

Case Report

Isolated pancreatic tuberculosis presenting as obstructive jaundice

Mohammad Salman Shafique^{1*}, Sayyam Fatima²

¹Surgical Unit-II, Benazir Bhutto Hospital, Rawalpindi, Pakistan

²Surgical Unit-I, Holy Family Hospital, Rawalpindi, Pakistan

Received: 05 February 2021

Accepted: 11 March 2021

***Correspondence:**

Dr. Mohammad Salman Shafique,

E-mail: fsalman07@hotmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

A 36-year-old male patient presented in surgical clinic with complaints of abdominal pain and progressively increasing yellowish discoloration of his skin and sclera for last 1 month. He was deeply jaundiced with mild tenderness in epigastric region. He had a strong family history of tuberculosis. Diagnostic work-up revealed obstructive jaundice secondary to pancreatic tuberculosis. Tomographic examination revealed a pancreatic head mass with peripancreatic lymphadenopathy. Endoscopic ultrasound (EUS) showed a mass at pancreatic head region & EUS guided fine needle aspiration revealed tuberculosis. Patient was started on anti-tubercular therapy with gradual improvement of symptoms over the course of treatment.

Keywords: Extrahepatic biliary obstruction, Pancreatic tuberculosis, Anti-tuberculosis treatment, Endoscopic ultrasound

INTRODUCTION

Tuberculosis (TB) is a multi-system bacterial infection caused by different strains of mycobacteria, mostly *Mycobacterium Tuberculosis* (MTB). It affects nearly 9.7 million people annually in endemic areas.¹ Apart from pulmonary TB, extra pulmonary TB accounts for 10-30% of all cases in immunocompetent individuals.² Pancreatic TB is an extremely rare entity in immunocompetent as well as in immunocompromised hosts.³ Pancreatic tuberculosis is found in 2 to 4.7% of autopsied patients.⁴ It happens on the background of miliary TB or Disseminated TB, but it can be presented as isolated pancreatic tuberculosis.¹ The clinical presentation makes its diagnosis a challenge for health care professionals. It may be confused with chronic pancreatitis, pancreatic cysts and sometimes with pancreatic neoplasms.⁵ The definitive diagnosis necessitates histopathological and bacteriological confirmation.

Here we present a case of isolated pancreatic TB, presented with obstructive jaundice due to pancreatic lesion, impersonating pancreatic neoplasm. Endoscopic ultrasound (EUS) guided fine needle aspiration (FNA) biopsy was used to obtain definitive diagnosis. Patient was treated with standard anti-tubercular therapy and showed promising improvement of symptoms.

CASE REPORT

A 36-year-old male patient presented to us in August 2016 through outpatient clinic with a one-month history of central abdominal pain, along with yellowish discoloration of skin and sclera. He also gave history of dark colored urine and clay-colored stools in the absence of pruritus. These symptoms were persistent and became worse with time. In addition, patient also had low-grade fever, nausea, and undocumented weight loss. His past medical history was unremarkable. But there was strong evidence of positive family history for Pulmonary TB in first degree relatives. On examination, patient was deeply jaundiced.

Mild tenderness in epigastrium was appreciated on deep palpation, but there was no palpable mass or visceromegaly. Rest of the systemic examination was unremarkable.



Figure 1: CECT abdomen showing dilated intrahepatic biliary channels.



Figure 2: Pancreatic head mass with peripancreatic lymphadenopathy on contrast enhanced CT abdomen.

Diagnostic workup was done after admitting the patient at a specialized tertiary care facility. Blood complete picture showed leukocytosis - 33,020/mm³, Sr. Bilirubin 38.3 mg/dL, Alanine transaminase (ALT) 57 U/L, Gamma-glutamyltransferase (GGT) 54 U/L and Alkaline phosphatase 328 U/L. Ultrasound abdomen revealed dilated common bile duct and a 2.5×1.7 cm hypoechoic mass arising from the head of pancreas. Contrast enhanced computed tomography (CECT) abdomen identified a growth arising from pancreatic head with peripancreatic lymphadenopathy. Endoscopic ultrasound confirmed a 2.2×1.3 cm hyperechoic irregular mass with internal cystic areas arising from head and neck of the pancreas and peripancreatic lymphadenopathy. EUS guided FNA report was concordant with Pancreatic Tuberculosis. A double pigtail stent was placed on endoscopic retrograde cholangiopancreatography (ERCP) and free flow of bile was established.

A standard four (4) drug anti-tuberculosis therapy was started for a period of 4 months, followed by Isoniazid and Rifampicin for 6 months. Patient showed gradual improvement in his condition. He was discharged in a

stable condition with regular follow up. Previously placed stent was removed after three months.

DISCUSSION

Worldwide, tuberculosis is one of the top 10 causes of death and the leading cause from a single infectious agent (above HIV/AIDS).⁶ According to World Health Organization (WHO) recent statistics, an estimated 10 million people are acquiring TB worldwide annually, and a total of 1.5 million people are dying each year.⁷ Pakistan is ranked 5th among high burden countries worldwide and accounts for 61% of the TB burden in WHO Eastern Mediterranean Region. In Pakistan, about 510,000 cases are emerging each year. Among these, approximately 15,000 are drug resistant strains of tuberculosis.⁸

Tuberculosis can involve any part of the human body, but lungs remain the commonest foci (75%).⁴ Gastrointestinal tract is forming 6th most predilection site for TB.⁹ Isolated pancreatic TB is a rare condition even in countries with a high prevalence of TB. First case of isolated pancreatic TB was reported in 1944.¹⁰

Pancreas is a retroperitoneal organ, overlapped with other abdominal organs, hence protected. An additional protection is provided by various pancreatic enzymes such as deoxyribonucleases and lipases, due to their antimicrobial effects.¹¹

Nonetheless, there are various possible routes and mechanisms through which MTB infection can be transmitted to pancreas. These include hematogenous spread in case of miliary TB and lymph nodes, such as celiac and other retroperitoneal lymph nodes.^{9,12,13} Loss of exocrine function of pancreas, making it vulnerable to infections and ingestion of contaminated food with *Mycobacterium tuberculosis* are other possible routes.⁹

A diverse spectrum of presentation can be seen in case of isolated pancreatic TB, making it a diagnostic challenge. It can be presented in the form of abdominal pain, fever, night sweats, anorexia/weight loss, malaise to a mechanically obstructing lesion causing obstructive jaundice¹⁴ where it masquerades as pancreatic inflammatory conditions such as pancreatitis and cysts or even misdiagnosed as pancreatic neoplasm.^{9,10} Various case reports have shown that pancreatic TB has a male predominance and 36-56 year age group is affected the most as compared to the true pancreatic malignancies which are more common in old age.¹⁵ There is also enough evidence regarding positive past medical or family history of tuberculosis in patients who acquired isolated pancreatic TB later in their life due to latent infection with MTB. In addition, majority of case are residents of endemic areas where prevalence of pulmonary TB is high.^{2,6}

Head of pancreas is the most affected site of pancreatic tuberculosis where it forms solitary or multiple lesions

with multiple cystic components.¹² Pancreatic adenocarcinoma, cystadenocarcinoma, solid pseudopapillary neoplasm and cystic neuroendocrine tumors are the main differential diagnosis of isolated pancreatic TB due to its solid cystic masses.¹⁶

Definitive diagnosis of isolated pancreatic Tuberculosis requires radiologic and histopathologic evidence. Ultrasound and Computed topography (CT scan) are the first line imaging modalities but none of these can differentiate between pancreatic tuberculous lesion and rest of the pancreatic tumors.¹⁷ Multiple reasons are attributed to it. Same density of pancreatic mass and other abdominal viscera, presence of gas and fluid in abdominal cavity and gut peristalsis are some of the influencing factors.⁹ On CECT abdomen, ringed enhancement masses with low densities and calcifications can be appreciated in case of pancreatic TB.¹⁵ On T1-weighted fat suppressed magnetic resonance imaging (MRI), tubercular lesion appears hypointense.⁷ On T2-weighted images, a mixture of hypo- or hyperintensity is shown by pancreatic tubercular lesions.¹¹ Positron emission tomography-computed tomography (PET-CT) can be used for assistance in making diagnosis but is usually performed to identify metastasis all over the body in case of malignancies.¹⁰ Traditional method of obtaining diagnosis for pancreatic tuberculosis was tissue biopsy taken during surgery. About 45-86% patients with pancreatic tuberculosis were diagnosed after surgery based upon histopathology of the tissue collected intra operatively.¹⁶

Endoscopic ultrasound is believed to be a useful diagnostic technique for assessing the pancreato-biliary system. It is helpful in determining the size and location of pancreatic lesion, lymphadenopathy, dilatation of ducts and vascular involvement. The sample obtained on EUS is used for microbiological and cytological evaluation.¹⁵ EUS guided FNA is the most sensitive and specific modality for determining the etiology of pancreatic lesions.¹⁷ It gives 76% diagnostic accuracy as compared to percutaneous FNA in identifying unknown pancreatic lesions. Consequently, a major surgery can be avoided in case of pancreatic tuberculosis.¹⁸

Conclusive diagnosis can be formed only after appreciating caseating granulomas, acid fast bacilli on Ziehl-Neelsen staining.¹⁶ Polymerase Chain Reaction (PCR)-based assay of biopsy specimen can demonstrate Mycobacterium Tuberculosis for further confirmation. It is highly specific and gives positive results when other staining methods and cultures have failed making definitive diagnosis.¹⁹

Treatment of isolated pancreatic tuberculosis is based upon standard four (4) Anti-Tubercular drugs regimen which includes isoniazid, rifampicin, ethambutol and pyrazinamide for a period of 6 to 12 months, depending upon the response of the patient to drug therapy as well as improvement in general well-being.^{2,17} In patients with larger pancreatic tubercular lesions and those with

persistent symptoms despite ATT, other minimally invasive procedures should be considered such as biliary stenting, endoscopic internal drainage and percutaneous catheter drainage.^{15,20}

Follow up entails a detailed history and clinical examination, liver function tests and imaging with CT scan to look for resolution of the disease and to rule out rare possibility of coexisting pancreatic malignancy.^{15,17,19} Delay in diagnosis of pancreatic TB is associated with a mortality rate of 10.8%.¹⁵ Nonetheless, the disease responds effectively to anti tuberculosis medication.¹⁶

CONCLUSION

Isolated Pancreatic Tuberculosis is an exceedingly rare condition. It is frequently confused with pancreatic malignancy because of its similar clinical presentation and radiological findings. Endoscopic ultrasound with fine-needle aspiration (EUS-FNA) proved to be a valuable diagnostic tool and prevents unnecessary surgical procedures. Conservative management with Anti tubercular therapy (ATT) is sufficient in alleviating symptoms of the disease.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Najdi NA, Felemban BA, Issa AH. Pancreatic tuberculosis causing biliary obstruction and mimicking pancreatic malignancy. *J Health Spec.* 2018;6(1):39-44.
2. Shahrokh S, Miri MB, Safari MT, Alizadeh AHM. Pancreatic Tuberculosis: An Overview. *JOP. J Pancreas.* 2015;16(3):232-8.
3. Kaushik N, Schoedel K, McGrath K. Isolated pancreatic tuberculosis diagnosed by endoscopic ultrasound-guided fine needle aspiration: a case report. *JOP.* 2006;7(2):205-10.
4. Akram F, Ahmed M, Nisar G. Pancreatic Tuberculosis-A Rare cause of Obstructive Jaundice, Diagnostic Dilemma Resolved through Endoscopic Ultrasound. *JRMC Students Supplement.* 2015;19(S-1):59-60.
5. Zheng ZJ, Zhang H, Xiang GM, Gong J, Mai G, Liu XB. Coexistence of pancreatic carcinoma and pancreatic tuberculosis: case report. *Gut Liver.* 2011;5(4):536-8.
6. Global tuberculosis report 2019. Geneva: World Health Organization; 2019 (WHO/CDS/TB/2019.15). Licence: CC BY-NC-SA 3.0 IGO. <https://apps.who.int/iris/bitstream/handle/10665/329368/9789241565714-eng.pdf>. Last accessed on 30th August, 2020.
7. Rapid Communication on forthcoming changes to the programmatic management of tuberculosis

- preventive treatment. Geneva: World Health Organization; 2020 (WHO/UCN/TB/2020.4). Licence: CC BY-NC-SA 3.0 IGO. https://www.who.int/tb/publications/2020/WHORapidCommunication_TPT2020.pdf?ua=1. Last accessed on 30th August, 2020.
8. Waheed M. WHO EMRO, Tuberculosis, Programmes, Pakistan. <http://www.emro.who.int/pak/programmes/stoptuberculosis.html#:~:text=Pakistan%2C%20with%20an%20estimated%20510,the%20WHO%20Eastern%20Mediterranean%20Region>. Last accessed on 30th August, 2020.
 9. Zhu M, Zhang N, Tao W, Wang Z, He S. Pancreatic tuberculosis with vascular involvement and peritoneal dissemination in a young man. *Case Rep Med.* 2017;2017:4396759.
 10. Yamada R, Inoue H, Yoshizawa N, Kitade T, Tano S, Sakuno T, et al. Peripancreatic tuberculous lymphadenitis with biliary obstruction diagnosed by endoscopic ultrasound-guided fine-needle aspiration biopsy. *Intern Med.* 2016;55(8):919-23.
 11. Waintraub DJ, D'Souza LS, Madrigal E, Harshan M, Ascunze GI. A Rare Case of Isolated Pancreatic Tuberculosis. *ACG Case Rep J.* 2016;3(4):e91.
 12. Falkowski AL, Graber J, Haack HG, Tarr PE, Rasch H. Isolated pancreatic tuberculosis: A case report and radiological comparison with cystic pancreatic lesions. *J Radiol Case Rep.* 2013;7(1):1-11.
 13. Xia F, Poon RT, Wang SG, Bie P, Huang XQ, Dong JH. Tuberculosis of pancreas and peripancreatic lymph nodes in immunocompetent patients: experience from China. *World J Gastroenterol.* 2003;9(6):1361-4.
 14. Kim JB, Lee SS, Kim SH, Byun JH, Park DH, Lee TY, et al. Peripancreatic tuberculous lymphadenopathy masquerading as pancreatic malignancy: a single-center experience. *J Gastroenterol Hepatol.* 2014;29(2):409-16.
 15. Sharma V, Rana SS, Kumar A, Bhasin DK. Pancreatic tuberculosis. *J Gastroenterol Hepatol.* 2016;31(2):310-8.
 16. Dong Y, Jürgensen C, Puri R, D'Onofrio M, Hocke M, Wang WP, et al. Ultrasound imaging features of isolated pancreatic tuberculosis. *Endosc Ultrasound.* 2018;7(2):119-27.
 17. Raghavan P, Rajan D. Isolated pancreatic tuberculosis mimicking malignancy in an immunocompetent host. *Case Rep Med.* 2012;2012:501246.
 18. Song TJ, Lee SS, Park DH, Lee TY, Lee SO, Seo DW, et al. Yield of EUS-guided FNA on the diagnosis of pancreatic/peripancreatic tuberculosis. *Gastrointest Endosc.* 2009;69(3 Pt 1): 484-91.
 19. Pramesh CS, Heroor AA, Gupta SG, Krishnamurthy S, Shukla PJ, Jagannath P et al. Pancreatic Tuberculosis: an elusive diagnosis. *HPB (Oxford).* 2003;5(1):43-5.
 20. Hoilat GJ, Abdu M, Hoilat J, Gitto L, Bhutta AQ. A Rare Case of Pancreatic Tuberculosis Diagnosed via Endoscopic Ultrasound-Guided Fine Needle Aspiration and Polymerase Chain Reaction. *Cureus.* 2020;12(6):e8795.

Cite this article as: Shafique MS, Fatima S. Isolated pancreatic tuberculosis presenting as obstructive jaundice. *Int Surg J* 2021;8:1296-9.