Pulmonary Paragonimiasis Mimicking Tuberculosis

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Abstract

Paragonimiasis is a disease which is frequently misdiagnosed as pulmonary tuberculosis. In the areas where people eat crab/crayfish this disease should be considered in the differential diagnosis to avoid antituberculous treatment for a non-tubercular condition. We are reporting a case of pulmonary paragonimiasis who had been treated for tuberculosis.

Introduction

Paragonimiasis, has been recognized as an important cause of pulmonary disease worldwide, especially in Asia, West-Central Africa, and Central and South America. In initial presentation, the signs and symptoms most commonly mimic pulmonary tuberculosis or lung cancer with haemoptysis, pleural effusion and peripheral blood eosinophilia. Diagnosis in a tuberculosis endemic area may be missed, especially in areas not endemic for the parasite. As a result unnecessary antitubercular therapy may be instituted with no cure. We report a case of pulmonary Paragonimus infection in a patient, on anti-tubercular therapy, who presented with repeated pleural effusions, peripheral blood eosinophilia and nodular cystic lesions in lungs.

Case Report

A 34 years old non-smoker male, working in army at Nagaland, resident of Nepal, presented with complaints of cough with expectoration, breathlessness and chest pain for 6 months. Past history revealed jaundice for which some indigenous treatment (raw crab) was undertaken.

Examination in a hospital at Nagaland revealed decreased breath sounds in left infrascapular region with bilateral fine crepitations and rhonchi. On investigation, he was found to have a TLC of 10,000 cells/mm³ and peripheral blood eosinophilia of 46% and was treated for tropical pulmonary eosinophilia with diethyl carbamazine (DEC) citrate without any relief even after 3 weeks of therapy. So he went to Nepal for further treatment. Blood examination and chest X-ray revealed same findings. Pleural tapping done was turbid, with 4000 cells/mm³ and showed a differential eosinophil count of 34%. Proteins, sugar and adenosine deaminase were 7.1g/dl, 55.6 mg/dl and 33.7 units/l, respectively. Patient was started on anti-tubercular therapy (ATT) with no relief even after 8 months. A CECT thorax done showed persistent left sided pleural effusion with patchy consolidation and cavitation (Figure 1).

A video bronchoscopic examination was carried out. Although bronchoalveolar lavage (BAL) fluid showed acute and chronic inflammatory cells, it was negative for acid fast bacilli, fungi and was sterile on routine bacterial culture. Transbronchial lung biopsy showed patchy infiltrates of eosinophils in alveolar spaces and septa which pointed towards chronic eosinophilic pneumonia. Patient was given oral prednisolone 40 mg OD for 4 months. At this time he was mildly relieved of symptoms but heaviness and exertional breathlessness along with peripheral blood eosinophilia persisted. Chest X-rays (Figure 2) done subsequently revealed persistent left sided pleural effusions with raised eosinophil counts in pleural fluid. Patient was advised to continue ATT and referred to us for further management.

In view of the symptoms and signs, a thorough examination of the sputum was done. Microscopic examination of the rusty coloured sputum did not show any fungus, acid fast bacilli or Nocardia on routine staining. A wet mount of the sputum revealed operculated, oval, yellowish-coloured eggs of Paragonimus species (Figure 3).

This positive sample was sent to RMRC, Dibrugarh for species identification. According to them morphologically and morphometrically the eggs appeared to be of P. heterotremus. The diagnosis was thus confirmed as pleuropulmonary paragonimiasis. Patient was started on oral Praziquantel for 2 days. Until last follow up he had improved considerably.

Discussion

Paragonimus species (commonly “lung fluke”) infection, generally known as a food-borne parasitic disease, is caused by eating raw or undercooked freshwater crabs or crayfishes containing encysted metacercariae. Pigs and wild boars can act as paratenic hosts. Paragonimus species have been identified most commonly from Nagaland, Manipur, Arunachal Pradesh in India as well as Southeast Asian countries like Thailand and Vietnam. Of the 50 species of Paragonimus known to date, 11 are known to cause infections in humans. Singh et al in an epidemiological survey of paragonimiasis in Imphal east district, have reported an estimated prevalence rate of 6.7% in Manipur.

The presence of eosinophilic pleural effusion and peripheral blood eosinophilia are one of the clinical manifestations of Paragonimus infection. A wide variety of radiographic and CT findings, including pulmonary nodules or masses, infiltrates, cavitation, fibrosis, effusion or pleural thickening can be seen. Frank pleural effusion is seen in 20% cases of pulmonary paragonimiasis.

The diagnosis of paragonimiasis can be made by detecting the characteristic golden brown, ellipsoidal or oval operculated ova in the tissue section or more commonly in the stool, sputum, or BAL samples, by microscopy or by a positive anti-Paragonimus antibody test. However, egg detection rates have been reported to be low (28-38%) and...
eggs are not present in the sputum until 2-3 months after an infection. Serum determination of antibodies to Paragonimus is more accurate in early infections, and ELISA is highly sensitive (92%) and specific (97%). However it is more expensive, time consuming and requires costly equipments. Reagents and antigens in particular are not commercially available. Recently a dot-immunogold filtration assay kit developed in China for anti-P. westermani antibody detection has shown a sensitivity and specificity of 99% and 92% respectively.

Treatment with praziquantel or triclabendazole has been recommended although preventive strategies involving proper health education, hygiene, avoiding raw crab/crayfish consumption are better ways to prevent the infection.

In conclusion, the present case highlights the importance of history and need for an accurate diagnosis for effective management of patients of pulmonary paragonimiasis. This disease should be included in the differential diagnosis of nodular or cystic lesions in the lung in patients who have lived in or travelled to paragonimiasis-endemic areas and have the history of eating crab/crayfish.

Acknowledgment

We are thankful to Dr. J. Mahanta, Director, RMRC (ICMR), Dibrugarh and his colleagues for identification of the species of Paragonimus.

References