Delayed diagnosis of 'Bancroftian filarial pleural effusion'

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ABSTRACT

The authors report an unusual case of 60 year old male, who got admitted in a tertiary health care institute in Maharashtra (India) for chest pain and breathlessness and was provisionally diagnosed as 'pleural effusion with suspicion of malignancy'. However, the pleural fluid cytology, conducted later, assisted in diagnosing this case as 'Pleural Effusion due to Bancroftian Filariasis'. The patient responded well with oral medication of diethyl carbamazine within a couple of days. The patient could not be followed up as he left the hospital against medical advice.

Key words: diethyl carbamazine; malignancy; microfilaria; pleural effusion; *Wucheria bancrofti*.

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INTRODUCTION

Bancroftian filariasis caused by *Wucheria bancrofti* is transmitted to man by the bites of infected mosquitoes - Culex, Anopheles, Mansonia and Aedes. Man is the definite host, and mosquito is the intermediate host of Bancroftian and Brugian filariasis. The adult filarial worm lives in lymphatic vessels whereas microfilarias reside in peripheral blood and are able to infect mosquitoes during a blood meal [1]. While the lymphatic filariasis manifest in stages viz. asymptomatic amicrofilaraemia, asymptomatic filaraemia, stage of acute manifestations and stage of chronic obstructive lesions, the occult or cryptic filariasis refers to the filarial infections in which the classical clinical manifestations are not present and Mf (microfilaria) are not found in the blood [2].

The National Filaria Control Programme (NFCP) was launched in India in 1955. The control strategy was selective chemotherapy with Diethylcarbamazine citrate (DEC) for 12 days at 6 mg/kg body wt. for parasite carriers detected from the night blood survey, and larval control of vector mosquitoes. The major constraint of the NFCP in India was that it did not cover the vast majority of the population at risk residing in rural areas and that the strategy demanded detection of parasite carriers by night blood survey, which is less sensitive, expensive, time-consuming and poorly accepted by the community [3]. An estimated 600 million people are at risk of lymphatic filariasis infection in 250 endemic districts in 20 states/Union Territories (UTs) in India. Morbidity survey (up to year 2008) of filaria cases in the states/UTs revealed 7.35 lacs cases of lymphedema and 3.36 lacs cases of hydrocele. The microfilaria survey report received from 205 districts revealed microfilaria rate of about 0.49% [4].

Mass drug administration (MDA) is being implemented in India since year 2004. In 2007, India changed its strategy from delivery of DEC alone to delivery of DEC plus albendazole; since then, the number of people treated with combination therapy has increased steadily. In a year, 2009, about 240 million people were treated with combination drug. India has reduced the prevalence of microfilaria to less than 1% in 192 out of 250 implementation units [5].

CASE PRESENTATION

Dated 18.05.2009: A 60 year aged male presented to Medical Out Patient Department with the complaints of cough, pain in lower part of the chest, low grade continuous fever without any diurnal variation, breathlessness for 15 days and hoarseness of voice since the last one month with no history of chills and rigor, haemoptysis, pulmonary tuberculosis, hypertension, diabetes mellitus, bronchial asthma and/or jaundice.

Personal History The patient was a chronic alcoholic (300 ml per day) and chronic tobacco chewer for last 25 years. *On clinical examination*, pulse, respiration, temperature and blood pressure were found within normal limits. Abnormal values in haematological investigation reports were as follows: Haemoglobin 7.8 gm/dl (low); total leukocyte count 15,000/cu mm (raised); Erythrocyte Sedimentation Rate (ESR) 60 mm at the end of one hour (raised); Blood Urea 63.4 mg/dl (raised); Serum creatinine 2.40 mg/dl (raised). *Chest X-ray* revealed 'Right sided with massive pleural effusion'. The patient was put on oral antibiotic treatment (Amoxycillin 500 mg thrice a day) after radiography. *International Classification of Diseases Code* allocated to the patient was ICD Code J90 (Pleural Effusion, not classified elsewhere).

Dated 19.05.2009: Diagnostic pleural tapping was done for routine, microscopy, biochemistry and cytology. Otorhinolaryngologist did not suggest malignancy. Same oral antibiotic treatment was continued.

Dated 20.05.2009: The smears made from sediments of pleural fluid stained with H&E (Haematoxilin and Eosin) showed larvae of *Wucheria bancrofti* and few atypical cells on microscopy under 100X (Oil immersion) (Figure1). DEC tablet 300 mg divided into three equal doses per day was added to the ongoing treatment.

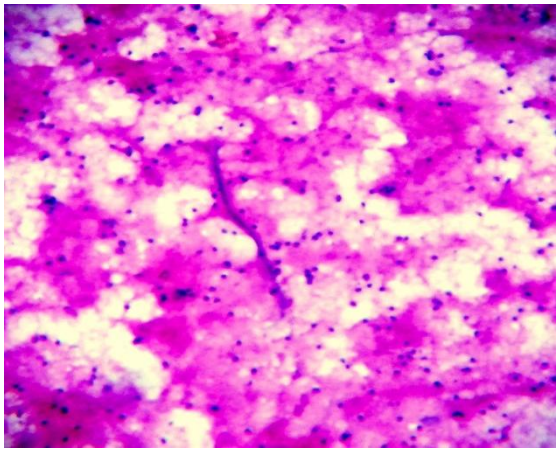

Figure1. Microscopic (100X Oil immersion) picture of Microfilaria in pleural effusion fluid by H&E stains.

Dated 21 and 22 May, 2009: The patient's condition started improving. However, the case was referred to chest and tuberculosis specialist. He advised Mantoux test, Fine Needle Aspiration Cytology (FNAC) of Right Axillary Lymph Node, Pleural Biopsy, Ultrasonography (USG) of the thorax for any mass and Computerized Tomography (CT) of chest.

Dated 23 to 27 May, 2009: Pleural biopsy was inconclusive; Mass was seen in USG of the thorax; Mantoux test, FNAC and CT investigations were not consented. However, the patient was well responding after treatment with DEC. His complaints of chest pain, fever and breathlessness got much relieved, and he could sleep normally.

Dated 28.05.2009: Patient got discharged against medical advice as he wished to continue his treatment at his native place. Thereafter, he could not be followed up.

Diagnosis: Bancroftian filarial pleural effusion.

DISCUSSION

Filariasis, a major public health problem in tropical countries including India, has been reported as unusual clinical presentations. Menon et al. [6] diagnosed *Wucheria bancrofti* microfilarial pleural effusion in a case of tropical pulmonary eosiono-philia, in which peripheral blood was negative for microfilaria on three occasions. Similarly, our case responded by rapid clearing of the effusion and relief of symptoms with DEC.

Varghese et al [7] observed that in three of the six cases, microfilariae were the cause of symptoms, whereas in the other three cases, microfilaria was associated with other diseases, including malignancy. In our case, although malignancy was also suspected but could not be conclusively found, and the case responded very well to DEC. In another study [8], exudative effusion was observed, in which treatment by tapping and DEC yielded excellent results to symptoms. Although Bancroftian filarial pleural effusion has reported to respond well to DEC in these and other studies [6, 8-10] mentioned herein, it however, became imperative to carefully identify the cause of pleural effusion in all the reported cases since tuberculosis is the commonest cause of pleural effusion in India and many other developing countries.

In addition, the co-existence of pleural effusion and filariasis may be coincidental rather than causal [11]. However, at the same time, clinical response to the recovery in cases of pleural effusion upon treatment with DEC has also to be considered in tropical countries.

In a reported high microfilarial load (1000/ml) from blood in HIV positive patient, where microfilaria was also demonstrated from the pericardial and pleural fluid and from urine, it has been observed that treatment with DEC or Ivermectin can cause an often fatal encephalopathy, especially in people with high (30-50,000 mf/ml) [12]. Therefore, cautious reduction of mf load should be made by a 3 week course of albendazole or ivermectin prior to administering curative DEC [13].

The case in the present study may have been examined for microfilaraemia in the nighttime after 10 PM or DEC provocation test [14] may have been done for induction of Mf to appear in the blood in the daytime by administering DEC 100 mg orally because Mf begins to reach their peak within 15 minutes and begin to decrease two hours later. The examination of blood one hour after the administration of DEC on the day of hospital admission itself would have facilitated early diagnosis of the 'Bancroftian filariasis pleural effusion'.

The delay in the diagnosis was probably due to focus on malignancy and tuberculosis due to advancing age of the patient (60 years), complaint of hoarseness of voice, his personal habits (long term tobacco and alcohol consumption i.e. 25 years) and higher prevalence of tuberculosis in the region (185 cases per 100,000 population per year).

Conflict of interest

The authors declare that they have no conflict of interest related to the publication of this manuscript.

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