A Case of Nocardiosis with an Unusual Presentation

Wahaj Ul Hassan Khan, Ummarah Zafar Farid, Mariam Ikram, Umer Naseer*, Kamran Ali**

Combined Military Hospital Malir/National University of Medical Sciences (NUMS) Pakistan, *Combined Military Hospital Peshawar/National University of Medical Sciences (NUMS) Pakistan, **Combined Military Hospital Quetta/National University of Medical Sciences (NUMS) Pakistan

ABSTRACT

Nocardiosis is a neglected, unusual disease caused by aerobic, gram positive, actinomycete in the genus Nocardia. Nocardial infection most often occurs in immunocompromised patients. It has varied geographical distribution and a range of clinical presentations. Lungs are the primary sites of nocardial infection in more than two-third of cases. We report a case from a tertiary care setup in Karachi where nocardiosis occurred in an immunocompetent patient with an isolated CNS involvement.

Keywords: Immunocompetent, Nocardiosis, Pakistan.

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INTRODUCTION

Nocardiosis is a global problem. Its annual incidence is increasing. Nocardia is a gram positive, weak acid fast microorganism, colonizing soil and rotting vegetables.[1] Approximately 30 species of Nocardia have been linked with human diseases. Nocardiosis has an indolent and chronic disease course causing opportunistic infections in immunocom-promised individuals.[2] However, immunocompetent individuals can be involved in 38% cases.[3] Pulmonary nocardiosis is the most common clinical presentation, which may spread via blood and lymphatics to any organ. Brain and skin are frequently involved. Rarely, isolated cerebral disease may also occur.[4] We report a case where a multidisciplinary team was involved in diagnosing nocardiosis in an immunocompetent patient with only CNS involvement.

CASE REPORT

A 39 years old male presented to our hospital with one-week history of low-grade evening-rise fever and altered sensorium. His GCS was 13/15 and he had left hemiparesis and left 6th nerve palsy. His CT scan brain was unremarkable. Baseline investigations, anti-HIV antibodies, chest X-ray, abdominal ultrasound and echocardiography were all normal. Cerebrospinal fluid examination showed elevated protein, reduced glucose and increased lymphocytes. His CSF Gene Xpert was negative and ADA levels were elevated. Considering his presentation and suggestive CSF findings, the patient was started on four-drug anti-tuberculous regime with steroids on the suspicion of tuberculous meningitis. Despite standard ATT dosing, his condition deteriorated. Consequently, contrast enhanced MRI brain was done, which revealed few ring enhancing cerebral lesions resembling tuberculoma brain (Figure-1A).

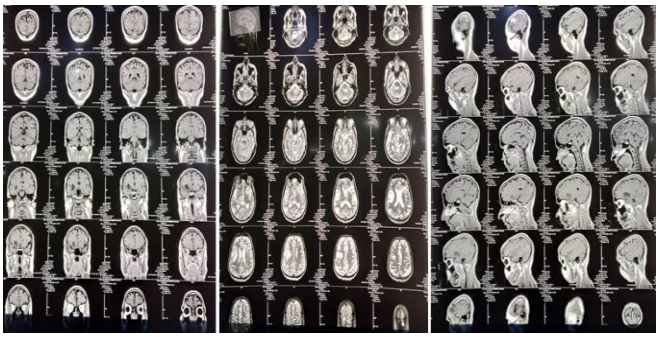

Figure-1A: Contrast enhanced MRI brain revealing ring enhancing lesions.

His contrast enhanced CT of Chest, Abdomen and Pelvis was normal, thus disease in other organs was ruled out. Over next two weeks, his GCS dropped to 8/15. MRI Brain with contrast was repeated which showed increased number of bilateral ring enhancing lesions (Figure-1B & 1C).

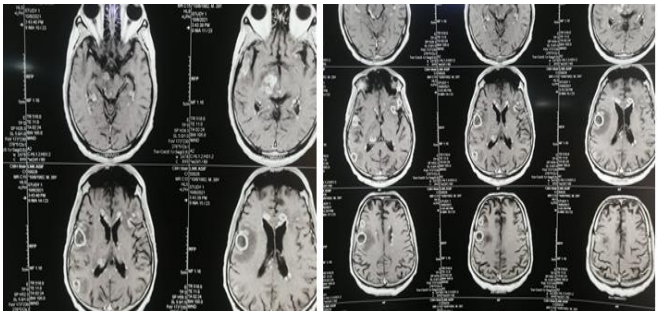

Figure-1B&1C: MRI Brain with contrast showing increased number of bilateral ring enhancing lesions.

Correspondence: Dr Wahaj Ul Hassan Khan, Classified Medical Specialist, Combined Military Hospital Malir Pakistan

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Biopsy from cerebral lesion was performed to confirm our initial diagnosis and for drug resistance. Histopathology of the tissue revealed necrotizing granulomatous inflammation and cytology of the fluid ruled out malignancy. Culture was negative for tuberculosis and showed weak acid fast bacilli, identified as Nocardia Asteroides sensitive to Impinem, Amikacin, and Trimethoprim. Treatment plan of patient was altered accordingly. Over next few weeks, patient improved significantly. MRI brain was repeated after 6 weeks that in comparison to the previous scan revealed reduction in number and size of lesions thus showing disease regression (Figure-1D & 1E). Patient was continued same treatment for 12 months with monthly follow-up and three monthly MRI.

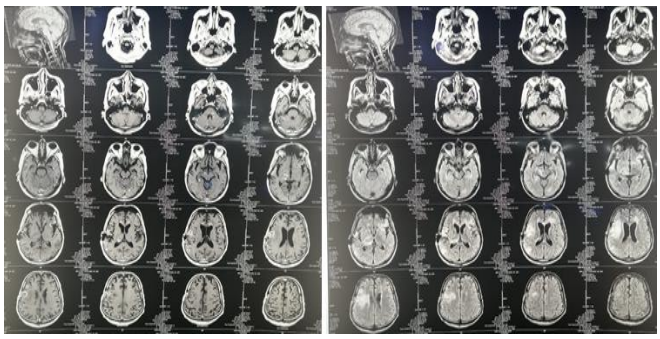

Figure-1D & E: MRI brain repeated 6 weeks later.

DISCUSSION

Nocardia species are found in soil and are acquired by direct inhalation or via skin contact. Immunocompromised patients and those with pre-existing lung disease are highly susceptible. Lung infection is the most common presentation of nocardiosis. It can spread from the lungs to other organs as well, with a preference for brain. Isolated CNS infection develops in approximately 9% individuals.[5] Focal neurologic weakness, altered conscious level, seizures, visual obscurations and ataxia are common presentations in CNS nocardiosis, with meningitis occurring rarely.[6,7] Diagnosis was delayed in our patient due to his immunocompetence, investigations suggestive of tuberculosis because of high prevalence of TB in our region. Trimethoprim-sulfamethoxazole is recommended as first-line treatment for nocardiosis.[8,9] Imipenem is added for people with CNS illness with Amikacin given to those with multi-organ involvement. Guidelines suggest 12 months treatment in CNS Nocardiosis.[10] However, length of therapy is determined by the severity of illness, clinical and radiologic response to treatment. Patients should be closely followed for treatment response and potential medication toxicity.

Owing to its high incidence in immunocompetent individuals, nocardiosis should be suspected in cases to avoid delay in treatment and to prevent avoidable complications, which may result in increased morbidity and mortality.

Conflict of Interest: None.

Authors' Contribution

WUHK: Concept, data analysis, UZF: Data collection literature search, MI: Data collection, Drafting, UN: Literature search, KA: Design, literature search, drafting of intorduction.

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