

Misdiagnosis of pancreatic tuberculosis as a pancreatic cystic neoplasm – A case report

SAGE Open Medical Case Reports
Volume 11: 1–4
© The Author(s) 2023
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/2050313X231200289
journals.sagepub.com/home/sco



Kasun Lakmal¹, Umesh Jayarajah¹, Minidu Ravinda Chandraguptha, Malith Nandasena and Aloka Pathirana

Abstract

Pancreatic tuberculosis is an extremely rare condition. Its non-specific clinical and radiological findings resemble pancreatic malignancy. Here, we report a case of pancreatic tuberculosis that presented with abdominal pain and dyspeptic symptoms for 2 months and was misdiagnosed as a pancreatic cystic neoplasm. Abdominal magnetic resonance imaging showed a well-demarcated exophytic lesion with multiple T2 high signals small cystic areas in the anterior superior part of the head of the pancreas measuring 23 × 20 × 28 mm. This patient has undergone laparotomy and excision of the pancreatic mass. Histological examination revealed granulomatous inflammation of a lymph node with caseation, which was pathognomonic of tuberculosis. She was treated for tuberculosis for 6 months and has become symptom free. The diagnosis of pancreatic tuberculosis could be misleading and should be considered when dealing with pancreatic masses in countries with high incidence.

Keywords

pancreatic tuberculosis, pancreatic neoplasm

Date received: 18 June 2023; accepted: 22 August 2023

Introduction

Peripancreatic or pancreatic tuberculosis (TB) is a rare diagnosis, and the radiological findings may mimic a pancreatic neoplasm.¹ The rarity of peripancreatic TB and the sinister nature of pancreatic neoplasms, often lead to misdiagnosis of TB as pancreatic malignancy or neoplasm. Furthermore, the diagnosis is often reached retrospectively following laparotomy for suspected pancreatic tumours.² Peripancreatic TB may present with a spectrum of specific or non-specific symptoms such as abdominal discomfort or pain, jaundice, constitutional symptoms, iron-deficiency anaemia, acute/chronic pancreatitis, pancreatic abscess, secondary diabetes, massive gastrointestinal bleeding, splenic vein thrombosis and a pancreatic tumours in imaging.¹ Due to the malignant potential of intraductal papillary mucinous neoplasm and mucinous cystic neoplasm, early resection in fit patients is recommended.³ Pancreatic TB often presents in younger patients compared to pancreatic neoplasms, which are common in older patients.⁴ We report a case of misdiagnosis of peripancreatic TB as a cystic neoplasm of the head of the pancreas.

Case

A 33-year-old female presented with vague upper abdominal pain and dyspeptic symptoms for 2 months. She was otherwise well with no fever, constitutional symptoms, loss of appetite or loss of weight and was normoglycaemic. Her previous medical and surgical histories were unremarkable. She had no known allergies and her drug and psychosocial history was unremarkable. Her basic biochemistry, including liver enzymes were within normal limits. Her erythrocyte sedimentation rate was 13 mm in the first hour. She was investigated with a gastroduodenoscopy and an abdominal ultrasonography as her symptoms did not resolve with a trial of proton pump inhibitors. Her abdominal ultrasonography

Department of Surgery, Faculty of Medicine, University of Sri Jayawardenepura, Nugegoda, Sri Lanka

Corresponding Author:

Kasun Lakmal, Department of Surgery, Faculty of Medicine, University of Sri Jayawardenepura, Nugegoda, Sri Lanka.
Email: rsp.kasunlakmla@gmail.com



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

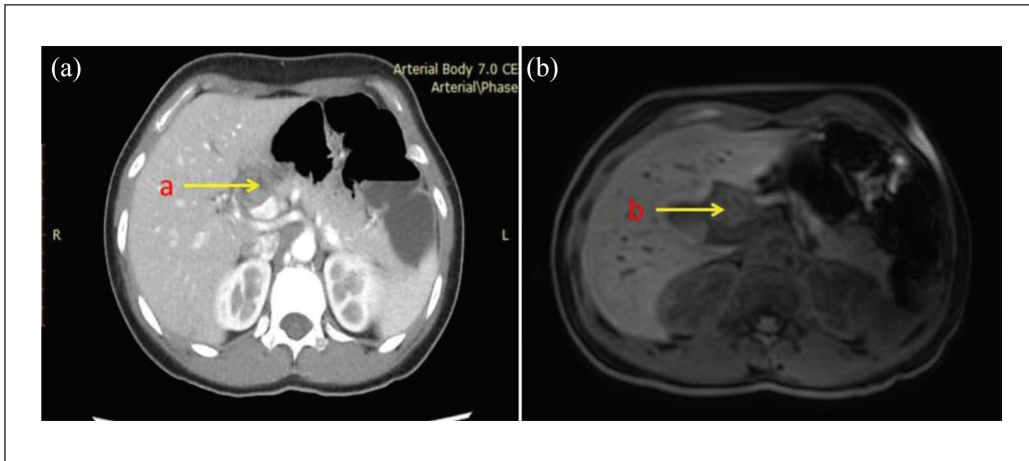


Figure 1. Computed tomography (a) magnetic resonance imaging (b) scans showing a well-demarcated exophytic lesion in the anterior superior part of the head of the pancreas measuring $23 \times 20 \times 28$ mm.

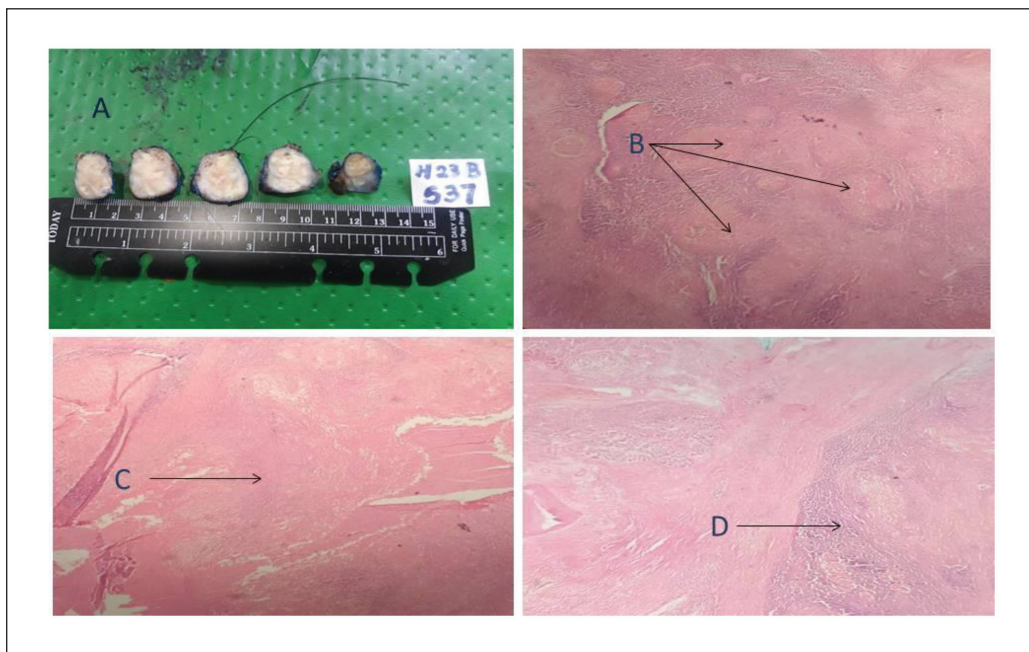


Figure 2. Surgical specimen and histopathological features of pancreatic tuberculosis.

revealed a rounded 2.5×2.4 cm lesion in the head of the pancreas with low echogenic areas.

Magnetic resonance imaging scans revealed a well-demarcated exophytic lesion with multiple T2 high signals and small cystic areas in the anterior superior part of the head of the pancreas measuring $23 \times 20 \times 28$ mm (Figure 1). Following a multidisciplinary team discussion, a decision was made to perform a laparotomy followed by enucleation of the lesion, or Whipple procedure. The diagnosis was a pancreatic cystic neoplasm. An endoscopic ultrasound was not performed due to nonavailability. The CA 19-9 was within normal limits.

She underwent a midline laparotomy and was found to have a well-defined exophytic firm to hard mass attached by a stalk to the upper border of the pancreatic head to the left of the hepatoduodenal ligament. The hepatic artery was densely adherent to the posterior surface of the mass. The mass was excised with a cuff of pancreatic tissue while carefully preserving the hepatic artery. Frozen section was not performed due to nonavailability in our institution. The post-operative period was uneventful.

The histology revealed granulomatous inflammation of a lymph node with caseation which was pathognomonic of tuberculosis (Figure 2). Unfortunately, specimen for TB

culture was not sent as the diagnosis of TB was not suspected during surgery. Even though Zeihl–Neelsen staining was not performed on the specimen, TB PCR was performed in aspirated fluid of the surgical specimen, and it was positive. Chest X-ray was done following the diagnosis but was normal. She was started on category 1 anti-tuberculosis therapy, that is, quadruple anti-microbial therapy for 2 months followed by dual therapy with rifampicin and isoniazid for 4 months according to the local guidelines of management of extra-pulmonary TB.⁵ At a follow up of 6 months, she was asymptomatic and further imaging was not performed.

Discussion

Incidence of tuberculosis in Sri Lanka in the last decade is around 3000–4000 cases per year.⁵ Isolated pancreatic or peripancreatic tuberculosis is a very rare condition.⁶ Considering the pathogenesis, pancreas is comparatively resistant to infection by bacteria due to its enzymes.⁷

Xia et al. described 16 cases from China and suggested the following characteristics of pancreatic TB: ‘(1) mostly occurs in young people, especially female; (2) have a past history of TB, or come from endemic zone of active tuberculosis; (3) often present with epigastric pain, fever and weight loss; (4) ultrasound and CT scan show pancreatic mass and peripancreatic nodules’.⁷ The lesions in the pancreatic cystic neoplasms mimic the radiological characteristics of pancreatic TB.⁸ Pancreatic TB can be diffuse or local. If focal, it presents as a well-demarcated mass located in the pancreatic head, showing heterogeneous enhancement. Diffuse involvement is characterized by pancreatic enlargement with narrowing of the main pancreatic duct and heterogeneous enhancement.⁹ Pancreatic cystic neoplasms show heterogeneity in attenuation and internal septations.¹⁰

Image-guided tissue sampling (Endoscopic ultrasound-EUS or CT) and pathological and microbiological examination is more reliable in diagnosing pancreatic tuberculosis.¹¹ In tissue examination, the presence of caseous granulomatous lesions. Typical epithelioid and gigantocellular granuloma is found in 60% of cases and rarely, caseous necrosis is seen.¹² Non-invasive approach of EUS with fine needle aspiration and TB PCR is used currently to evaluate patients with cystic neoplasms suspected to have TB.^{13,14} Pancreatic tuberculosis is a curable condition with multi-drug anti-tuberculous chemotherapy (streptomycin, rifampin, isoniazid, pyrazinamide and ethambutol), which is given for 6–12 months.⁵ Response to treatment can be assessed symptomatically and radiologically. In our patient, the treatment was effective and the patient was asymptomatic at 6 months. Whipple’s pancreaticoduodenectomy was done in many reported studies for pancreatic tuberculosis because the most common presentation is pancreatic mass, which is difficult to differentiate from pancreatic cancer.¹⁵ Performing intraoperative frozen section in a patient suspected of TB prevents radical resections.¹⁶

Conclusion

Pancreatic tuberculosis is an extremely uncommon condition which is clinically and radiologically challenging to diagnose due to its mimicry with pancreatic cancer, and it can occur even in immune-competent patients. High degree of suspicion should be kept in mind when interpreting the radiological investigations especially in countries with high incidence of TB.

Acknowledgements

None declared.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethics approval

Our institution does not require ethical approval for reporting individual cases or case series.

Informed written consent

Written informed consent was obtained from the patient for anonymized information and accompanying images to be published in this article.

ORCID iDs

Kasun Lakmal  <https://orcid.org/0000-0003-1265-0425>

Umesh Jayarajah  <https://orcid.org/0000-0002-0398-5197>

References

1. Rao RN, Pandey R, Rana MK, et al. Pancreatic and peripancreatic tuberculosis presenting as hypoechoic mass and malignancy diagnosed by ultrasound-guided fine-needle aspiration cytology. *J Cytol* 2013; 30: 130–135.
2. Woodfield JC, Windsor JA, Godfrey CC, et al. Diagnosis and management of isolated pancreatic tuberculosis: recent experience and literature review. *ANZ J Surg* 2004; 74: 368–371.
3. Basnayake O, Wijerathne P, Jayarajah U, et al. Total pancreatectomy for malignant intraductal papillary mucinous neoplasm (IPMN) complicated by gastropancreatic fistulae. *Case Rep Surg* 2020; 2020: 8547526.
4. Panic N, Maetzel H, Bulajic M, et al. Pancreatic tuberculosis: a systematic review of symptoms, diagnosis and treatment. *United European Gastroenterol J* 2020; 8: 396–402.
5. Health Mo. *National manual for tuberculosis control*. In: Unit HIM (ed.). Colombo, Sri Lanka: Ministry of Health, 2021, pp. 30–31.
6. Pramesh C, Heroor A, Gupta S, et al. Pancreatic tuberculosis: an elusive diagnosis. *HPB (Oxford)* 2003; 5: 43–45.
7. Xia F, Poon RT-P, Wang S-G, et al. Tuberculosis of pancreas and peripancreatic lymph nodes in immunocompetent

- patients: experience from China. *World J Gastroenterol* 2003; 9: 1361–1364.
8. van Huijgevoort NCM, del Chiaro M, Wolfgang CL, et al. Diagnosis and management of pancreatic cystic neoplasms: current evidence and guidelines. *Nat Rev Gastroenterol Hepatol* 2019; 16: 676–689.
 9. De Backer AI, Mortelé KJ, Bomans P, et al. Tuberculosis of the Pancreas: MRI features. *Am J Roentgenol* 2005; 184: 50–54.
 10. Lv P, Mahyoub R, Lin X, et al. Differentiating pancreatic ductal adenocarcinoma from pancreatic serous cystadenoma, mucinous cystadenoma, and a pseudocyst with detailed analysis of cystic features on CT scans: a preliminary study. *Korean J Radiol* 2011; 12: 187–195.
 11. Chatterjee S, Schmid ML, Anderson K, et al. Tuberculosis and the pancreas: a diagnostic challenge solved by endoscopic ultrasound. A case series. *J Gastrointest Liver Dis* 2012; 21: 105–107.
 12. Evans JD, Hamanaka Y, Olliff SP, et al. Tuberculosis of the pancreas presenting as metastatic pancreatic carcinoma. *Dig Surg* 2000; 17: 183.
 13. Chakraborty D, Ghosh R, Halder A, et al. Endoscopic ultrasonographic diagnosis of pancreatic tuberculosis in immunocompetent patients – A case series from eastern India. *Indian J Gastroenterol* 2021; 40: 636–640.
 14. Dong Y, Jürgensen C, Puri R, et al. Ultrasound imaging features of isolated pancreatic tuberculosis. *Endosc Ultrasound* 2018; 7: 119–127.
 15. Chaudhary P, Bhadana U and Arora MP. Pancreatic tuberculosis. *Indian J Surg* 2015; 77: 517–524.
 16. Saluja SS, Ray S, Pal S, et al. Hepatobiliary and pancreatic tuberculosis: a two decade experience. *BMC Surg* 2007; 7: 10.