CASE REPORT

Filarial pleural effusion without peripheral blood or pleural fluid eosinophilia

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SUMMARY

Lymphatic filariasis is a tropical parasitic disease and is endemic in India. It is present in various forms but its manifestation as pleural effusion is rare. Here, we describe a case of 58-year-old male who presented with complaint of left side chest pain and breathlessness. He was investigated and diagnosed as a case of left side pleural effusion due to filariasis, with peripheral blood lymphocytosis but without peripheral blood or pleural fluid eosinophilia. Our case foregrounds that filariasis can present with peripheral blood lymphocytosis and without peripheral blood or pleural fluid eosinophilia.

BACKGROUND

Filariasis, a vector-borne disease, has been a major public health problem in India. The adult parasites are usually found in the lymphatic system of definitive host, that is, man. Mosquito is an intermediate host. Adult can produce 50 000 microfilariae per day.¹ During his lifespan that is around 6–8 years, a worm produces millions of microfilariae that circulate in the blood.²

Filariasis is caused by nematodes, which are transmitted by *Culex* and *Mansonia* mosquito species.

In India, more than 99% of the cases of filariasis are caused by *Wuchereria bancrofti*.¹

In the adult stage, filarial worms live in the vessels of the lymphatic system whereas microfilariae, the larval forms circulate in peripheral blood.³ Lymphatic system is the network of lymph nodes and lymph vessels that maintains the fluid balance between the tissues and the blood which is an essential element of the body's immune defence system.

The manifestations of filariasis include fever, asymptomatic microfilariemia, lymphatic obstruction and tropical pulmonary eosinophilia (TPE). Acutely, it may present with fever, adenolymphangitis, funiculitis, epididymitis or orchitis. However, lymphoedema, hydrocele, elephantiasis, chyluria are the features of chronic filariasis. Rarely, microfilaria may found in different body fluids, pleural fluid, bronchoalveolar lavage, pericardial fluid and in semen with different clinical scenarios.⁴

CASE PRESENTATION

A 58-year-old male presented with a complaint of left side chest pain and breathlessness. On examination, he had reduced chest expansion, stony dullness on percussion and reduced vocal resonance on left side. Chest X-ray showed left-sided pleural effusion (figure 1). There was no night pruritus or any skin lesions.

INVESTIGATIONS

Ultrasonography of chest revealed left side moderate pleural effusion with partial collapse of left lower lobe of lung. Blood examination showed,

Figure 1 Chest radiograph at the time of presentation.

Figure 2 Microfilaria of *Wuchereria bancrofti* in H&E smear of pleural fluid.

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Figure 3 Microfilaria with plenty of other cells in haemorrhagic background.

haemoglobin 15.2 g/dL, total leucocyte count 6200 cells/mm³ with neutrophil 40%, lymphocyte 56%, monocyte 2%, eosinophil 2%, basophil 0%, serum lactate dehydrogenase (LDH) 261.8 U/L and serum protein 7.15 g/dL. Sputum examination

Figure 4 Chest radiograph after 1 month of treatment.

Table 1 List of cases where pleural effusion (non-malignant) causes due to filariasis

Title	Number of cases	Author/year
Microfilaria in pleural fluid cytology: a rare finding	1	Subrata Pal <i>et al</i> (2017) ⁸
Microfilaria in pleural effusion: an unusual association	1	Sarkar <i>et al</i> (2010) ⁹
Filariasis: an unusual cause of effusion	1	Kishan Prasad (2016) ¹⁰
Filariasis in body fluids: reports of three cases	3	Shetty <i>et al</i> (2014) ⁴
Pleural effusion: an unusual cause and association	1	Navaz <i>et al</i> (2013) ¹¹
Delayed diagnosis of 'Bancroftian filarial pleural effusion'	1	Akhtar <i>et al</i> (2012) ¹¹
Nonresolving pleural effusion in an elderly woman: a case report	1	Garg <i>et al</i> (2010) ¹²
Filariasis presenting as non-resolving pleural effusion	1	Yelikar BR <i>et al</i> (2010) ¹²
Filarial pleural effusion	1	Marwah <i>et al</i> (2007) ¹³
Early diagnosis of filarial pleural effusion	1	A Marathe <i>et al</i> (2003) ¹³

was negative for acid fast bacilli and malignancy. Mantoux test result was negative.

Pleural fluid aspiration was done and haemorrhagic fluid was aspirated. Pleural fluid cytology revealed, total cell count 1600 cells/mm³, polymorph 10%, lymphocyte and mesothelial cells 90%, glucose 72.4 mg/dL, protein 5.5 g/dL, adenosine deaminase 25.5 U/L, LDH 555 U/L and no atypical or malignant cell and acid fast bacilli were seen.

Pleural fluid microscopy showed microfilarial larvae of *W. bancrofti* (figure 2) with plenty of lymphocyte, few eosinophil, neutrophil, histiocyte and mesothelial cells in a haemorrhagic background (figure 3).

DIFFERENTIAL DIAGNOSIS

Eosinophilic lung disease, tuberculosis, pneumonia.

TREATMENT

Patient was treated by diethylcarbamazine (DEC) 100 mg thrice daily for 21 days with other supportive medication.

OUTCOME AND FOLLOW-UP

Patient was improved symptomatically after 21 days of treatment with DEC. Chest X-ray showed significant resolution of pleural effusion after 1 month (figure 4). Now patient is able to do all his day-to-day activities as before.

DISCUSSION

Most common cause of pleural effusion in India is tuberculosis.^{5 6} The microfilariae in the pleural fluid have been described in few cases (Table 1). Filarial pleural effusion is mostly exudative, occurs due to lymphatic inflammation and incomplete blockage of lymphatics. Filariasis produces usually chylous effusion which occurs due to leakage of chyle from occluded thoracic duct. Non-chylous type is rare. Tropical pulmonary eosinophilia (TPE) is a form of occult filariasis present as lung parenchymal infiltrates and peripheral eosinophilia.

In our case, pleural effusion is haemorrhagic which favours the differential diagnosis of tuberculosis or malignancy; however, rarely microfilaria can present together with malignancy.⁷

After ruling out tuberculosis and malignancy, it was concluded that cause of effusion in this case was filariasis without peripheral blood eosinophilia. Presence of microfilariae in pleural fluid and successful response to treatment with DEC, in our case, is a strong evidence of the filarial aetiology of the pleural effusion.

Hence, it could be concluded that in cases of haemorrhagic pleural effusion, keeping filarial aetiology along with tuberculosis and malignancy in list of differential diagnosis may prove to be of great clinical and social significance.

Learning points

- Our case foregrounds that filariasis can present without peripheral blood or pleural fluid eosinophilia.
- Filariasis can present as peripheral blood lymphocytosis.

Contributors ADS provided the concept and made the diagnosis. AC planned the investigation, treatment and wrote the manuscript. AKV took history. AS did the follow-up of patients.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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