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Case Report

Subcutaneous Nocardiosis in a child with T- cell Immunodeficiency: A case report

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ABSTRACT

Nocardia are weakly gram-positive, filamentous bacteria found worldwide in soils. Infection with Nocardia is rare inimmunocompetent patientsbut may leadto severe disease in immunocompromised patients. Reported cases in paediatric age group are few, and the literature is limited. We present a case of Nocardia isolated from pus from a skin lesion of eleven year old immunocompromised male child. Pus from Skin lesion on Ziehl-Neelsen (ZN) stain showed Acid Fast, Branching filamentous Bacteria. Pus culture on Lowenstein-Jensen (LJ) media showed glabrous, tough and waxycolonies. It was confirmed to be Nocardia species on Gram stain and modified ZN Stain. No organism was isolated on culture from Blood, urine and Cerebrospinal fluid (CSF). High clinical suspicion is required for diagnosis of slow growing bacteria such as Nocardia as they can be easily be missed on routine bacteriological culture.

1. Introduction

Nocardia is relatively uncommon infectious disease.[1] Reported cases in paediatric age group are few, and the literature is limited. Nocardia is slow growing organism, so often missed on routine culture and growth is obtained on fungal and tubercular culture media as they are followed for 4 to 6 weeks**.** This is a case of Subcutaneous Nocardiosis in a child with T- cell Immunodeficiency patient.

2. Case

An 11 years old male child presented with skin lesions all over his body since 1 month, along with cough, headache and body ache since 2 days. Past history of the patient revealed that he had repeated hospital admissions for various infections. On physical examination he was cachexic, with multiple skin lesions and scars of previous lesions. On investigations; CBC showed leucocytosis with neutrophilia. Department of Microbiology received blood, CSF, urine and pus from skin lesion for Gram stain, ZN stain, TB and aerobic culture sensitivity testing. Gram and ZN stain of CSF and Pus from skin was negative. No organism was isolated on routine culture from CSF, Blood, Pus and Urine. Pus sample was followed for TB culture. Clinical diagnosis of TB meningitis with bilateral pneumonia and immunodeficiency was made, hence AKT was started. After 3-5 days of receiving AKT patient landed up in hepatic encephalopathy.

During follow up for TB culture, LJ media showed glabrous, tough and waxy colonies after 1 week (Figure 1a,b,c).Gram stain showed Gram positive, thin, beaded, branched filamentous rods (Figure 2), ZN stain and Modified ZN stain showed Acid fast, branching filamentous bacteria (Figure 3a,b). Based on above findings it was identified as Nocardia species. Patient was treated accordingly with Meropenem and Amikacin. Further test revealed that patient had T cell immunodeficiency. After

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8-10 days, patient showed improvement (Figure 4a,b) and he was discharged on oral cotrimoxazole.

Fig. 1: Dry, white colonies with aerial mycelium on Blood Agar

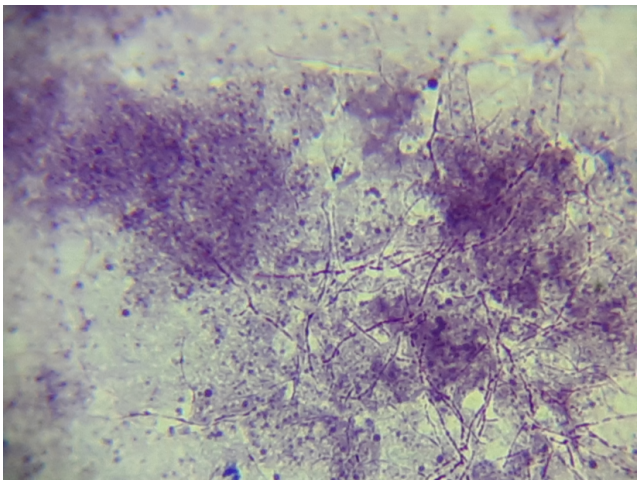

Fig. 2: Gram stain Gram positive, thin, beaded, branched, filamentous rod

3. Discussion

First human case of Nocardiosis reported by Eppinger in 1890**.** Nocardia is a Gram positive, branching, filamentous, acid fast, aerobic bacteria occurring as ubiquitous environmental saprophyte[2,3] N. asteroides is most common species followed by, *N. brasiliensis*, and *N. farcinica*.[4] Infection usually arises from direct innoculation of the skin or soft tissues or by inhalation. Protective immune responses to Nocardia are primarily T-cell mediated and

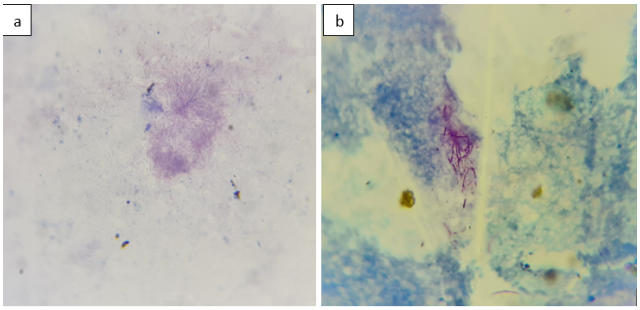

Fig. 3: a: ZN stain showing acid fast branched filamentous bacteria; **b:** Modified ZN stain showing acid fast branched filamentous bacteria.

Fig. 4: a: Skin lesion before treatment; **b:** Skin lesion after treatment

Nocardiosis is more problematic in patients with impaired cell-mediated immunity.[5,6] Clinically Nocardia may present as Pulmonary, Subcutaneous and disseminated disease, most commonly in CNS. Disseminated disease is more common in patients with underlying neoplasia and immunodeficiency.[7,8] In this case; primary infection was in the skin which may have disseminated to Lungs and CNS. Blood cultures (inspite of hematogenous spread) and CSF cultures almost invariably fail to demonstrate Nocardia.[9] This explains the negative cultures obtained in our case.

4. Conclusion

High clinical suspicion is required for early diagnosis and proper management of slow growing bacteria such as Nocardia as they can be easily missed on routine bacteriological culture. There is need for longer follow up of culture to more than 48 hours especially if infection with slow growing organism is suspected.

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6. Conflict o f Interest

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

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