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## Pancreatic tuberculosis: a case report

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**ABSTRACT:**

Pancreatic tuberculosis is a rare extrapulmonary location of this disease. It is reported the case of a 62-year-old woman who had signs and auxiliary tests suggesting cancer of pancreas head. Through the anatomopathological study, a necrotizing granulomatous infiltrate with giant cells type Langhans without atypia was found, dismissing the possibility of neoplasia.

**Key Words:** Pancreas. Peru. Tuberculosis.

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INTRODUCTION

Tuberculosis is a multisystemic infectious disease caused by several mycobacteria, being the most common *Mycobacterium tuberculosis*. Extrapulmonary tuberculosis is defined as that located in a zone other than the lungs, while miliary tuberculosis refers to the disease with pulmonary and systemic<sup>1</sup> involvement. Annually, about 9.6 million cases of tuberculosis are reported worldwide; and, while most of the countries in the America region have rates lower than 50 cases per 100 thousand inhabitants, in Peru about 27 thousand new cases of active disease are reported and 17.8% of all tuberculosis cases are extrapulmonary. Out of these, pleural location is the most frequent, followed by the lymph node and the nervous system. Cases of gastrointestinal, breast, urogenital, osteoarticular, and skin localization are also reported, but in a lower percentage<sup>2</sup>. In Lima, 10 years ago, a case of synchronism of pancreatic adenocarcinoma with peripancreatic tuberculous lymphadenitis in a 79-year-old woman<sup>3</sup> was reported. However, in our institution this is the first case of pancreatic tuberculosis tumor as the sole source.

describes a hyperintense prominence in T2 of 41 mm × 32 mm dimensions that suggests a neoformative aspect of the pancreatic head (Figure 2 and 3); pancreatic body and tail of atrophic appearance and lesions suggesting liver metastasis. The Ecoendoscopy, performed a month later, showed a tumor in the pancreas head and body involving mesenteric vessels. A guided biopsy is taken which is not contributory for diagnosis. The PET scan, performed in December of the same year, suggests pancreatic neoplasia.



Figure 1. Cross section of abdominal Multislice CT, where there is a tumor in pancreas head that suggests cancer of this organ

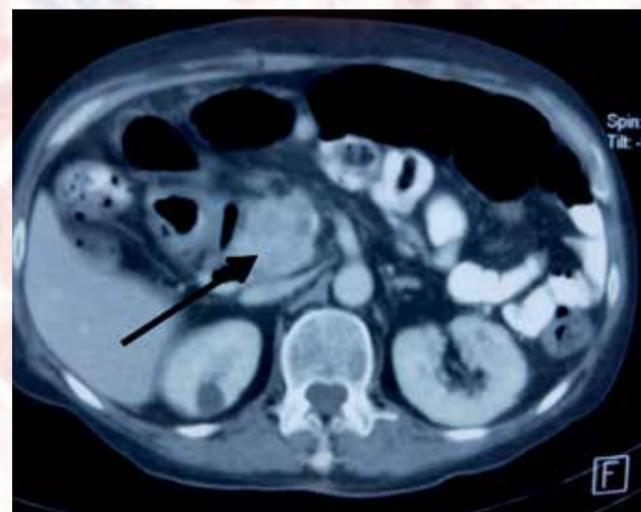


Figure 2. Cross section of abdominal Multislice CT, where there is a stunning tumor in pancreas head.

CLINICAL CASE

A 62-year-old female patient with 5 months of illness characterized by partial intolerance to oral intake, hyporexia, asthenia, and weight loss of around 10 kilos. In addition, pain in the right hypochondrium and mesogastrium, without jaundice or febrile sensation. Clinically, a thin patient and, at physical examination, the abdomen is globose, soft, and depressible, with hydro-aerial noises present, being the rest non-contributory.

In the Abdominal Multislice CT (Oct/16) a pancreatic head and neck tumor of 4 cm × 5 cm compatible with pancreatic cancer is described (Figure 1). The colangiorenance, made in October 2016,

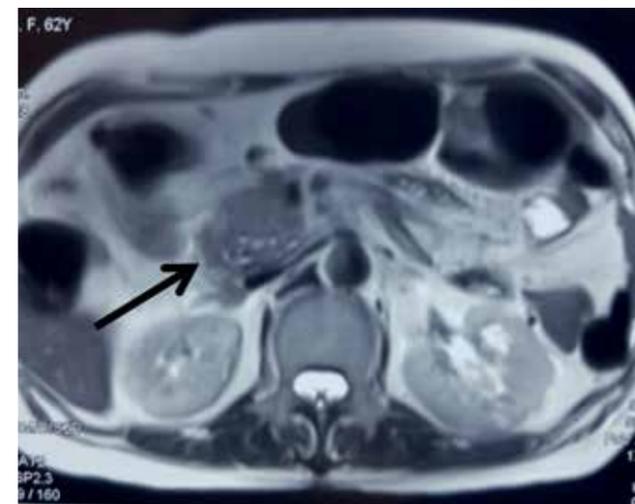


Figure 3. Cross section of colangiorenance where there is a neoformative image in pancreas head.

The laboratory exams showed mild anemia (Hemoglobin 11.10 gr / dl), Prothrombin time at 16.50 s (VN: <11.30 s) and CA 19-9 at 34.34 U/mL (VN <34 U / mL). Serologic tests for hepatitis B, HIV (human immunodeficiency virus) and syphilis are negative. With this information, the patient is scheduled for a biopsy by using exploratory laparotomy and freezing biopsy.

Intraoperative findings describe a well-defined tumor of approximately 6 cm, pale-red infiltrate involving mesenteric vessels and a normal yellowish-white pancreas (Figure 4). A freezing biopsy is taken, whose results show sources of chronic inflammatory infiltrate to lymphomononuclear cells without malignancy. A sample was taken for an anatomopathological study (Figure 5), whose result shows a chronic necrotizing granulomatous inflammatory infiltrate, with giant Langhans cells, without proliferation of atypical or neoplastic cells.

The post-surgical evolution of the patient was satisfactory. With the results she is evaluated by the infectology specialty, which indicates the antituberculous treatment, with good results so far.



Figure 4. Intraoperative finding of pale-red tumor in pancreas head and pancreatic tissue of normal aspect behind.



Figure 5. Zone of taking of biopsy of tumor in pancreas head in black, and tumor tissue in pale red around.

## DISCUSSION

In general, approximately 1 out of 8 patients with tuberculosis have extrapulmonary involvement. Abdominal involvement occurs in 11% to 16% of extrapulmonary cases<sup>4</sup>. Out of the 300 cases of abdominal tuberculosis reviewed by Bhansali et al. in 1977, none involved the pancreas<sup>5</sup>. The nine-year study by Vafa et al. identified only 5 cases of pancreatic or peripancreatic tuberculosis, representing a frequency of 0.17 of all pancreatic diseases admitted in their hospital<sup>6</sup>. However, although the incidence of tuberculosis is increasing worldwide, cases in pancreas are not exactly known<sup>7</sup>. In addition, this entity is even so rare that it can occur in patients who are receiving antituberculous therapy<sup>8</sup>. Nagar et al. found that 50% of the 32 cases of TB in pancreas they reviewed were seropositive for HIV<sup>9</sup>. This could be explained by taking into account the low immunological response and the large bacterial load presented by immunocompromised patients<sup>10</sup>. Xia, on the other hand, reported a study of 16 patients with pancreatic tuberculosis who were immunocompetent<sup>11</sup>.

Symptomatic patients usually have toxemic tuberculosis and this includes symptoms such as abdominal pain and mass, fatigue, anorexia, weight loss, night sweats, jaundice, and fever<sup>10</sup>, being the latter the most common symptom in a series of 13 cases<sup>12</sup>. Pancreatic tuberculosis can be present as an abscess or as an acute or chronic pancreatitis, gastrointestinal bleeding and, in some cases, as a mass imitating malignancy<sup>10</sup>. Precisely, in the patient of the study, the probability of being a neoplastic process was considered, since the Multislice CT showed a tumor in the pancreas head and a discrete elevation of CA 19-9.

In the intra-abdominal region, tuberculosis most frequently affects the ileocecal area and some solid organs, such as the kidney, spleen and liver<sup>10</sup>. The pancreas is an organ that is hardly affected by tuberculosis, since the enzymes it produces work like a mechanism of resistance and because of some

antimicrobial factors that avoid its onset. The most common form of dissemination of tuberculosis to solid abdominal organs is via hematogenous spread and, in lower frequency, via lymphatic spread. Three forms of tuberculosis in pancreas are described: as a part of miliary tuberculosis, disseminated to pancreas from retroperitoneal lymph nodes or located pancreatic tuberculosis<sup>13,14</sup>, being the latter the case of our patient.

The ultrasound is one of the initial methods used for pancreatic injuries; in cases of tuberculosis, the ultrasound usually reveals a located hypoechoic mass or a cystic injury in the head or in the uncinate process of pancreas<sup>7</sup>. However, the options of diagnosis in this pathology are mainly four: echoendoscopy, fine-needle aspiration cytology, contrasted tomography, and laparotomy<sup>15</sup>. Fine-needle aspiration cytology is an easy and non-invasive method for the diagnosis of pancreatic tuberculosis<sup>8</sup>. In this sense, Song et al. reached the diagnosis of 76,2 % of patients by means of echoendoscopy plus fine-needle aspiration<sup>16</sup>, since the echoendoscopy can differentiate pancreatic and peripancreatic masses with great resolution<sup>7</sup>. Nevertheless, this method causes an increased risk of pancreatitis and of dissemination of the illness<sup>8</sup>. The biopsy with Tru-cut or thick needle is another tool that can be used, but it is not always possible in these cases and can generate injuries in the intestine and near vessels<sup>10</sup>. Regarding the tomography, some suggestive signs of tuberculosis are a defined, hypodense mass, an hypovascular one with irregular margins, that can have necrotic nodes around<sup>10</sup>. Others define that the radiological sign that can indicate tuberculosis is a mass in the head of pancreas which does not engage the vasculature<sup>17</sup>. On the other hand, Falkowski et al. consider that the most common image is an isolated injury with multiple cystic components<sup>18</sup>. Nevertheless, even when tomography is a usually common proof in most of the patients, it often fails in this type of diagnosis<sup>10</sup>. In the case of our patient, the echoendoscopy was firstly done, describing a tumor in the head and body of pancreas that engages mesenteric vessels. In the Multislice CT a tumor in the

pancreatic head and neck compatible with cancer is evidenced.

However, the diagnosis of pancreatic tuberculosis is not usually suspected before the laparotomy<sup>12,13</sup>, so the best form of diagnosis is by the histology obtained from a excisional biopsy. This method, made by laparotomy, should be use only in cases when other diagnostic methods had failed<sup>10</sup>. Precisely, that procedure was made in the patient of this research. In the study of Xia et al., it is described that the laparotomy was made in 12 out of the 16 patients<sup>11</sup> and, in the study of Yan et al., they followed this method with 12 out of 13 patients<sup>12</sup>. It is suggested to limit the surgery to the taking of biopsy and, if there is abscess, to the drainage of it<sup>8,10</sup>. In the case of the patient, the laparotomy was made in order to take a sample for the pathology study and the biopsy showed sources of chronic, necrotizing granulomatous inflammatory infiltrate, with giant cells type Langhans and without proliferation of atypical cells. In pancreatic tuberculosis, the caseous granuloma is present in 75% to 100 % of the cases, and the identification of the bacillus is possible in the 20 % to 40 %<sup>19</sup>.

CA 19-9 is a marker that is increased in cases of gastrointestinal cancer, as those of pancreas, bile duct, colon, oesophagus, and liver. However, this marker also increases in other pancreatic pathologies, as well as in tuberculosis. Thus, it can be confused with pancreatic adenocarcinoma. Kauret al. found an increase of CA 19-9 of more than 400 times in a patient with pancreatic tuberculosis<sup>14</sup>. The patient of our case presented a CA 19-9 value of 34,34 U/mL, and considering that the normal value is lower than 34 U/mL, it is evident that this does not represent a significant increase of this marker.

Once made the diagnosis, it is recommended to start the antituberculosis therapy with the four drugs used for this: isoniazid 5 mg/kg, rifampicin 10 mg/kg, pyrazinamide 30 mg/kg, and ethambutol 20 mg/kg during 2 to 4 months. Then, it is necessary to initiate a diagram of isoniazid and rifampicin for 6 to 12

months<sup>10</sup>. Raghavan et al. affirm that the resolution of pancreatic injuries evidenced in the echography<sup>15</sup> as well as the symptomatology relief<sup>1</sup> can be observed after 6 months of treatment at least.

Pancreatic tuberculosis is a little frequent entity in our country, although Peru is an endemic country and with multiple forms of presentation of this illness. Nevertheless, it is important to consider this diagnosis when the patient shows some signs that can indicate somehow the possible etiology of the case. This will allow not only a timely treatment, but also it will be possible to use less invasive methods to eventually determine the definite cause.

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None.

## CONFLICTS OF INTEREST

The authors do not report conflicts of interest regarding the present manuscript.

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