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Pulmonary Nocardeosis in an Asthmatic Patient on Long Term Steroid Treatment – A Case Report

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Abstract : Nocardiosis, is a systemic bacteriological infection usually caused by Nocardia asteroids, affecting the immunocomprommised patients . Clinical presentation is atypical with varied radiological picture. In this case report, a 45 year old female asthmatic patient on treatment with inhaled steroids since 6 years presented with h/o worsening cough with expectoration, breathlessness, fever since 1 week. Past history of being treated for pulmonary tuberculosis. On examination patient was febrile with signs of right lower lobe consolidation. Bronchoscopy was done and BAL culture isolated Nocardia species. In patients suffering from chronic disease presenting with clinical signs of pneumonia, pulmonary nocardiosis should be considered as a possibility as it is a rare disease with more chances of occurrence in an immunocompromised patient. There is a definitive role of diagnostic bronchoscopy in evaluation of pneumonia in immunocompromised patients.

Keywords : Bronchoscopy, Immunocompromised, Nocardiosis.

Introduction :

Nocardiosis, is a systemic bacteriological infection usually caused by Nocardia asteroids, filamentous weakly gram positive organisms with a tendency to breakup into coccobacillary forms[1]. More than 50 species have been identified, mostly on the basis of 16S rRNA gene sequences. More than 30 species have been associated with human disease. Until recently, isolates from the majority of cases of pneumonia and systemic disease were identified as *Nocardia asteroides*, but human disease involving *N. asteroides* proper is actually rare[2]. Immunodeficient persons and those who receive chronic steroid therapy are more prone to develop[3]. Clinical presentation is atypical with varied radiological picture from military to nodules or bronchopneumonia to abscess. Etioloigcal evaluation of patients presenting with signs of pneumonia is important.

Methodology :

A 45 year old female asthmatic patient on treatment with inhaled steroids and on and off oral steroids since 6 years presented with h/o worsening cough with expectoration, breathlessness, fever since 1 week. Past history being diagnosed and treated for pulmonary tuberculosis 10 year back. On examination patient was febrile with signs of right lower lobe consolidation. Other systems within normal limits.

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Lab Investigations :

- Blood picture- Neutrophilic Leucocytosis
- Chest X-ray suggestive of right lower lobe consolidation. Fig. 1 & 2
- Sputum for AFB negative
- Other routine tests within normal limits.

Fiberopticbronchoscopy : BAL Analysis-–

- AFB –ve
- Culture :
  - AFB: Modified ZN stain – shows weakly acid fast thin branching rod shaped bacteria morphologically resembling Nocardia species. Fig. 3, 4 & 5
  - Malignant cytology – Negative.

Management :

Patient was started on Trimethoprim- Sulfamethaxazole (TMP-SMX). Patient adviced for regular followup for 6 months. Patient improved symptomatically and she was discharged with advice for regular follow-up.

Discussion :

The diverse radiological manifestations of pulmonary nocardiosis reflect its ability to cause both suppurative and granulomatous infection[4]. Since the clinical and radiologic manifestations are non-specific, and the microbiological diagnosis is often difficult, it seems likely that, in some patients, pulmonary nocardiosis will be mistaken for other infections, such as tuberculosis or bacterial pneumonia[5]. In this patient who is an asthmatic,

on long term steroid therapy chances of local immune suppression is high. Nocardiosis should be considered in the differential diagnosis of any chronic pneumonia not responding to the antibiotic treatment[6].

Conclusion :

There is a definitive role of diagnostic fiberoptic bronchoscopy in evaluation of pneumonia in immunocompromised patients. Fig. 6 & 7

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Fig. 1 : Chest X-rays shows right middle & lower lobs consolidation

Fig. 2 : Chest X-rays Shows improvement after treatment with TMP-SMX

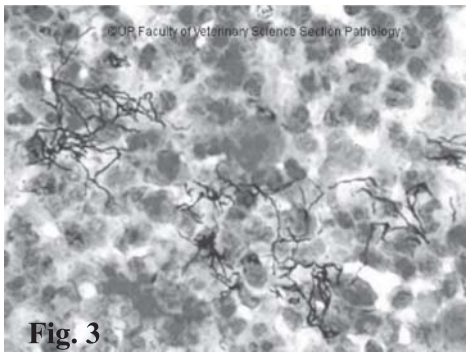

Fig. 3

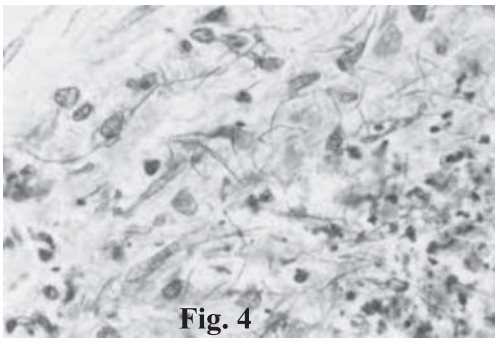

Fig. 4

Fig. 3 & 4 : BAL fluid, Modified ZN stain – shows weakly acid fast thin branching rod shaped bacteria morphologically resembling Nocardia species.

Fig. 5 : Culture growth of Nocardia Species.

Fig. 6

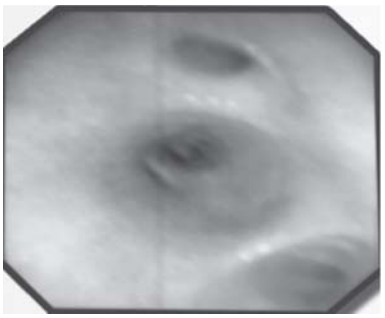

Fig. 7

Fig. 6 & 7 : Fiber Optic bronchoscopy shows right main bronchus abnormal growth

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