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Pulmonary Nocardiosis Misdiagnosed as Tuberculosis

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Abstract: A case of chronic deteriorating chest infection was misdiagnosed as pulmonary tuberculosis, treated for more than 15 months with very slow response. Later the diagnosis was reviewed and decision of interstitial lung disease was suggested and patient was put on long term steroid therapy. Nocardial pulmonary infection was suspected and diagnosis was confirmed by direct sputum examination, culture and sensitivity testing and the patient responded well to treatment.
Keywords: Nocardial pulmonary infection, sputum examination.

INTRODUCTION

The two most common syndromes caused by Nocardia spp. are pneumonia and disseminated infection which follows the inhalation of fragmented nocardial mycelia. The microorganism is a normal inhabitant of soil worldwide [1]. Nocardia infections in USA are most frequently caused by N. asteroids sensus stricto type 1 and other types [2]. It grows aerobically on many simple media, all nocardia are urease positive [1].

About 8.5% of cases occur annually in U.S. are either systemic or pulmonary. The risk is increased in immune-suppressed patients especially those having lymphoma, AIDS and organ transplant [3].

Nocardia is also associated with pulmonary alveolar proteinosis, tuberculosis, tissue transplant and chronic granulomatous diseases [4-6]. The clinical and radiological manifestation are non-specific and diagnosis is difficult, it seems that pulmonary nocardiosis will be mistaken for other infections such as tuberculosis or other bacterial infections [7].

CASE REPORT

A 38 years old married female was presented to clinic of second author in June 2014, as a case of progressive shortness of breath along the last six years associated with productive cough, night sweet and weight loss. No history of haemoptysis was observed by the patient. No any relevant condition was detected in the case; neither family history of T.B. was noted.

The chest radiographic films showed the cavitory and infiltrative lesions on both sides of lung fields (fig. 1). The challenge with nocardiosis is the arrival to definitive diagnosis as the mortality due to pulmonary nocardiosis is 14-40% [8].

Regarding the diagnosis of this case; as she has been managed as a case of pulmonary T.B. for 15 months before six years with very slow response, the diagnosis was reviewed and interstitial lung disease was decided to be the cause, so the patient had been put on long term steroid with deterioration of her general condition.

These two points arose the possibility of nocardiosis affecting the patient. Sputum samples were sent to private laboratory, and diagnosed by first author as *Nocardia asteroides* depending on direct smear examination and culture of sputum (fig. 2).

The treatment was started by double therapy using (TMP-SMZ)-10 mg/Kg-bid) and Amikacin 5mg/kg-bid, IM . The patient continued on the regimen for three weeks and responded to treatment well by chest X-ray finding improvement (fig. 3).

Her dyspnoea was decreased, started to gain weight, her appetite began to improve. It was decided to continue on treatment for six months in case no side effects occur on the case.

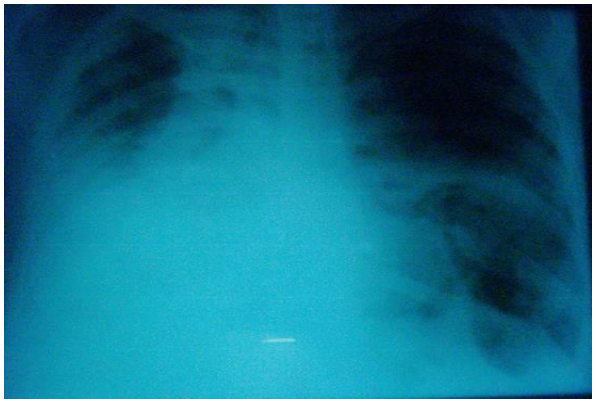

Fig-1: Chest radiograph showing cavitory and infilterative lesions in both lungs

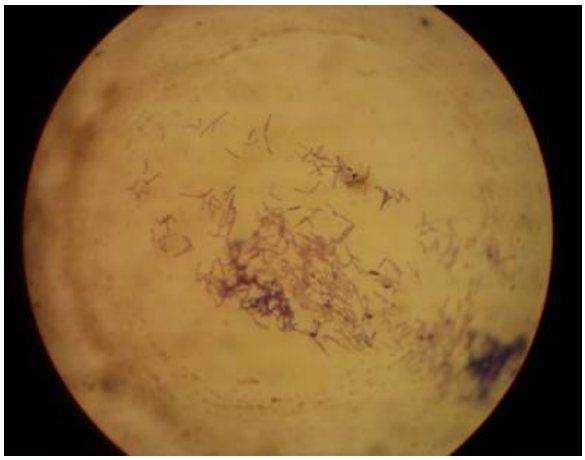

Fig-2: Nocardia in sputum showing filamentous bacillary bacteria with with beaded appearance of rods

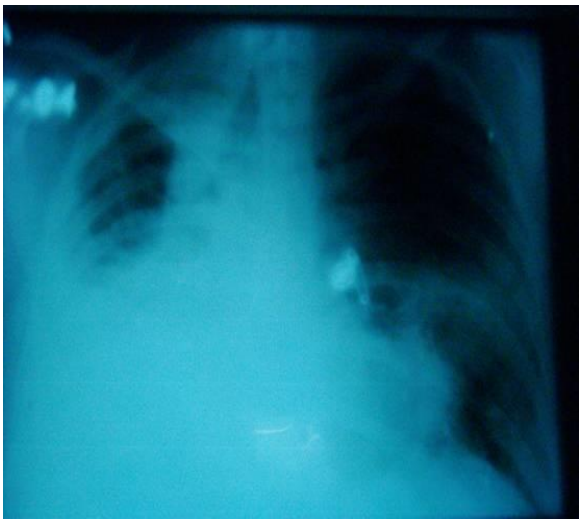

Fig-3: Shrinkage of the lesion especially on the left hemithorax, following treatment

DISCUSSION

It is a well-known fact that Nocardia spp. is opportunistic pathogens of immune compromised patients [9, 10]. No source of infection could be detected in the current case as Nocardia are found in environment worldwide in fresh and salt water and soil type, dusts and fecal deposit of animal [11]. We report a case of pulmonary nocardiosis misdiagnosed initially as pulmonary tuberculosis because in most of the cases the chest radiogtraphy is pleomorphic and non-specific but consolidation and cavitary lesion are common [12, 13], so the case was managed for along 15 months with anti T.B. with very little response. The finding of this study indicates that Nocardia may affect patients having asthma on long term therapy, this is in agreement with that reported by Hart *et al.* [13], who described a patient who developed pulmonary nocardiosis whilst taking long term oral steroid for asthma.

Sarcinelli-Luz *et al* [14], reported a similar case with immunecopromised who developed nocardiosis and diagnosed by broncheoalveolar lavage which demonstrated filamentous structure compatible with Nocardia species. In study published by Bittar *et al.* [11] showed Nocardia farcinica in a 15 year old Caucasian boy with cystic fibrosis.

In our case, following diagnosis the patient was started on double treatment (Trimetheprim and doxycline) had a very good response within 3 weeks; this was identical to that reported by Singh, *et al* [15] regarding the line of treatment.

To our knowledge, this is the first case reported in this province which was treated with long term corticosteroid. This is also reported by Narushima *et al* [6].

CONCLUSION

It is concluded that this is a first case diagnosed in Kirkuk Province, which was diagnosed by private laboratory as T.B. Center lack the facility and trained staff for diagnosis.

RECOMMENDATION

Nocardiosis should be suspected in cases of long term steroid therapy and cases with weak response to anti tuberculosis therapy. Planning to set up advanced laboratory facilities to diagnose similar cases in governmental hospitals. Training laboratory staffs on diagnosis of known mycotic diseases.

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