

## Case Report

# Microfilaria in malignant pleural effusion: an unusual incidental finding or causative association?

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**Received:** 24 August 2015

**Revised:** 02 September 2015

**Accepted:** 07 September 2015

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### ABSTRACT

Lymphatic filariasis is common in tropical countries and is endemic in India. Filaria has a wide spectrum of presentation. Filariasis lung involvement is usually in the form of tropical pulmonary eosinophilia with pulmonary infiltrates and peripheral eosinophilia. Filariasis presenting with pleural effusion is an unusual presentation. Malignancy in association with filarial pleural effusion is extremely rare and its role in tumorigenesis is controversial. In this context, we hereby report a case of 60 year old male, chronic smoker, who presented with left sided chest pain, cough, breathlessness, generalized weakness and swelling over left infrascapular region. Pleural fluid cytology repeated thrice due to degenerative changes, finally revealed malignant cells along with microfilaria. FNAC from left infrascapular swelling showed cytological features suggestive of metastatic deposits of Adenocarcinoma.

**Keywords:** Microfilaria, Malignancy, Pleural effusion, Tumorigenesis

### INTRODUCTION

Filaria, a vector-borne disease, is common in tropical countries like India. *Wuchereria bancrofti* is the most widespread of the filarial organisms, infecting man. The parasite is endemic in both urban and rural areas of India.<sup>1</sup> Filariasis presents acutely with fever, adenolymphangitis, funniculitis, epididymitis or orchitis. Lymphoedema, hydrocele, elephantiasis and chyluria are features of chronic infection.<sup>2</sup> Microfilaria are not just confined to the lymphatic system but are also associated with other organs, subcutaneous tissues and serous cavities like pleura and pericardium.<sup>3</sup> Microfilaria has been observed as coincidental findings with other inflammatory conditions, primary malignant tumors and in metastatic deposits.<sup>4</sup> Our case was rare coexistence of microfilaria in haemorrhagic pleural effusion with occult primary.

### CASE REPORT

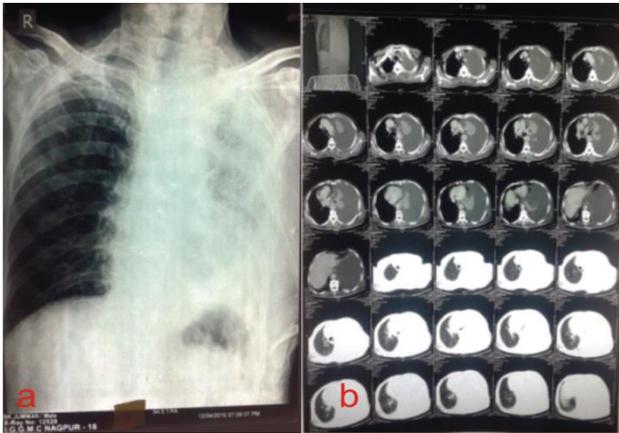
A 60 year old male chronic smoker presented with left sided chest pain since 1 month, shortness of breath on exertion, cough with expectoration and generalized weakness since last 10 days. During his hospital stay, he developed swelling over left infrascapular region. Patient had no past history of pulmonary tuberculosis.

On examination patient was average built. No any pallor, cyanosis, icterus or clubbing seen. He was tachycardiac and tachypenic at rest. Respiratory system examination revealed features of left sided pleural effusion. Other system examinations were not contributory.

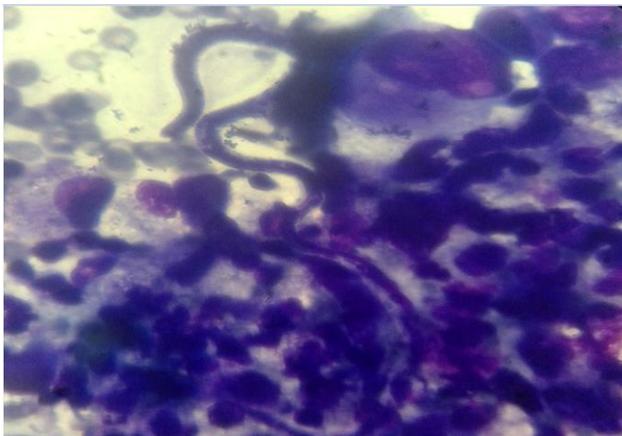
Haematological investigation revealed haemoglobin of 11.9 gm% while total and differential leucocyte count was within normal range. There was no eosinophilia.

Biochemical profile revealed normal liver and kidney function test with only raised blood urea (54 mg %).

Chest x-ray, plain and contrast CT study of thorax revealed gross left sided pleural effusion with complete collapse of underlying lung, possibly of infective aetiology (Figure 1).



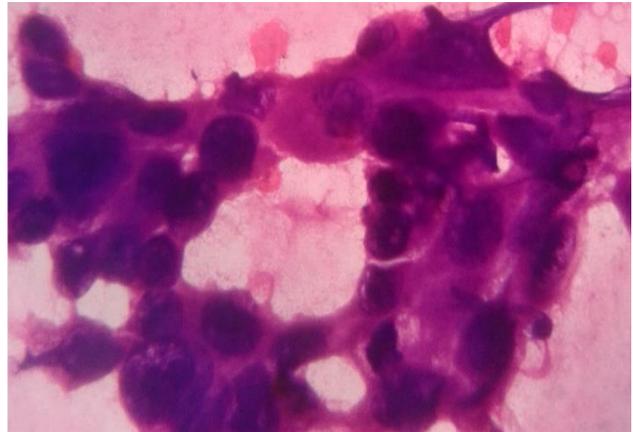
**Figure 1: (a) Chest radiograph (PA View) showing massive left sided pleural effusion. (b) Computed tomography thorax (Plain & Contrast) revealed left sided pleural).**



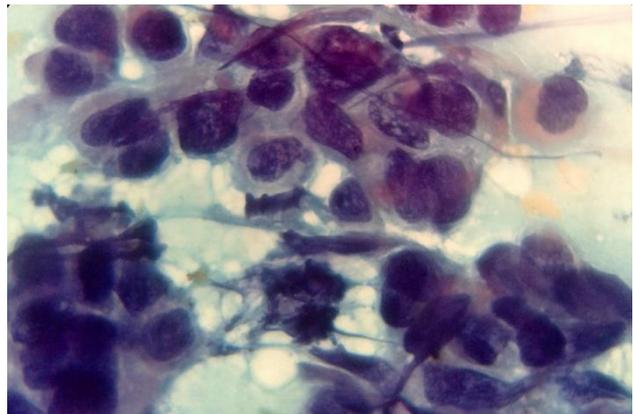
**Figure 2: Pleural fluid cytology showing microfilariae along with atypical cell and few lymphoid cells against a blood mixed background (MGG, 1000X).**

Sputum for acid fast bacilli (AFB) and pyogenic organism culture/sensitivity was negative. Pleural fluid was grossly haemorrhagic. Proteins, sugar and adenosine deaminase (ADA) levels in pleural fluid were 5 gm/dl, 21.2 gm/dl and 65.8 u/l respectively. Pleural fluid gram staining showed only pus cells and no organisms were isolated in culture. Zeihl-Neelsen staining of pleural fluid did not reveal any AFB. KOH mount of pleural fluid was also negative for any fungal elements. Pleural fluid cytology initially showed only hemorrhage. Further multiple repeat pleural fluid cytology revealed very few small groups of cells arranged loosely, having moderate cytoplasm and eccentric hyperchromatic nuclei along

with mesothelial cells, lymphocytes and a focus of filarial parasite (Figure 2). No intracellular or background mucin was seen. Midnight peripheral blood smear didn't reveal any filarial parasite.



**Figure 3: FNAC smear of left infrascapular swelling showing acinus of large round cells having moderate cytoplasm, eccentric hyperchromatic nuclei with high N:C ratio (H&E, 1000X).**



**Figure 4: FNAC smear of left infrascapular swelling showing irregular clumps of large round to oval cells having moderate cytoplasm, hyperchromatic nuclei. (PAP, 1000X).**

Patient was further started on diethyl carbamazine. Later during his hospital stay he developed swelling over left infrascapular region. Fine Needle Aspiration Cytology (FNAC) from this swelling showed abundant cells with morphology similar to cells seen in pleural fluid. Cytological features were suggestive of metastatic deposits of Adenocarcinoma (Figure 3 and 4) probably revealing the cause of haemorrhagic pleural effusion. He was offered further evaluation but ultimately succumbed to death.

## DISCUSSION

Microfilaria have been identified in samples submitted for cytological examination, such as aspirated material from lymph node, breast lump, cutaneous swellings and

also from bone marrow, bronchial aspirate, nipple discharge, ascitic, pleural, pericardial fluid, ovarian cyst fluid and cervicovaginal smears.<sup>5,6</sup> Although microfilaria's in unusual sites are considered incidental findings, association of microfilaria with debilitating conditions suggests that it may be an opportunistic infection or it may be coincidental with various neoplasm.<sup>7,8</sup> However, pleural effusion is an uncommon manifestation. Effusion if present is usually chylous, due to secretion of chyle from the occluded thoracic duct. Exudative or haemorrhagic effusions are very rare.<sup>9</sup>

In India, most common cause of pleural effusion is tuberculosis and therefore this was the first diagnosis taken into consideration, as the pleural fluid ADA levels were also raised. Malignancy is the commonest cause of haemorrhagic pleural effusion seen with malignancy of lung, breast, lymphoma or as adenocarcinoma from occult primary.<sup>2</sup> In our case it was haemorrhagic pleural effusion, likely due to some occult primary.

Entry of microfilaria in pleural space is still a speculation. Most of the authors have explained that as microfilaria circulate in vasculature & lymphatic system and whenever the neoplastic lesion causes vascular or lymphatic obstruction they appear in tissue fluid or shed off in surface material. In malignancy increased vasculature also causes increased deposit of microfilaria to this sites.<sup>10</sup> This explains the association of microfilaria in malignant pleural effusion, but the presence of microfilaria makes no change in clinical presentation of the neoplastic process.<sup>9</sup>

Role of microfilaria in causing malignancy remains unexplained but there are increasing reports of malignancy associated Filarial detections.<sup>2,7,9,10-13</sup> Hence, a meticulous search for any malignant foci is warranted in all cases of Filarial pleural effusions.

In our case Adenosine Deaminase was raised, previous reports have either not tested for this or have found it normal. In 2 cases of pericardial effusion with thymoma it was raised. This finding needs further evaluation and if confirmed, can serve as a useful marker.

## CONCLUSION

Our case report is a rare co-existence of microfilaria in pleural effusion with occult primary. Though tuberculosis and malignancy are common causes of pleural effusion, the association of microfilaria in pleural effusion should be kept in differential diagnosis in endemic areas. This rationale for coexistence remains unanswered till more reports confirm this association.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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**Cite this article as:** Chordiya AP, Datar SS, Agrawal AK, Gadkari RU, Shrikhande AV. Microfilaria in malignant pleural effusion: an unusual incidental finding or causative association? *Int J Res Med Sci* 2015;3:2889-91.