



ORIGINAL RESEARCH PAPER

Microbiology

CASE REPORT: DISSEMINATED NOCARDIOSIS IN HIV INFECTED PATIENT.

KEY WORDS:

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INTRODUCTION

Nocardia is gram positive actinomycete that is found worldwide in soil and decaying matter¹. Currently there are more than 30 species of *Nocardia* of human clinical significance with majority of isolates belonging to *Nocardia asteroides*, *Nocardia brasiliensis*, *Nocardia nova complex*, *Nocardia farcinia* and *Type-VI (Nocardia cyriacigeorgica)* which has been reported to cause brain abscess².

The incidence of *Nocardia* infection has increased over past few decades due to improved survival in HIV infected patients and other immunosuppressed patients. It has been estimated that about 50% of patients with *Nocardia asteroides* infection are immune compromised³ and approximately 4% of patients who die of AIDS have evidence of *Nocardia* on autopsy⁴.

Nocardia infection is more common among men than in women⁵ and very rare among children especially those with underlying pulmonary disease and significant immune-compromised state. Most common presentation of *Nocardia* infection involves pulmonary manifestation which may be seen in two third of cases³. However *Nocardia* infection can also manifest as extra-pulmonary manifestation especially in patients with advanced AIDS. *Nocardia* infection may result in fatal complication in advanced HIV infection. *Nocardia* infection may spread to chest wall resulting in soft tissue mass, bone destruction, external fistula and widespread abscess formation. Most common site of dissemination is CNS, eye, skin, kidney, joint, bone and heart.co-infection with other pathogens like *Pneumocystis jirovecii*, *Mycobacterium avium complex*(MAC) may delay treatment of nosocomial infections⁶.

CASE REPORT

A 45 year old male was brought to Medicine OPD of our hospital with chief complains of fever, chills, cough, chest pain since 2 months. Patient also had episodes of seizures since 3 weeks with weakness on right side of the body. Patient was known case of HIV with CD4 count of 150cells/ μ l . Patient also complained of significant weight loss and diarrhea since 6 months. Patient was complaint with ART since the diagnosis of disease which was 6 months back. Patient was admitted to Medicine ward. Patient also had history of *Pneumocystis jirovecii* pneumonia 6 months back for which patient was treated. On chest auscultation crepitation were heard bilaterally. Multiple opacities with bilateral infiltrates and hilar adenopathy was seen on CXR PA view. On Contrast enhanced computerized tomography of brain showed space occupying lesion with uniform thick wall suggestive of brain abscess in the left parietal region. Samples were sent to the laboratory, patient's hemoglobin was 10 gram%, WBC count was 4200/mm³. Differential leucocyte count showed 70% polymorphs and 30% lymphocytes. Sputum was send for Ziehl Neelsen staining as treating physician was suspecting HIV and tuberculosis co-infection. There was no alteration in liver function and renal function test. Emergency drainage of brain abscess was done, pus was aspirated and submitted to Microbiology lab for Ziehl Neelsen staining and anti-tubercular drugs were started immediately but no improvement was seen in patient's symptoms.

Sputum sample was subjected to ZN staining using 25% sulphuric acid as decolorizer which did not show any acid fast bacilli, sputum was also subjected to gram stain which is routinely done for all

sputum samples in our laboratory, on gram stain smear of sputum gram positive beaded filamentous bacilli were seen. Modified ZN staining was done for another sputum smear of the same patient using 1% sulphuric acid as decolorizer which showed acid fast bacilli with filamentous appearance. Similarly drained pus from brain abscess was subjected to gram stain and modified ZN staining and the results were same. Sputum was cultured on Saboraud's dextrose agar, LJ media, BHIA which were incubated at 37°C, orange colour growth was seen on the 7th day on SDA, which were later confirmed with gram stainin and modified ZN staining.

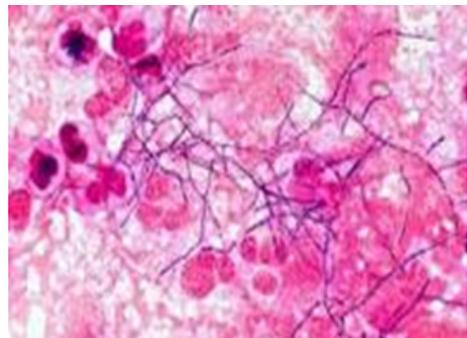


IMAGE-1 Gram Staining sputum sample showing Gram positive filamentous bacilli

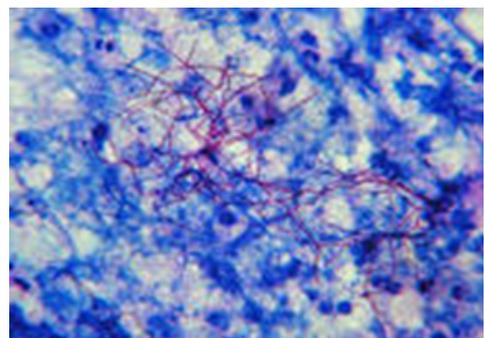


IMAGE-2 Modified ZN stain showing filamentous acid fast bacilli



IMAGE-3 Orange growth of Nocardia species on 7th day on LJ media

DISCUSSION

Microbiology laboratory play pivotal role in diagnosis of *Nocardia* infection in case of patients infected with HIV showing radiological picture suggestive of tuberculosis but not responding to treatment and also are reported as smear negative when 25% sulphuric acid is used as decolorizing agent. In addition to this co-infection with other pathogens like *Pneumocystis jirovecii*, *Aspergillus species* and *Mycobacterium avium complex* leads to delay in treatment and results in dissemination of infection most commonly affecting CNS.

Therefore to conclude PLHIV/ AIDS with radiological evidence of pulmonary opacity, pulmonary infiltrates with adenopathies, along with CT scan finding suggestive of brain abscess along with evidence of episodes of repeated seizures, *Nocardia* infection should be considered as potential differential diagnosis. It is also important that TB laboratories must include gram staining during routine investigation so that such cases are not missed out especially in cases where patient presents with typical features of active tuberculosis but whose smears are reported as negative for acid fast bacilli.

TREATMENT

Sulfonamide has been main stay treatment for Nocardiosis since 1940. Most isolates show sensitivity to sulfonamides; however resistance has been reported among *Nocardia farcinia* isolates. Also it is important to note that sulfonamide induced toxicity and hypersensitivity reaction commonly reported by use of sulfonamides so alternative agents like minocycline, amoxicillin-clavulanic acid, amikacin, ciprofloxacin, moxifloxacin, erythromycin, clindamycin can also be given to patients with Nocardiosis.

In the present case patient was started with ceftriaxone 2 gram IV once a day for 2 weeks along with cotrimoxazole (SMX 3200mg+TMP 640 mg/day) in two divided doses for 3 weeks. Patient begin to show improvement in 15 days and was discharged after one month. Patient is now under regular follow up and is compliant with his antiretroviral drugs.

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