DETECTION OF MICROFILARIAE AT MULTIPLE SITES IN A CASE OF DISSEMINATED TUBERCULOSIS- A RARE CASE OF CO-INFECTION

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ABSTRACT

In tropical countries like India, co-infections are common. Lymphatic filariasis afflicts over 120 million people while Mycobacterium tuberculosis infects over 2 billion people worldwide.[1] However, detection of microfilariae in pleural fluid is very rare.[2] Here, we report a case of disseminated tuberculosis with incidental detection of microfilariae of Wuchereria bancrofti in pleural fluid, blood smear, and cervical lymph node aspirate. A 45 year old male, farmer by occupation presented with chief complaints of back pain of 30 days duration. Fever, shortness of breath, pain abdomen for 1 week. Diagnosis of tuberculosis and filariasis were made based on radiological, biochemical and microbiological investigations and TB PCR. The patient was immunocompetant, negative for HIV infection.

Key words: Microfilariae, Tuberculosis, Co-infection.

INTRODUCTION

Tuberculosis remains an important public health problem in developing countries and is the most common infectious cause of death. If untreated the disease may be fatal within 5 years in 60% of cases.[3] Filariasis is also a major public health problem in India with heavily endemic areas being Uttar Pradesh, Bihar, Andhra Pradesh, Orissa, Tamil Nadu, Gujarat, Kerala.[4] India, being endemic for both infections, there is high prevalence of co-infections. The co-existing filarial infection may significantly compromise essential immune responses in tuberculosis.[5] Here, we report a case of disseminated tuberculosis and filarial co-infection in a immunocompetant patient. Treatment failure led to fatal outcome.

CASE REPORT

A 45 year old, male, farmer by occupation, resident of Khammam, complained of back pain of 1 month duration; fever, cough, shortness of breath, pain abdomen for 1 week. On examination; enlarged cervical and inguinal lymph nodes were present. Laboratory tests; haemoglobin 13.7g%, total leukocyte count - 17,000/mm^3 with 40% lymphocytes; ESR - 40mm/1^{st} hour; Random Blood Sugar - 102mg/dl; blood urea - 30mg/dl; serum creatinine - 0.7mg/dl; serum electrolytes Na^+ - 130 mmol/L, K^+ - 2.7 mmol/L; serum alkaline phosphatase 546 IU/L, serum bilirubin (total) 1.4mg/dL. Patient was seronegative for HIV and HBs Ag. Chest radiogram showed reticulonodular pattern with left subpulmonic effusion. C.T chest showed diffuse small nodules of 2-3mm size. C.T scan spine showed osteolytic lesions involving multiple contiguous lumbar vertebrae with L_4-L_5 disc prolapse. Ultrasound abdomen showed peripancreatic and mesenteric multiple matted lymphadenopathy. His bronchoalveolar lavage material was positive for AFB, morphologically resembling Mycobacterium with Zeihl Neelsen staining(Fig 1a). The sample was subjected to PCR. FNAC of left cervical lymph node showed microfilariae of Wuchereria bancrofti on Haematoxylin and Eosin staining.[6] Micofilariae were also detected in peripheral blood smear stained by Leishman stain. Thoracocentesis was done and around 1 litre of thick pleural fluid aspirated. Pleural fluid ADA was 45IU with 60% lymphocytes. H and E stain of the pleural fluid showed microfilariae of the same species(Fig 1b). Based on these investigations patient was diagnosed to have disseminated tuberculosis and co-existing filarial infection. Patient condition deteriorated even on treatment with Diethyl carbamazine citrate(DEC), steroids and anti tubercular drugs.

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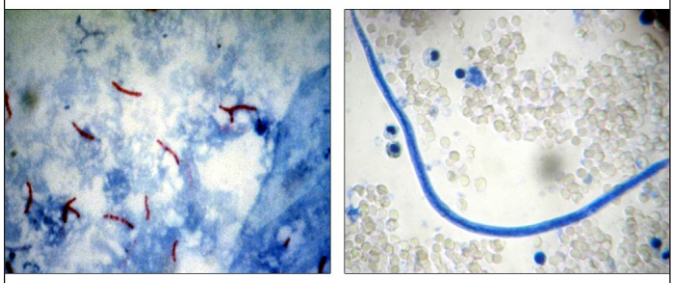
1(a). AFB on Zeihl Neelsen staining of BAL.
1(b). Microfilaria on H&E staining of pleural fluid.



1 (a) 1 (b)

DISCUSSION

Disseminated tuberculosis is a potentially lethal form of tuberculosis resulting from massive lymph haematogenous dissemination of Mycobacterium tuberculosis bacilli. The emergence of HIV/AIDS pandemic and widespread use of immunosuppressive drugs has changed the epidemiology of tuberculosis. Impaired cell mediated immunity underlies disease development. Clinical manifestations are non-specific and typical chest radiographic findings may not be seen until late in the course of the disease. Atypical presentation often delay the diagnosis.

In filariasis, adult worm of Wuchereria bancrofti resides in lymphatic vessels, while the larval forms, microfilariae circulate in the peripheral blood. Microfilariae probably appear in tissue fluids and exfoliated surface material due to lymphatic or vascular obstruction by scars or tumours, extravasation or damage to vessel walls by inflammation, trauma or stasis. Diagnosis is made on demonstrating microfilariae in blood samples and body fluids. Adult parasites can be demonstrated only at autopsy. However, appearance of microfilariae in pleural fluid is very rare. Only 13 cases have been reported so far.[7]

Mycobacterium tuberculosis and helminths are coendemic in many regions of the world and the infections with these pathogens often coexist within the same host. Parasitic helminths have evolved mechanisms to overcome and evade host immune responses to thrive in immune-exposed locations such as lymphatics, blood stream and gastrointestinal tract. Most helminth infections induce relatively little disease inspite of extraordinarily high loads of infection. Therefore, an existing infection may influence response to a second one.[8]

In our case, patient presented with lumbar disc prolapse and symptoms involving multiple organs. This was a late manifestation of disseminated tuberculosis not responding to treatment. We, assume coexisting filarial infection might have worsened the condition of the patient.

Hence, we suggest not only HIV/tubercular co-infections but also helminths associated co-infections must be considered in highly endemic areas. However, much research is needed on helminths associated co-infections.

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