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CASE STUDY OPEN ACCESS

PERITONEAL TUBERCULOSIS PRESENTED AS CHRONIC DIARRHOEA

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ABSTRACT

Peritoneal Tuberculosis is a rare extra-pulmonary presentation of tuberculosis. It caused by strains of mycobacterium, usually mycobacterium tuberculosis. Even though TB has been declining in incidence in the developing country like SriLanka, it remains a main problem in endemic areas of the developing world. A wide spectrum of clinical presentation could be observed in peritoneal tuberculosis, making it a huge diagnostic challenge. Here we reported a case of a young boy was investigated for chronic diarrhea, ultimately diagnosed as peritoneal tuberculosis. He was subsequently started on anti-TB medications quickly without any complications recovered uneventfully.

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INTRODUCTION

The term of tuberculosis was introduced in 1839, the first well documented case of "'tubercular peritonitis" was cared for at The New York Hospital in 1843(Dineeen, *et al* 1976). The disease could be taken under control only after the arrival of antimicrobial therapy in 1946. However, it has started to resurge worldwide in the last 10 years, due to HIV epidemic and to primary resistance to first- line drugs. One-third of the world population is under the risk of acquiring TB according to WHO and more than 30 million deaths had been expected due to TB in the nineties especially in Africa and Asia(WHO, 1992). Mycobacterium tuberculosis is endemic in SriLanka, with an incidence rate of 65 per 100,000 populations in 2015. Majority of cases had pulmonary tuberculosis (TB) with or without extra-pulmonary involvement, while the remainder had exclusively extra-pulmonary TB. The most common site of extra-pulmonary TB was the lymphatic system followed by the pleura and intestine. Abdominal tuberculosis, which may involve the gastrointestinal tract, peritoneum, lymph nodes or solid viscera, constitutes up to 12% of extra-pulmonary TB (Farer LS, 1979).

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Tuberculous peritonitis constitutes up to 1% of all causes of ascities (Bolognesi *et al*, 2013). Tuberculous peritonitis is an exceptionally rare disease in the Western world, but is still present in developing countries, where most young females are affected . The disease can mimic many conditions, including peptic ulcer disease, inflammatory bowel disease, malignancy, advanced ovarian cancer, deep mycosis, peritoneal carcinomatosis(Ozan *et al*, 2009), Yersinia infection, amebomas and other infectious diseases . In addition, there is increase in the incidence of TB in developed countries due to increasing prevalence of immunocompromised individuals mainly due to acquired immunodeficiency syndrome (AIDS) pandemic, immigrant's population, deteriorating social conditions and cutbacks in public health services(Debi *et al*. 2014).

Case report

A 17-year-old boy with an unremarkable medical history, presented to Teaching Hospital Batticaloa, SriLanka with fever, loose stools and abdominal pain for three months duration. There was a marked weight loss in spite of normal appetite. He had no contact history of tuberculosis. On examination, he was febrile and has had hard tender abdomen. ESR was 70mm/h,white blood cells was$10.7x10^3$ /cu mm, haemoglobin was10.9 g/dl, blood urea 24mmol/l, Serum creatinine was 0.9mmol/l, ALT was 47U/l, AST was 45U/L, LDH was 515U/L, Adenosine deaminase (ADA) in the

peritoneal fluid was 112.2 and acid fast bacilli (AFB) for sputum and peritoneal fluid were negative. Stool culture was negative. He has undergone flexible sigmoidoscopy and colonoscopy which were normal. CA-125 level was elevated at 49 U/mL (< 35.1 U/mL) while other tumor markers were normal, with carcinoembryonic antigen and alphafetoprotein . Known that CA-125, ovarian epithelial carcinoma with probable metastasis was suspected.

Table 1. Shows the peritoneal fluid full report

Peritonial Fluid	
Glucose	0.3mmol/
Protein	6.8g/dl
Macros copy	Straw coloured turbid fluid
Microbiology	
▪ Polymorphs	2/cumm
▪ Lymphocyte	256/cumm
▪ RBC	768/cumm

Abdominal ultrasound scan showed localized multi septated fluid collection with features suggestive of peritoneal tuberculosis. Open peritoneal biopsy was done and it showed thickened peritoneal wall with caseous necrosis and granulomatous inflammation. Initially he was treated with intravenous cefuroxime and metronidazole and after the diagnosis of peritoneal tuberculosis, those drugs were omitted and he was started on anti-tuberculosis drugs medication.

DISCUSSION

The diagnosis of extra-pulmonary tuberculosis is difficult, particularly for the peritoneal type as the symptoms and physical findings of the disease do not corroborate diagnosis. Peritoneum is an infrequent site of extra pulmonary infection and the risk is increased in patients with cirrhosis, HIV infection, diabetes mellitus, underlying malignancy, following treatment with anti-tumor necrosis factor (TNF) agents, and in patients undergoing continuous ambulatory peritoneal dialysis. Diagnostic delays and delayed initiation of treatment can lead to fatal outcome(Karanikas *et al*. 2012). This patient's initial presentations of fever, loose stools and abdominal pain for three months duration mislead us to thing about inflammatory bowel disease. However, subsequent negative stool culture report and sigmoidoscopy findings lead us to thing about peritoneal tuberculosis. CT findings of peritoneal tuberculosis include peritoneal thickening, ascites with fine septations, and omental caking(Vazquez Munoz E, Gomez-Cerezo J, Atienza Saura M 2004). Absence of radiographic findings does not exclude extrapulmonary TB as evidence of disease outside the abdomen is often not present and in 50% of the cases, chest X-ray is normal.

Tuberculous peritonitis may be diagnosed by directly coating the ascites sample onto a slide to conduct Gram staining or culture Mycobacterium tuberculosis from the ascites sample. However, these methods are usually unreliable. Laparoscopy and biopsy contribute to the rapid and definitive diagnosis of tuberculous peritonitis. Peritoneal or visceral adhesion and occasional peritoneal inflammation and bleeding are possible symptoms of tuberculous peritonitis(Niu *et al*. 2012). High interferon gamma concentrations in asciticfluid have been shown to be valuable in diagnosis of peritoneal tuberculosis(M.A.Sathar *et al*, 1995). Though the tumor marker CA-125 has poor sensitivity and specificity, it has been shown to be raised in cases of TB peritonitis, mimicking ovarian epithelial carcinoma as CA-125 is produced by normal epithelial cells (peritoneum, pleural and pericardium) when inflamed(Chiew *et al*. 2016).Interistingly, CA-125 has also been shown to be useful in monitoring treatment response as seen by the decline in CA- 125 paralleling clinical response following anti-TB treatment(Mas MR *et al*, 2000).

Conclusion

Abdominal tuberculosis denotes involvement of the gastrointestinal tract, peritoneum, lymph nodes, and solid viscera, e.g. liver, spleen, pancreas, etc. The ileum and caecum are the most common sites of intestinal involvement and are affected in 75% of cases**.** Peritoneal involvement may be of either an ascitic or adhesive (plastic) type. Peritoneal tuberculosis shows wide spectrum of presentation. Chronic diarrhea is one of the rare presentations. Diagnosis of peritoneal TB depends on a collection of clinical, radiological and histopathological findings. The gold standard for diagnosis is still diagnostic laparoscopy with classical findings of peritoneal studding of tubercles (military seeds) with dense adhesions, and histological findings of caseating granulomas with epithelioid and Langhan's type giant cells. A suspicious approach combined with early diagnosis and treatment will reduce the complications that can develop during the progress of the disease

Consent statement

Written informed consent was obtained from the patient for publication of this case report . A copy of the written consent is available for re- view by the Editor of this journal.

Abbreviations

TB: tuberculosis, ADA: Adenosine deaminase , TNF: tumor necrosis factor

Competing interests

The author declares that no competing interests.

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