatic surgery or stenting that might create a break of the intestinal wall, which would allow bacteria penetration.

Antibiotic is the treatment of choice, and surgery is reserved to selected cases to drain otherwise unhealing abscesses.[3]

EUS-FNB is a useful tool that can help to reach a prompt diagnosis and therapy, avoiding unnecessary and risky surgery.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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