SUBCUTANEOUS NOCARDIAL ABSCESS IN A POST-RENAL TRANSPLANT PATIENT

*KR Devi, LR Singh, NT Devi, NS Singh

Abstract

A case of nocardiosis in a post-renal transplant patient is being reported for the first time from Eastern India. The patient had multiple abscesses on the right thigh and chest. Direct examination of the aspirated pus by Gram stain and modified Ziehl Neelsen stain revealed gram-positive beaded, partially acid-fast, branching filaments. Culture of the pus yielded *Nocardia asteroides*. The patient responded to surgical drainage and sulphonamide therapy.

Key words: *Nocardia asteroides*, post renal transplant

Nocardiosis, suppurative disease caused by aerobic actinomycetes is often a complication among immunocompromised patients. The incidence of nocardiosis among renal transplant recipients varies from 2 to 20%\(^1\) and the mortality may be as high as 77\%.\(^2\) The disease manifests as cutaneous, subcutaneous, pulmonary and systemic infections. We present a case of subcutaneous nocardial abscess in a post renal transplant patient.

Case Report

A 54-year-old male patient presented with multiple abscesses over the thigh and left side of upper chest for the last 10 days. He had undergone renal transplant two and half years back and was taking cyclosporine, prednisone and anti-tuberculosis regime. He could not recollect any local trauma but was involved in occasional pruning and trimming of his kitchen garden. There was no fever, cough, chest pain and headache. After empirical treatment with a course of antibiotic, there was no clinical improvement. His body weight was 61 kgs. Routine hematological examination was within normal limits. X-ray chest revealed no abnormality.

Aspirated pus from the abscess on the chest wall was processed for microscopic examination and culture. No granules were noticed. Staining of the smear was done with Gram stain and modified Ziehl Neelsen stain. Pus was inoculated onto blood agar, MacConkey agar, nutrient agar and incubated at 37°C that was observed everyday. Microscopic examination of Gram stained smear of the pus showed delicate gram positive beaded branching filaments (Fig. 1) and Ziehl Neelsen stain using 1% H\(_2\)SO\(_4\) as decolouriser showed acid fast branching filaments (Fig. 2). After four days of incubation at 37°C, culture showed glabrous, folded, wrinkled, light-orange coloured colonies (Fig. 3). Gram staining of the colonies revealed gram-positive pleomorphic bacilli with occasional branching filaments (Fig. 4). Further biochemical examination revealed the organism to be *Nocardia asteroides*. Patient was managed with surgical drainage of the pus and medical treatment with high dose sulphonamide. The condition of the patient improved and was apparently all right at follow-up after two years.

Discussion

*Nocardia* is an aerobic, filamentous, branching gram-positive organism, which is feebly resistant to acid alcohol. Some strains of *Nocardia* like *N. asteroides* may grow easily at temperature below 37°C and in simple media like blood agar, Sabouraud dextrose agar and mycobacteria culture media. It may cause infection in healthy persons, but use of steroids and cytotoxic drugs predisposes to infections. Being a normal habitat of the soil, inhalation is the main mode of infection causing severe pulmonary disease in immunocompromised patients. In majority of the renal transplant patient, infections are caused by *N. asteroides* and pulmonary involvement is the predominant feature.\(^3\) Extra pulmonary lesions are also found without the primary mode of access being identified.

In India, an incidence of 1.37% among post renal transplant patient in South India has been reported.\(^4\) Pulmonary involvement was the predominant feature with chronic liver disease as associated risk factor and the main isolate was *N. asteroides*. To the best of our knowledge, this is the first case of nocardiosis in a post-renal transplant patient from Eastern India. In our case, there was no sign of CNS and pulmonary involvement. Cases of soft tissue involvement without previous pulmonary involvement have been reported in series of retrospective survey in Kuwait, Italy and Hong Kong.\(^5\)\(^6\) Although it may appear in atypical sites causing septic arthritis, cellulitis, typical presentations for this infection are lung, CNS and soft tissue infections.\(^8\) Patients on anti-
rejection therapies, following organ transplant seem to be more susceptible to infection.

Early diagnosis and prompt specific treatment are required to improve survival rates. Unless the infection is suspected, diagnosis and isolation of *Nocardia* is a tedious and difficult procedure. Several days of incubation is often required before colonies appear and quite often the culture medium is discarded before the growth of the organism. And some strains like *N. brasiliensis* may be fastidious. In our case, colonies appeared after four days of incubation.

Even though presumptive diagnosis can be made on the basis of acid fastness, actinomyces and mycobacteria in tissue section will appear acid fast and thus culture of the organism is mandatory. Culture of the specimen using proper and ideal culture media is probably the most reliable method for the diagnosis of nocardiosis. *N. asteroides* was grown in pus aspirated from the abscess in this patient.

At present, antibiotic regimens include co-trimoxazole and if the patient cannot tolerate sulfonamides, therapy should be guided by sensitivity results to choose an alternative treatment. Amoxycillin, imipenem, amikacin, cefotaxime, minocyclin etc. in normal dosage are active against most of the strains. In our case, patient was managed with local drainage and high dose of oral sulphamethoxazole.

Although not very frequent, the possibility of nocardiosis must be considered in the differential diagnosis of associated infections in post renal transplant patients. Some workers believe that nocardiosis is less common among renal transplant recipients given cyclosporine - prednisone than among those given azathioprine (AZA) - prednisone. Environmental sampling of intensive care unit of renal transplant patients may be routinely advocated so as to avoid outbreak of nocardiosis. Unless timely intervention is carried out, the mortality is high. Early diagnosis, prompt medical and surgical interventions will greatly benefit in saving the life of immunosuppressed patients from this potentially lethal disease.
Acknowledgement

We thank Dr. Arunaloke Chakrabarti and his team in Mycology division of Department of Microbiology, Post Graduate Institute of Medical Education and Research, Chandigarh, for their help in confirmation of the strain.

References


Source of Support: Nil. Conflict of Interest: None declared.