Case Report

Pleural effusion: An unusual cause and association

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ABSTRACT

Filaria has a wide spectrum of presentation. We hereby present a case of Filarial pleural effusion that is a rarity in itself. Filarial lung involvement is usually in the form of tropical pulmonary eosinophilia with pulmonary infiltrates and peripheral eosinophilia, unlike our case where isolated pleural effusion of Filarial etiology was detected. Microfilaria has been isolated from Pleural fluid in very few cases, and ours was one such. Of late, there have been many incidental detections of Filarial parasites from varied anatomical sites in association with malignancy. Even in our case, we had one such unusual association.

KEY WORDS: Filariasis, malignancy, pleural effusion

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INTRODUCTION

Filaria, a vector-borne disease, is common in tropical countries like India. It is a major health problem in endemic areas, especially along sea coasts where lung manifestations due to Filariasis are common. Filarial parasites have been isolated from many uncommon sites.[1-3] In our case, it was isolated from Pleural fluid.[4,5] Hence, it has been reported for its rarity and need for its suspicion in idiopathic pleural effusions. The rarity of this case is all the more unique due to the association of concomitant lung malignancy.

CASE REPORT

A 70-year-old man presented with cough with expectoration and shortness of breath since 6 months. He also had recurrent episodes of hemoptysis since the past 1 month. On further enquiry, he had repeated hospital admissions for cough with expectoration since the past 6 months. The patient had no past history of Filarial infestation or eosinophilia or pulmonary tuberculosis. He had undergone coronary artery bypass graft (CABG) surgery 5 years back.

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On examination (O/E) the patient was moderately built and nourished. He was tachypnoeic at rest with tachycardia and blood pressure of 110/70 mmHg. Respiratory system examination revealed features suggestive of right-sided pleural effusion. Other system examinations were not contributory.

Blood investigations revealed hemoglobin of 9.7 gm% and leukocytosis with neutrophilia. However, there was no eosinophilia. His absolute eosinophil count was within normal limits. Erythrocyte sedimentation rate was elevated at 60 mm at the end of the 1st h. His blood chemistry was within normal limits. Chest X-ray showed a right-sided pleural effusion [Figure 1]. Sputum for acid fast bacilli (AFB) and pyogenic organism culture/sensitivity was negative. Pleural fluid analysis was grossly hemorrhagic. Biochemically, it was an exudative effusion with lymphocyte pre-dominance (75%). Pleural fluid lactic dehydrogenase (LDH) was 150 U/L. Pleural fluids adenosine deaminase (ADA) and carcino embryonic antigen (CEA) levels were within normal limits. Pleural fluid Gram staining showed only few polymorphs but no organisms were isolated in culture. Zeihl-Neelsen staining of Pleural fluid did not reveal any acid fast bacilli. Pleural fluid cytology showed only RBCs admixed with few inflammatory cells and mesothelial cells but no definite malignant cells. Pleural fluid cytology also showed a focus of Filarial parasites [Figure 2].

Multidetector computed tomography (CT) of the chest revealed right upper lobe cavitatory mass with thick irregular walls with heterogeneous enhancement and posterior pleural thickening. Small sub-pleural

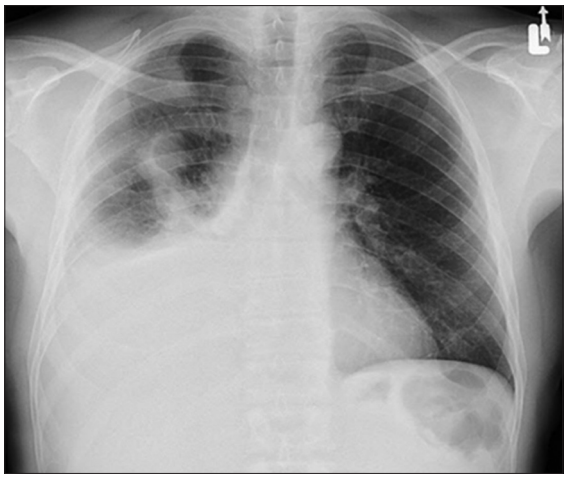

Figure 1: Right-sided pleural effusion on chest radiograph

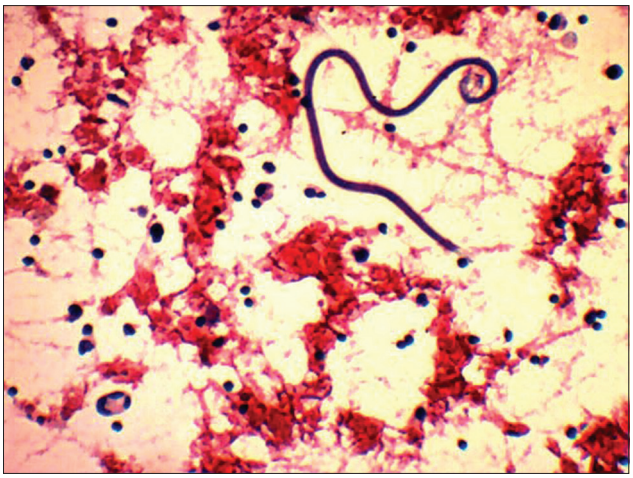

Figure 2: Pleural fluid cytology showing microfilariae

cystic foci were seen in the rest of the lung fields. Ultrasonography (USG) abdomen done was a normal study. Echocardiography showed mild mitral regurgitation (MR) with mild left Venticular (LV) systolic dysfunction, consistent with old myocardial infarction. Bronchoscopy was done that revealed purulent secretions in the basal segment of the right lower lobe. No endobronchial lesions were seen. Lavage fluid analysis revealed polymorphonuclear leucocytes (PMNs), but was negative for any growth or malignant cells. A CT-guided fine needle aspiration cytology (FNAC) done from the wall of the cavitatory mass revealed adenocarcinoma of lung.

He was put on diethyl carbamazine for 3 weeks and he promptly responded for the same. His repeat chest radiograph done showed resolution of pleural effusion. Patient was offered further evaluation and treatment for lung malignancy, which he declined.

DISCUSSION

Filaria is still a major health problem in many endemic areas of India, especially along the sea coasts and along the banks of major rivers. Filarial parasites have been isolated only in few cases of pleural effusion.[4,5] Ours was one such case of Filarial pleural effusion. Filarial effusions tend to be chylous in nature due to leakage of chyle from the occluded thoracic duct. non-chylous effusions caused by microfilariae are rare. Exudative effusion may be due to Lymphangitis resulting from incomplete obstruction of lymphatics.[6] In our case, it manifested as an exudative pleural effusion.

Tropical pulmonary eosinophilia (TPE) is a form of occult Filariasis characterized by pulmonary infiltrates on chest radiograph and peripheral eosinophilia. They present with paroxysmal dry cough, wheezing, dyspnea, anorexia, malaise and weight loss. However, <0.5% of these infections manifest as TPE.[7] TPE results from a hypersensitivity response to the microfilariae of the lymphatic-dwelling parasites, usually related to *W. bancrofti* or *B. malayi* infection.[7] In our case, there was no TPE or peripheral eosinophilia on presentation.

It was also associated with cavitatory malignancy of lung. There have been few case reports where Filarial microfilariae have been detected in association with malignancy.[8-11] Most of the authors have explained that as microfilaria circulate in the vasculature and lymphatic system, and whenever the neoplastic lesion causes vasculature or lymphatic obstruction, they appear in the tissue fluid or shed off into the surface material. In malignancy, increased blood vasculature also causes the increase in deposition of microfilaria to these sites.[12] Gupta, *et al*. reported six cases where microfilaria were found in body fluids' cytology and FNAC smears in association with tubercular pleural effusion/Lymphadenitis, pregnancy, non-Hodgkin's Lymphoma, malnutrition and young age. Although the finding of microfilaria in cytological smears was considered incidental, the association of microfilaria with debilitating condition suggests that it is an opportunistic infection.[13] In the literature, there has been no data suggesting the role of microfilaria in causing malignancy. There are increasing reports of malignancy-associated Filarial detections. Hence, a meticulous search for any malignant foci is warranted in all cases of Filarial pleural effusions.

The most common cause of pleural effusion in India is tuberculosis. But, many cases of idiopathic pleural effusions have also been known. In cases where tuberculosis or malignancy is a remote possibility, Filarial etiology can be considered, more so in the endemic areas or with recurrent pleural effusions. Filariasis is endemic in India and therefore, the co-existence of pleural effusion and Filariasis may be coincidental rather than causally related. However, the presence of microfilariae in the Pleural fluid and the successful response to treatment with diethylcarbamazine, as in our case, is strong evidence of the Filarial etiology of the pleural effusion.[5] it is therefore stressed that in tropical countries, careful search for microfilaria in centrifuged Pleural fluid may be rewarding.

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