ISOLATED PANCREATIC TUBERCULOSIS IN IMMUNOCOMPETENT AND IMMUNOCOMPROMISED HOSTS: A CASE SERIES

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Abstract

Significance: Pancreatic tuberculosis is an extremely rare disease which can present as a pancreatic mass. Its clinical and radiologic features may mimic those of a pancreatic neoplasm making its diagnosis a clinical challenge. There are several reports in the literature but to our knowledge, there are no published studies in the Philippines. **Case Presentation:** The first case is a previously healthy 22-year old female who complained of 1-week history of intermittent, vague epigastric pain. The second case is a 35-year old male diagnosed with AIDS presenting with 3 months history of intermittent epigastric pain associated with anorexia, weight loss, generalized body weakness, jaundice, recurrent fever and chills. Abdominal exam revealed direct tenderness on the epigastric and right upper quadrant area. **Management:** For the first case, complete blood count showed mild anemia of 11g/dL. Chest X-ray, bilirubin, alkaline phosphatase, ALT levels were all normal. Ultrasound revealed a 4.2x2.6x2.0cm (LxWxAP) hypoechoic solid focus in the peri-pancreatic region which on subsequent contrast-enhanced CT scan demonstrated an ill-defined enhancing heterogenous enhancing mass measuring 5.1 x 3.6 x 4.0 cm at the pancreatic head with multiple lymphadenopathies in the peri-pancreatic and retroperitoneal region. Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) of the pancreatic head mass was performed showing a 3.7x2.7cm hypoechoic mass with central areas of necrosis at the pancreatic head. A 0.4cm peri-pancreatic lymph node was also identified. Incidentally, the duodenal bulb was noted to be markedly edematous on endoscopic view. Cytology revealed chronic granulomatous inflammation. For the second case, complete blood count showed anemia of 8.2g/dL. AST and ALT were elevated at 62.2 and 59.1 u/L, respectively. Ultrasound showed a complex mass with predominantly cystic component noted at the pancreatic head measuring 3.8x3.1x3.9cm. EUS revealed a heterogenous hypoechoic lesion with ill-defined border at the pancreatic head measuring 6x3.8cm. EUS-FNA was done wherein 15ml of yellow purulent fluid was aspirated. AFB stain was positive. Histopathology showed cytomorphologic findings consistent with abscess. Both patients were subsequently started on quadruple anti-Koch's therapy. **Recommendation:** Pancreatic tuberculosis should be considered as a differential diagnosis in patients presenting with a pancreatic mass particularly in the young, those with atypical signs and symptoms, and in endemic areas or immunocompromised hosts. A high index of suspicion and an accurate diagnostic approach with EUS-FNA are essential to avoid unnecessary surgeries.

Keywords: case series, pancreatic tuberculosis, endoscopic ultrasound, extrapulmonary tuberculosis

Introduction

Isolated pancreatic tuberculosis (TB) is extremely rare; even in endemic areas like the Philippines, with fewer than 100 cases reported worldwide with an incidence estimated to be less than 4.7%[5]. It was first reported by Auerbach in 1944 wherein he noted that the pancreas was affected in 4.7% of cases of military TB[3]. Its clinical features can be vague and non-specific while its radiologic features may mimic those of a pancreatic malignancy making its diagnosis a clinical challenge.

Case 1

We present a case of a previously healthy 22-year-old Filipino female who complained of 1-week history of epigastric pain, characterized as vague, intermittent, non-radiating with a pain scale of 5/10. She denied any history of weight loss, fever nor vomiting. Physical examination was unremarkable.

Complete blood count showed mild anemia of 11g/dL. Chest x-ray, bilirubin, alkaline phosphatase, alanine aminotransferase levels were all normal. Whole abdominal ultrasound revealed a 4.2x2.6x2.0cm (LxWxAP) hypoechoic solid focus in the peri-pancreatic region (Figure 1) which on subsequent contrast-enhanced CT scan demonstrated an ill-defined enhancing heterogenous enhancing mass measuring 5.1x3.6x4.0cm at the pancreatic head with multiple lymphadenopathies in the peri-pancreatic and retroperitoneal region (Figure 2). On upper endoscopy, there was a circumferential, friable mass obstructing 80% of the lumen noted at the duodenal bulb (Figure 3). Multiple biopsies were taken. Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) of the pancreatic head mass was performed (Figure 4). EUS demonstrated a 3.7x2.7cm hypoechoic mass with central areas of necrosis at the pancreatic head. A 0.4 cm peri-pancreatic lymph node was also identified. Histopathology of the duodenal mass revealed pyloric gland adenoma (Figure 5). Cytology of the pancreatic mass revealed chronic granulomatous inflammation with necrotic debris (Figure 6).

Patient was subsequently started on quadruple anti-Koch's therapy (Isoniazid, Rifampicin, Ethambutol, and Pyrazinamide). After 2 weeks of treatment, there was resolution of symptoms. A repeat upper endoscopy and ultrasound after 3 months showed interval disappearance of the duodenal mass and regression of the hypoechoic solid focus to 1.9x2.2x1.4cm, respectively (Figure 6).

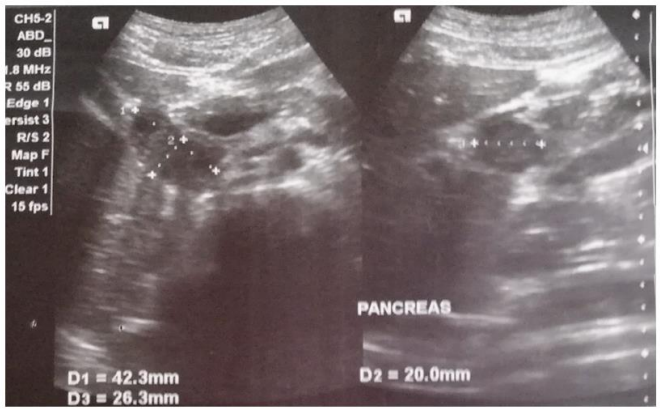

Figure 1. Whole abdominal ultrasound sowed a hypoechoic solid focus in the peri-pancreatic region

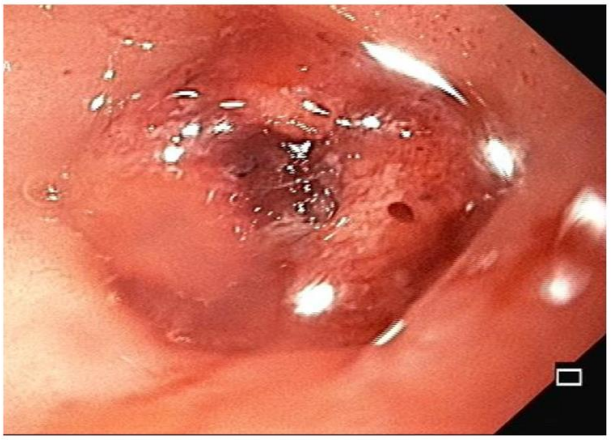

Figure 3. EGD showing a circumferential, friable mass obstructing 80% of the lumen noted at the duodenal bulb

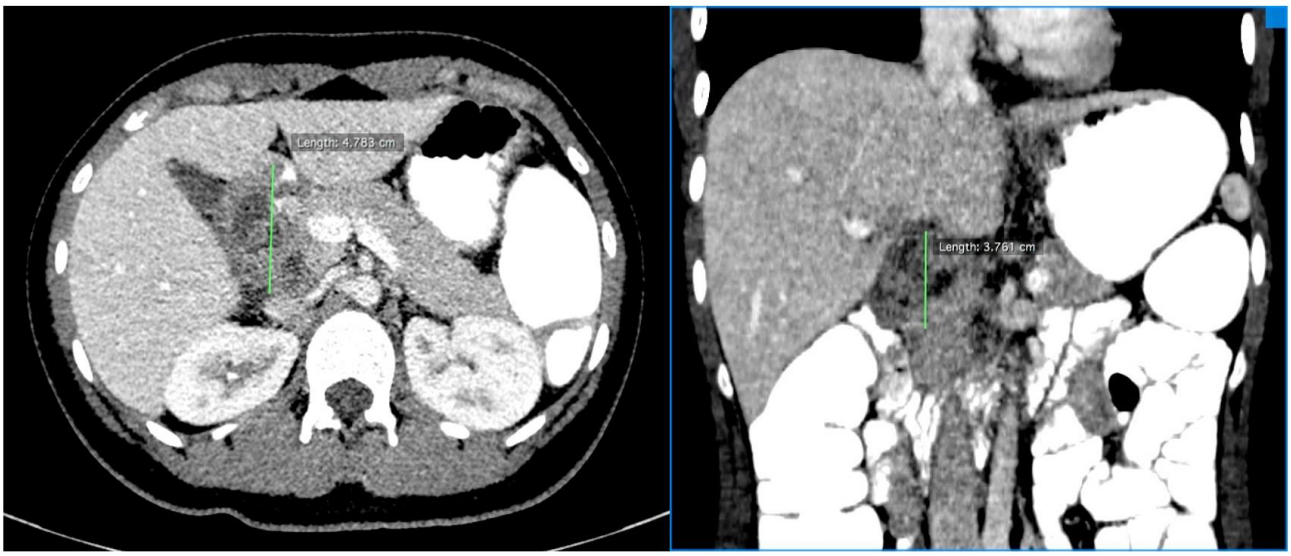

Figure 2. contrast-enhanced CT scan demonstrating an ill-defined enhancing heterogeneous enhancing mass measuring 5.1x3.6x4.0cm at the pancreatic head (green cursor)

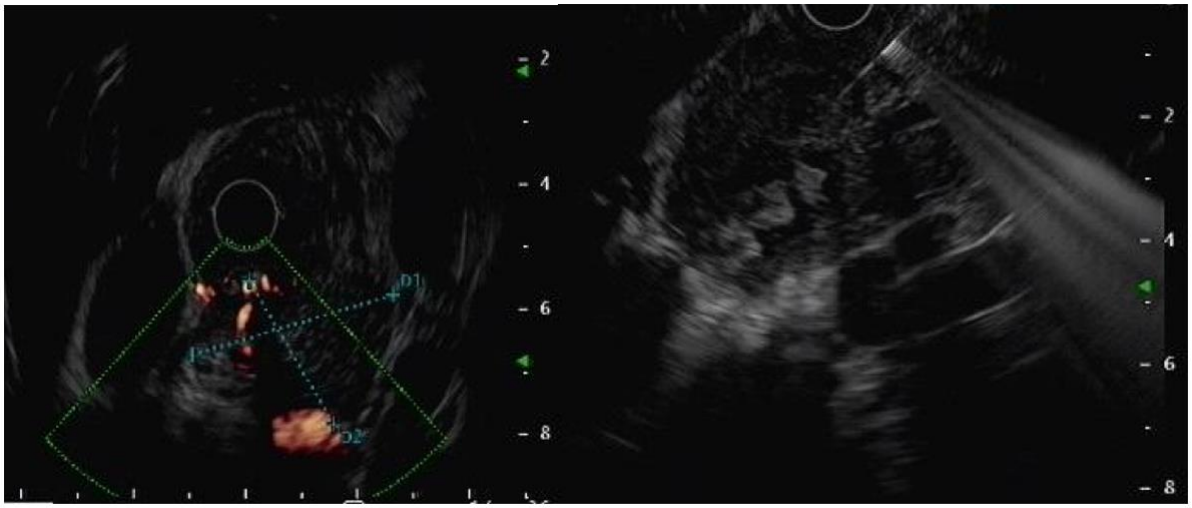

Figure 4. EUS-FNA demonstrating a 3.7x2.7cm hypoechoic mass with central areas of necrosis at the pancreatic head.

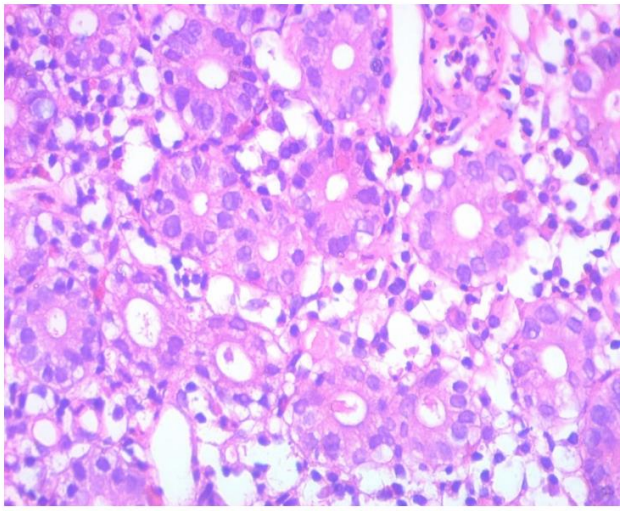

Figure 5. Duodenal mass histopathology

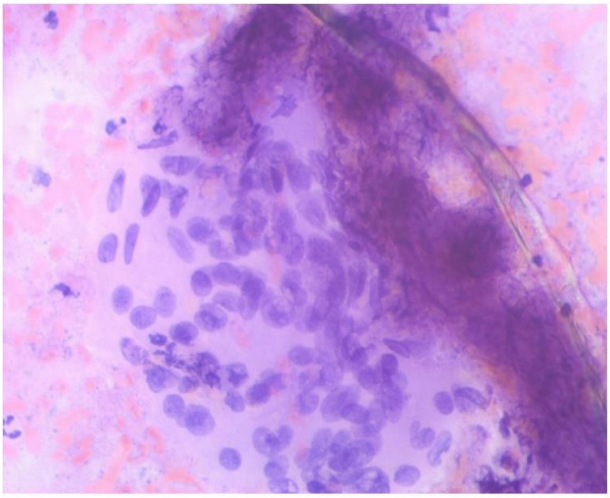

Figure 6. Pancreatic mass cytology (400x magnification)

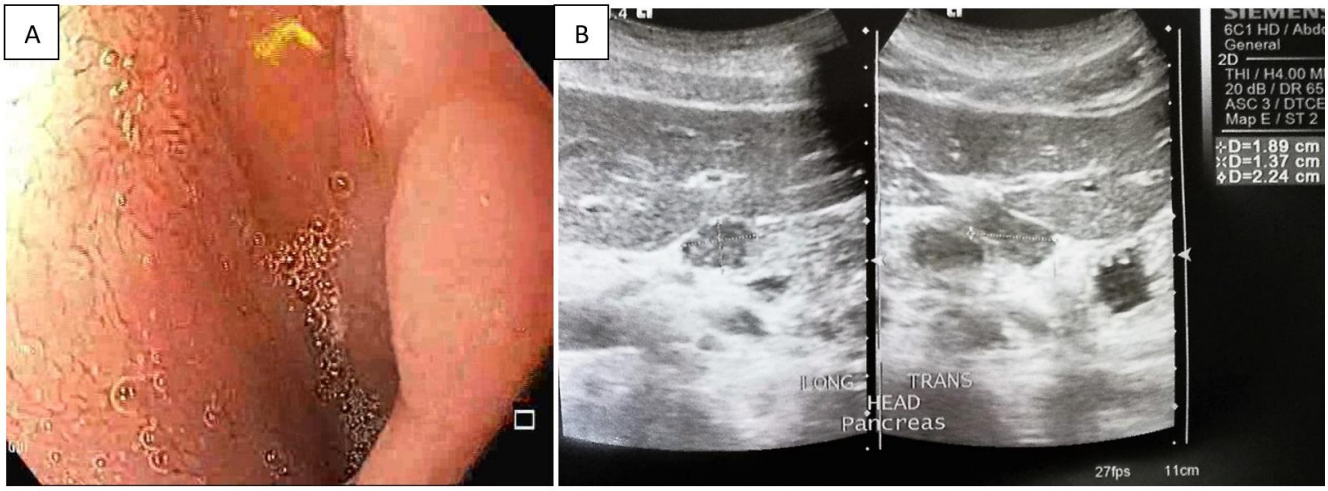

Figure 6. Repeat upper endoscopy (A) and whole abdominal ultrasound (B) after 3 months of anti-Koch's therapy

Case 2

We present a case of a 35-year old Filipino male previously diagnosed with AIDS (CD4 count =16) presenting with 3-months history of intermittent epigastric pain associated with anorexia, significant weight loss, generalized body weakness, jaundice (with tea colored urine and clay colored stools), recurrent fever and chills. Patient was cachectic with a BMI of 19 kg/m^2. Abdominal exam revealed direct tenderness on the epigastric and right upper quadrant area.

Complete blood count showed anemia of 8.2g/dL. AST and ALT were elevated at 62.2 and 59.1 u/L, respectively. Ultrasound showed a complex mass with predominantly cystic component noted at the pancreatic head measuring 3.8x3.1x3.9cm (Figure7). EUS revealed a heterogenous hypoechoic lesion with ill-defined border at the pancreatic head measuring 6x3.8cm (Figure 8). Endoscopic diagnosis was pancreatic head abscess and EUS-FNA was done wherein 15 ml of yellow purulent fluid was aspirated. AFB stain was positive. Gram stain and Culture revealed no microorganism and pus cells of +++ and no growth after 3 days of incubation,

respectively. Histopathology showed dense neutrophils and few lymphocytes set in a background of necrotic debris with no malignant cells seen. The cytomorphologic findings were consistent with abscess (Figure 9).

Patient was subsequently started on quadruple anti-Koch's therapy (Isoniazid, Rifampicin, Ethambutol, and Pyrazinamide). After 1 week of treatment, there was resolution of symptoms and patient was discharged improved from the hospital.

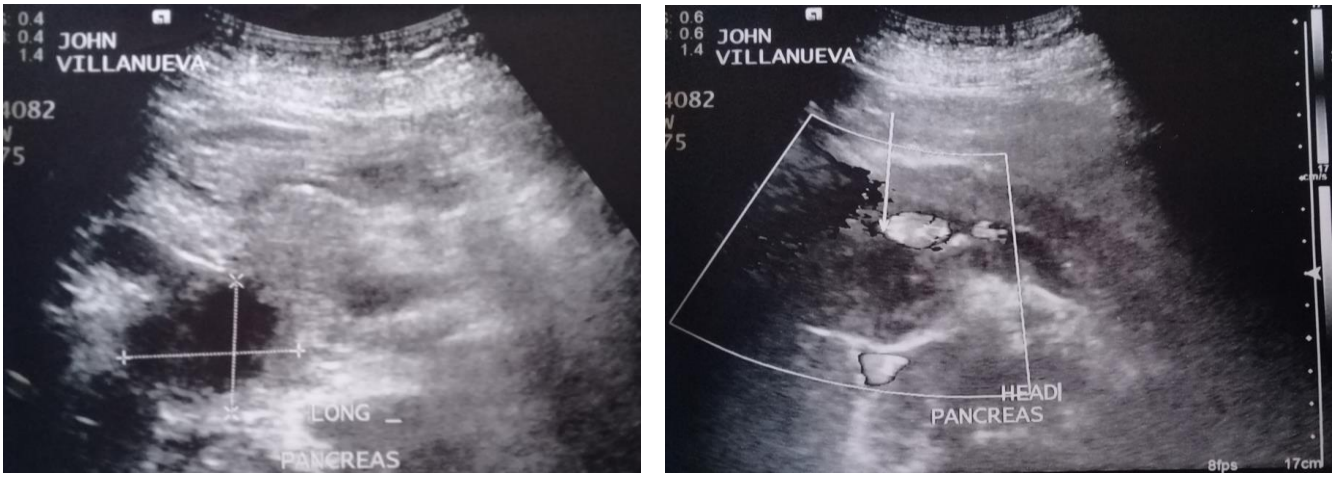

Figure 7. Ultrasound of Whole Abdomen revealed a 3.8 x 3.1 x 3.9 cm mass with predominantly cystic component at the pancreatic head region

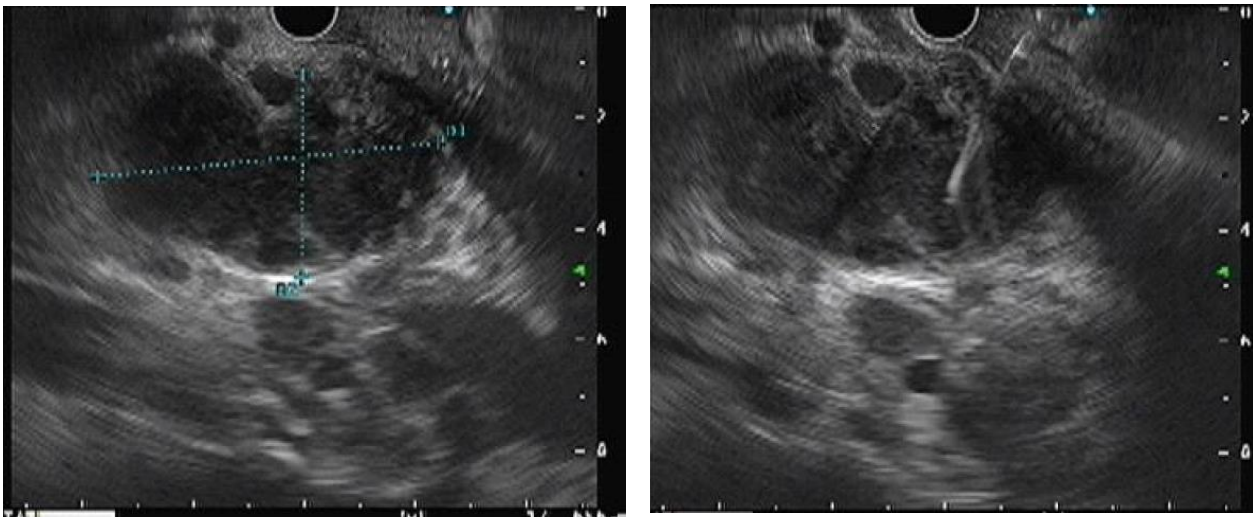

Figure 8. Endoscopic Ultrasound revealed a heterogenous hypoechoic lesion with ill-defined border at the pancreatic head measuring 6 x 3.8cm

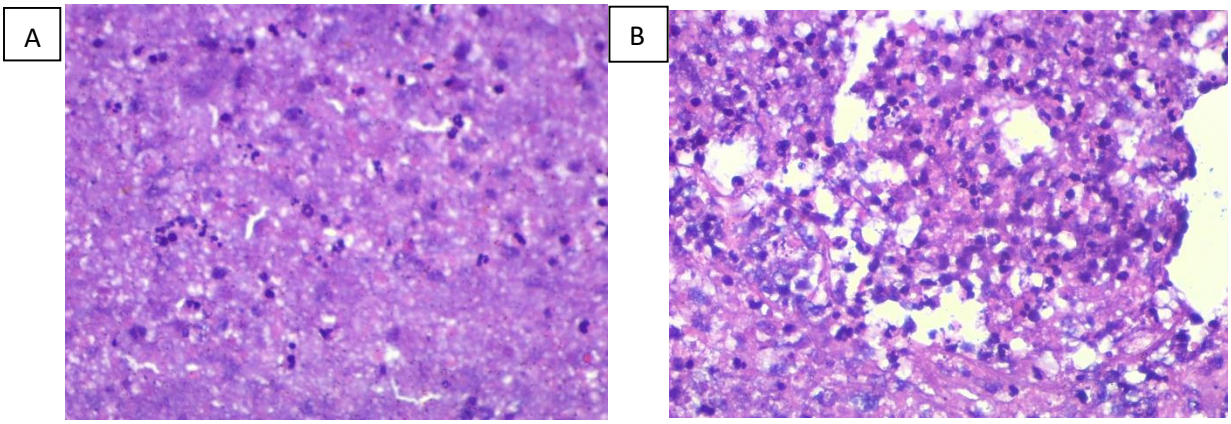

Figure 9. Pancreatic abscess cytology (A) Low Power Magnification (B) High Power Magnification

Discussion

Pancreatic TB is a rare form of extra pulmonary TB that resembles pancreatic malignancy.[4] The pancreas is biologically protected from infection by mycobacterium tuberculosis (MTB) due to the anti-bacterial effect of pancreatic enzymes (e.g. lipase and deoxyribonuclease)[1,2]. Two main hypotheses have been proposed on how a pathogen can overcome resistance. First is by hematogenous dissemination. Second is by direct spread from adjacent peri-pancreatic lymph nodes. [3]

Isolated pancreatic TB is defined as an isolated involvement of the pancreas by MTB in the absence of involvement of any other organ or previously identified TB. It is predominantly observed in widespread and endemic TB areas, such as developing countries; and immunocompromised patients. Pancreatic TB most commonly involves the head or body of the pancreas[1]. It presents as vague and non-specific symptoms, with apparently normal physical examination findings[4]. Abdominal pain is the most common (31-79.5%) symptom followed by fever (20-51.3%), weight loss (19-48.7%), anorexia (11-28.2%), and jaundice (8-20.5%)[5].

There are no specific or pathognomonic radiologic features for pancreatic TB. Pancreatic lesions are typically heterogeneous and multicystic on imaging[1]. Ultrasound is used as the initial diagnostic test which can reveal a focal hypoechoic mass or hypo-isoechoic cystic lesions[5]. CT findings may include hypodense lesions with irregular borders usually in the head of the pancreas, or enlarged peri-pancreatic lymph nodes. MRI findings of focal pancreatic TB include a sharply delineated mass exhibiting heterogeneous enhancement often located in the pancreatic head, that are hypointense on T1-weighted imaging and show a mixture of hypo- or hyperintensity on T2-weighted imaging[1].

In the past, diagnosis of pancreatic TB was often confirmed on exploratory laparotomy; however, in recent years, EUS-FNA provided a less invasive diagnostic alternative[2]. The diagnosis of pancreatic TB necessitates histological, cytological, and bacteriological confirmation. EUS-FNA is the diagnostic modality of choice[1]. It is a reliable technique for differentiating pancreatic lesions from peripheral structures with the capability of tissue biopsy[5]. Microscopic features of pancreatic TB include the presence of granuloma, caseation necrosis (75%-100% of cases) and acid fast bacilli (20%-40% of cases) [5]. MTB DNA by polymerase chain reaction (PCR) can also be used for detection and is highly specific and increasingly used as an adjunct to MTB cultures.[2,5]. There are no specific guidelines for the management of pancreatic TB due to its rarity. Majority of patients respond well to standard anti-TB regimens with isoniazid, rifampin, pyrazinamide, and ethambutol for 6-12 months[1]. Therefore, surgery or drainage of fluid are not necessary most of the time[5].

Conclusion

Pancreatic TB should be considered as a differential diagnosis in patients presenting with pancreatic mass particularly in the young, those with atypical signs and symptoms, especially in endemic areas of tuberculosis or immunocompromised hosts. In the Philippines, especially in the advent of EUS; physicians should be aware of the clinical and radiologic features of pancreatic TB. An accurate diagnostic approach with EUS-FNA is essential to avoid unnecessary surgeries.

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