JOP. J Pancreas (Online) 2003; 4(4):158-162.

Fine Needle Aspiration Diagnosis of Isolated Pancreatic Tuberculosis. A Case Report and Review of Literature

Sanjay D'Cruz[1], Atul Sachdev[1], Ladbans Kaur[2], Uma Handa[3], Ashish Bhalla[1], Sarabmeet S Lehl[1]

[1]Departments of Medicine, [2]Radiodiagnosis and [3]Pathology, Government Medical College and Hospital. Chandigarh, India

ABSTRACT

Context Tuberculosis is a common disease in the developing world and its incidence is slowly increasing in developed countries where a resurgence has been seen subsequent to the AIDS epidemic. Tuberculosis, in its extrapulmonary form, though emerging as a clinical problem, rarely affects the pancreas. The pancreas is biologically protected from being infected by Mycobacterium *tuberculosis*. Pancreatic tuberculosis presents with a wide spectrum of symptoms such as abdominal pain, constitutional symptoms, obstructive jaundice, iron deficiency anemia, pancreatic abscess, massive gastro-intestinal bleeding, acute/chronic pancreatitis, secondary diabetes, splenic vein thrombosis and a pancreatic mass mimicking malignancy. It should be suspected clinically in patients having a pancreatic mass, particularly if the patient is young, not jaundiced, coming from an area of high tuberculosis endemicity and having a normal endoscopic retrograde cholangio-pancreatography. Its indolent course and vague symptomatology along with non-specific laboratory and radiological findings call for greater vigilance.

Case report We report a case of pancreatic tuberculosis which presented with pancreatic pain. Imaging techniques revealed a mass located in the head of the pancreatic gland. Fine needle aspiration cytology revealed caseating granulomas. The diagnosis of pancreatic tuberculosis was made and the patient was put on anti-tubercular therapy. Five months later, a repeat CT scan of the abdomen revealed resolution of the pancreatic lesion.

Conclusion The diagnosis of pancreatic tuberculosis is usually not suspected prior to laparotomy. Most patients have been diagnosed at laparotomy, thus fine needle aspiration cytology/biopsy is useful in obviating the need for major surgery with its accompanying morbidity. Exploratory laparotomy may be required in technically difficult cases due to risk of injury to the vessels in the vicinity of the mass.

INTRODUCTION

Tuberculosis is a common disease in the developing world and its incidence is slowly increasing in developed countries [1] where a resurgence has been seen subsequent to the AIDS epidemic. The development of abdominal tuberculosis is independent of pulmonary disease in most patients, with a reported incidence of coexisting disease varying from 5 to 36% [2]. Up to 12% of patients infected with tuberculosis may have involvement of abdominal organs [3]. Tuberculosis of the digestive tract may involve any part from the esophagus to the anus. Intra-abdominal tuberculosis usually involves the liver, spleen, bowel, peritoneum

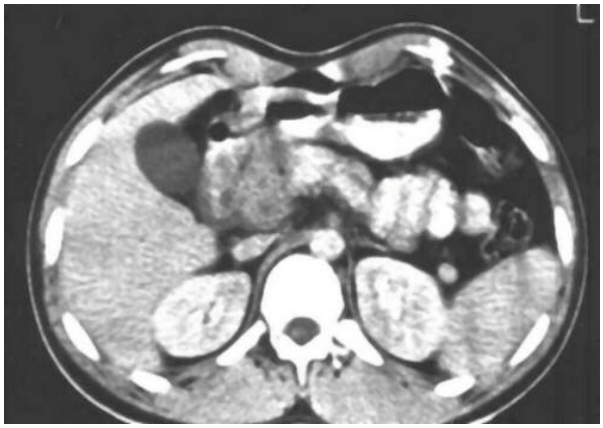

Figure 1. Contrast enhanced CT scan showing a mass in the region of the head of the pancreas with hypodense areas.

and mesenteric lymph nodes, with the commonest site being the ileo-caecal area. Atypical presentations of gastrointestinal tuberculosis are more likely in immunocompromised individuals [4]. Pancreatic involvement is unusual and is generally associated with miliary tuberculosis [5].

We report a case of pancreatic tuberculosis which presented with a pancreatic mass and was diagnosed with the help of fine needle aspiration cytology (FNAC), thereby obviating the need for surgery.

CASE REPORT

A 23 year old male presented at our Institute with pain of one year duration in the epigastric and right hypochondrial region. The pain was of intermittent nature, not colicky, with recurrent exacerbations over the last year. There was no history of radiation of pain to the back or the shoulder, nor was there any food pain relationship or any history suggestive of intestinal obstruction. There was no past history of jaundice or upper gastro-intestinal bleeding. He also had a history of low-grade intermittent fever. He had lost 8 kilograms of weight over the preceding year. Physical examination was unremarkable. Investigations including haemogram, serum amylase, liver function tests, renal function tests, stool examination, and chest and abdominal radiographs were normal on many occasions. His HIV serology was negative and a Mantoux test was non-reactive. Ultrasound of the abdomen revealed a mass in the region of the head of the pancreas which was confirmed on CT scan of the abdomen (Figure 1). Upper gastro-intestinal endoscopy showed antral gastritis and mild duodenitis. Considering a possibility of recurrent pancreatitis with pancreatic mass, an endoscopic retrograde cholangio-pancreatography (ERCP) was done. The ERCP revealed an erythematous medial duodenal wall. There was no nodularity or ulcerations in the duodenum. Deep cannulation of the ducts was not possible. Ultrasound guided FNAC was done which revealed caseating granulomas; stain for acid fast bacilli was negative (Figure 2). Based on this finding, a diagnosis of pancreatic tuberculosis was made and the patient was put on anti-tubercular therapy in September 1998 (rifampicin, isoniazid, pyrazinamide and ethambutol for 2 months followed by rifampicin and isoniazid for the next 7 months). A repeat CT scan of the abdomen (Figure 3) was done in February 1999 which revealed the resolution of the pancreatic lesion. The patient is doing well on follow-up and has gained 8 kilograms since then.

DISCUSSION

Tuberculosis, in its extrapulmonary form, though emerging as a clinical problem rarely affects the pancreas. The pancreas is

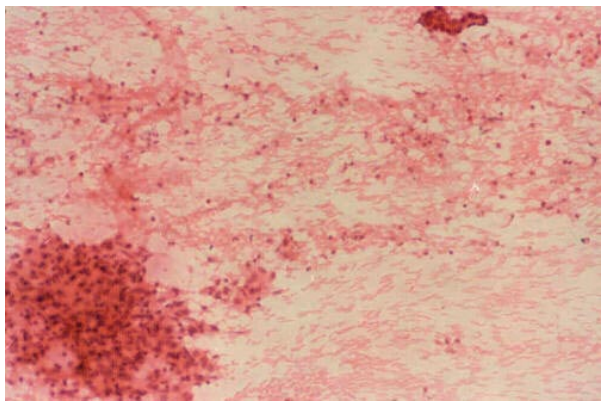

Figure 2. Ultrasound guided FNAC from the lesion showing an epitheloid cell granuloma on the bottom left and a sheet of ductal epithelial cells in the upper right corner. Stain H&E Magnification 10×.

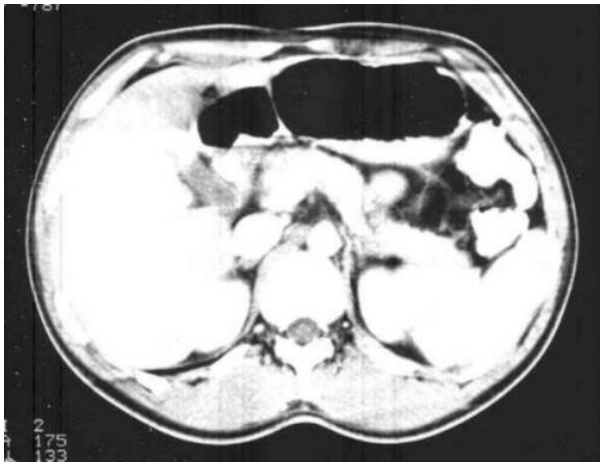

Figure 3. Contrast enhanced CT scan following completion of medical therapy showing resolution of the lesion and a normal appearing pancreas.

biologically protected from being infected by Mycobacterium *tuberculosis*, probably because of the presence of pancreatic enzymes which interfere with the seeding of Mycobacterium *tuberculosis* [6]. Its indolent course and vague symptomatology along with non-specific laboratory and radiological findings call for greater vigilance.

Isolated pancreatic tuberculosis is extremely rare in immunocompetent individuals. However, when diagnosed, it is a welcome pathological surprise. Auerback reviewed 1,656 autopsies performed on tuberculosis patients. Of these, 297 (17.9%) had acute miliary tuberculosis. He did not find any cases of isolated tuberculosis of the pancreas; however, among the cases with acute generalized tuberculosis, the pancreas was also involved in 14 cases (4.7%) [5]. Bhansali did not have a single case of pancreatic tuberculosis in a series of 300 cases of abdominal tuberculosis [7]. In an electronic search of the literature [MEDLINE/Pubmed 1966-2002: http://www.ncbi.nlm.nih.gov/entrez/], only 73 cases of isolated pancreatic tuberculosis in immunocompetent individuals have been reported worldwide.

Our patient fulfils all the criteria except one for the diagnosis of primary pancreatic tuberculosis. He had no history of tuberculosis, the disease was localized, his chest radiograph was normal, he had no other detectable foci of tuberculosis and a positive cytological diagnosis. However, acid fast bacilli could not be demonstrated and a culture of the pancreatic tissue was not performed. Farer *et al*. reported bacteriological confirmation in only 57% of cases having extrapulmonary tuberculosis [3].

Pancreatic tuberculosis presents with a wide spectrum of symptoms such as abdominal pain (100%), constitutional symptoms such as anorexia, weight loss and night sweat, fever, obstructive jaundice [8, 9], iron deficiency anemia, pancreatic abscess [10], massive gastro-intestinal bleeding [11], acute pancreatitis [12], chronic pancreatitis [13], secondary diabetes [14], splenic vein thrombosis, and a pancreatic mass [15] mimicking malignancy as in the present case.

It has been speculated that the pancreas can be involved in tuberculosis either by a hematogenous route or by direct spread from contiguous lymph nodes [10]. Others argue that the pancreas could be involved by a toxic-allergic reaction of the pancreas in response to tuberculosis elsewhere [13].

Pancreatic tuberculosis is rare and may present a problem in differential diagnosis, especially with carcinoma of the pancreas. Investigations are usually non-contributory, as a firm diagnosis can only be made with the help of histopathological or microbiological evidence of the disease. Even if the initial microbiological results are negative using conventional techniques, polymerase chain reaction (PCR) can yield more rapid results and avoid an unnecessary laparotomy [16, 17].

Chest radiographs and sputum smears for acid-fast bacilli are often negative as they were in our case. ERCP may show displacement and stenosis of the main duct [18] or involvement of the common bile duct leading to intra-hepatic biliary radical dilatation, signs which are non-specific. Ultrasonography and CT scan may show a diffusely enlarged pancreas, a mass lesion as in our case, or focal hypo-echoic or hypo-dense lesions usually in the pancreatic head

region. These finding are non-specific and may be seen with focal pancreatitis of any etiology, such as in pancreatic carcinoma [8].
However, one should still suspect tuberculosis of the pancreas. Radiological indicators leading to the diagnosis of pancreatic tuberculosis could include the presence of characteristic hypo-dense lymph nodes with rim enhancement in the peri-pancreatic region and/or mesentery, ascites and/or mural thickening affecting the ileo-caecal region [19]. A chest radiograph may be of help. It should be suspected clinically in patients with a pancreatic mass, particularly if the patient is young, not jaundiced, coming from an area of high tuberculosis endemicity and having a normal ERCP [20].
It is evident from the literature that the diagnosis of pancreatic tuberculosis is usually not suspected prior to laparotomy. Most patients have been diagnosed at laparotomy. Only 6 out of 73 cases reported so far have been diagnosed by FNA cytology/biopsy. To the best of our knowledge, the present case is the 7th case diagnosed by FNAC, thereby obviating the need for major surgery with its accompanying morbidity. Exploratory laparotomy may be required in technically difficult cases due to risk of injury to the vessels in the vicinity of the mass [21].
The response to anti-tubercular therapy is very favourable [21]. The lesions are found to have subsided on follow-up. There may be a role for imaging guided drainage in cases that present as an abscess. The role of resection (e.g. pancreatoduodenectomy) is very limited [21]. Prognosis is good, with only 4 of the 73 cases reported in the literature having succumbed to their illness.
In conclusion, we would like to emphasize that tuberculosis should be considered in the differential diagnosis of pancreatic masses, particularly in young patients who are not icteric and who come from an area in which tuberculosis is endemic. To avoid unnecessary laparotomy, CT/US guided percutaneous aspiration cytology/biopsy and culture of tissue for mycobacteria should be done in a patient with pancreatic mass, especially in a region where pulmonary and abdominal tuberculosis is common.

Received May 1st, 2003 - Accepted May 12th, 2003

Keywords Bacterial Infections; Biopsy, Needle; Drug Therapy; Gram-Positive Bacterial Infections; Mycobacterium Infections; Pancreatitis; Tuberculosis

Abbreviations FNAC: fine needle aspiration cytology

Correspondence
Sanjay D'Cruz
House No. 1222, Sector 32-B
Chandigarh
India 160 030
Phone: +91-172-668.687
Fax: +91-172-609.460
E-mail address: sanjaydcruz@satyam.net.in

References

1. Shukla HS, Hughes LE. Abdominal tuberculosis in 1970s: a continuing problem. Br J Surg 1978; 65:403-5. [PMID 656757]

2. Hulnick DH, Megibow AJ, Naidich DP, Hilton S, Cho KC, Balthazar EJ. Abdominal tuberculosis: CT evaluation. Radiology 1985; 157:199-204. [PMID 4034967]

3. Farer LS, Lowell AM, Meador MP. Extrapulmonary tuberculosis in United States. Am J Epidemiol 1979; 109:205-15. [PMID 425959]

4. Sunderam G, McDonald RJ, Maniatis T, Oleske J, Kapila R, Reichman LB. Tuberculosis as a manifestation of acquired immune deficiency syndrome (AIDS). JAMA 1986; 256:362-6. [PMID 3723722]

5. Auerback O. Acute generalized military tuberculosis. Am J Pathol 1944; 20:121-36.

6. Franco-Paredes C, Leonard M, Jurado R, Blumberg HM, Smith RM. Tuberculosis of the pancreas: report of two cases and review of literature. Am J Med Sci 2002; 323:54-8. [PMID 11814144]

7. Bhansali SK. Abdominal tuberculosis experiences with 300 cases. Am J Gastroenterol 1977; 67:324-37. [PMID 879148]

8. Crowson MC, Perry M, Burden E. Tuberculosis of the pancreas. A rare cause of obstructive jaundice. Br J Surg 1984; 71:239. [PMID 6697132]

9. Chen CH, Yang CC, Yeh YH, Yang JC, Chou DA. Pancreatic tuberculosis with obstructive jaundice – a case report. Am J Gastroenterol 1999; 94:2534-6. [PMID 10484020]

10. Stambler JB, Klibaner MI, Bliss CM, LaMont JT. Tuberculous abscess of the pancreas. Gastroenterology 1982; 82:922-5. [PMID 7106522]

11. Fan ST, Yan KW, Lau WY, Wong KK. Tuberculosis of pancreas. A rare cause of massive gastrointestinal bleeding. Br J Surg 1986; 73:373. [PMID 3486690]

12. Rushing JL, Hanna CJ, Selecky PA. Pancreatitis as the presenting manifestation of military tuberculosis. West J Med 1978; 129:432-6. [PMID 726427]

13. Stock KP, Riemann JF, Stadler W, Rosch W. Tuberculosis of the pancreas. Endoscopy 1981; 13:178-80. [PMID 7250088]

14. Patankar T, Prasad S, Laxminarayan R. Diabetes mellitus: an uncommon manifestation of pancreatic tuberculosis. J Assoc Physicians India 1999; 47:938-9. [PMID 10778674]

15. Rezeig MA, Fashir Bm, Al-Suhaibani H, Al-Fadda M, Amin T, Eisa H. Pancreatic tuberculosis mimicking pancreatic carcinoma: four case reports and review of literature. Dig Dis Sci 1998; 42:329-31. [PMID 9512125]

16. Riaz AA, Singh A, Robshaw P, Isla AM. Tuberculosis of the pancreas diagnosed with needle aspiration. Scand J Infect Dis 2002; 34:303-4. [PMID 12064696]

17. Kouraklis G, Glinavou A, Karayiannakis A, Karatzas G. Primary tuberculosis of the pancreas mimicking a pancreatic tumour. Int J Gastrointest Cancer 2001; 29:151-4. [PMID 12067218]

18. Fischer G, Spengler U, Neubrand M, Sauerbruch T. Isolated tuberculosis of pancreas masquerading as a pancreatic mass. Am J Gastroenterol 1995; 90:2227-30. [PMID 8540523]

19. Takhtani D, Gupta S, Suman K, Kakkar N, Challa S, Wig JD, Suri S. Radiology of pancreatic tuberculosis: a report of three cases. Am J Gastroenterol 1996; 91:1832-4. [PMID 8792708]

20. Small G, Wilks D. Pancreatic mass caused by Mycobacterium tuberculosis with reduced drug sensitivity. J Infect 2001; 42:201-2. [PMID 11545552]

21. Ozden I, Emre A, Demir K, Balci C, Poyanli A, Ilhan R. Solitary pancreatic tuberculosis mimicking advanced pancreatic carcinoma. J Hepatobiliary Pancreat Surg 2001; 8:279-83. [PMID 11455492]