Nocardia transvalensis infection in an immunocompetent patient reported from Turkey

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ÖZET

Türkiye’den bildirilen immünitesi normal olan olguda Nocardia transvalensis infeksiyonu


Anahtar Kelimeler: Nokardıya, pnömoni, bronşektazi, nonimmünsüpresyon.

SUMMARY

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Pulmonary nocardiosis is a rare infection mostly occurs in patients with immunosuppressive conditions. We report an immunocompetent case of pulmonary Nocardia transvalensis from Turkey, presented with bilateral pneumonia and bronchial dilatation treated six months with trimethoprim-sulfamethoxazole.

Key Words: Nocardia, pneumonia, bronchiectasis, immunocompetent.

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Nocardiosis is a localized or disseminated infection caused by a soil-borne aerobic actinomycete. It is characterized by pulmonary lesions, multiple cutaneous abscesses and draining sinuses (1). Patients may present few weeks after than the initial symptoms. Remissions and exacerbations during this period can occur. Subacute clinic is more common among immunocompetent patients (1). Tracheitis, bronchitis, bronchial masses, mediastenitis, pericarditis, and endocarditis have been reported (1).

We report a case of pulmonary Nocardia transvalensis infection in an immunocompetent host presented with pneumonia and bilateral bronchial dilatation from Turkey.

CASE REPORT

A 56-year-old male was presented with cough and a progressive hemoptysis started one month ago. His medical history was remarkable for a 20 pack-year of smoking and coronary artery by-pass grafting six years before his admission. He was otherwise healthy. His vital signs on the admission were as follows: temperature, 36.5°C; blood pressure, 120/80 mmHg; pulse rate, 75 beats per minute; and respiratory rate, 16 breaths per minute. Lung auscultation revealed crackles at left lung base. He had bilateral finger clubbing. Laboratory studies demonstrated a hemoglobin level of 15 g/dL, hematocrit of 40%, white blood cell count of 6780/mm³ with a normal differential cell count. The erythrocyte sedimentation rate was 15 mm per hour and C reactive protein level was 6.05 mg/L (normal range, 0-5 mg/L). Liver function tests were within the normal range. Renal function tests revealed blood urea of 20 mg/dL (normal range: 10-50 mg/dL), creatinine of 1.3 mg/dL (normal range: 0.4-1.2 mg/dL) and a normal urine analysis. His chest X-ray showed bilateral infiltration, predominantly in the left lower zone. Computed tomography (CT) of the thorax showed bilateral heterogeneous opacities in the superior segments of the lower lobes consistent with pneumonic consolidation (Figure 1). Microbiologic analysis of the sputum yielded no acid-fast bacteria. Bronchoscopy was performed and Erlich-Ziehl-Neelsen (EZM) staining of the bronchial lavage fluid revealed acid-fast bacteria. Nonspecific bacterial colonies were present on day 3rd in the microbiologic cultures of the postbronchoscopic sputum and the bronchial lavage macroscopic appearance suggested Nocardia species (10⁵ cfu). Specimens were sent to a reference laboratory in France for the specific culture and antibiogram. Six weeks later results showing that N. transvalensis as the growing bacteria was obtained and was sensitive to trimethoprim-sulfamethoxazole, amoxicillin-clavulanic acid, ceftriaxone, amikacin, ciprofloxacin, minocycline and cefotaxime.

Until we receive the results from the laboratory (Faculte De Pharmacie, Laboratorie De Mycologie, Lion, France) an empiric treatment with trimethoprim-sulfamethoxazole at a dose of 15 mg/kg trimethoprim per day was started. Two months following the initiation of the treatment, pneumonic consolidation was disappeared leaving residual bronchiectasis predominantly on the left side (Figure 2). After the culture and antibiogram results were received, the initial treatment was continued for 6 months. At the sixth month control, the patient was asymptomatic. Serum C reactive protein level was back to normal (3 mg/L), and repeated sputum cultures was negative.

DISCUSSION

Pulmonary nocardiosis, a subacute or chronic pneumonia, is caused by aerobic actinomycetes
of the genus *Nocardia*. *Nocardia asteroides* is the most common pathogen; however, other *nocardia* species such as *N. brasiliensis*, *N. otitidiscaviarum*, *N. farcinica*, *N. nova*, *N. transvalensis* have all been reported to cause pneumonia (2). The majority of the pulmonary nocardiosis occurs in patients with impaired, cell-mediated immunity. However, *Nocardia* infections may rarely occur in immunocompetent hosts. The most frequent predisposing factors for *Nocardia* infections are chronic obstructive pulmonary disease, neoplastic disease, long term corticosteroid therapy and HIV infection (3). Most of the patients (50%) with pulmonary nocardiosis also have other underlying respiratory disorders such as emphysema, bronchitis asthma or bronchiectasis (4). In a review of 10 patients, bronchiectasis has also been associated with a trend towards chronicity in one case (5). The case presented here did not have any condition or drug treatment before, that can affect his immune status. However, he had bilateral pneumonia, bronchial wall thickenings and bronchial dilatations.

The annual estimated incidence of human nocardiosis is 500-1000 new cases in the United States of America, whereas 150-250 and 90-130 cases in France and Italy, respectively (6). Nocardiosis has been reported worldwide in all ages and races and is more prevalent in male population (3).

The reported frequency of *N. transvalensis* in the literature is deceptively low. To our knowledge, only 25 cases of *N. transvalensis* have been reported up to now. The clinical spectrum of the infection may be ranged from local colonization without disease to fatal disseminated disease including localized superficial infection (mycetoma), localized ocular infection, and mild chronic respiratory infection (7). In one small series of patients with disseminated *N. transvalensis* the mortality rate was 75%, and increased up to 100% when the central nervous system was involved (8).

The present case referred to our clinic with complaints of cough and 5 cc of daily hemoptysis for one month. He did not have any other systemic symptoms. The patient had normal white blood cell count and mildly elevated CRP level in the plasma. Thorax CT showed heterogenous infiltration in superior segments of the lower lobes, along with bronchial wall thickenings and bronchiectasis in the basal segments, predominantly on the left side. Although our diagnosis in this case was Nocardia pneumonia and bronchiectasis due to nocardiosis, one might consider this as colonization with *Nocardia* species in a patient with bronchiectasis. In a study with 40 patients, bronchiectasis was an important risk factor for colonization by *Nocardia* spp. in all the patients studied (9). We did not consider Nocardia as colonization in this patient with bronchiectasis because of significant number of colony forming units ($10^5$ cfu) in the culture of bronchial lavage fluid. The radiological and clinical findings of the present case were not consistent with colonization. He was previously healthy and did not have any symptoms, suggestive of bronchiectasis. Moreover, the remarkable radiological and clinical improvements following treatment were observed.

In conclusion, this is the first report of pulmonary *N. transvalensis* infection from Turkey, in an immunocompetent patient presented with pneumonia and bronchial dilatation which was treated with trimethoprim-sulfamethoxazol for six months.
REFERENCES


