NOCARDIA ASTEROIDES MIMICKING LYMPHATIC FILARIASIS : A CASE REPORT

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ABSTRACT: A five year old immunocompetent male, presented with swelling on left leg since 1 year. Swelling started from foot ascended up to thigh, non-pitting, non-tender. Swelling associated with sinus formations. Multiple sinuses with discharge present over extensor aspect of leg and foot. After carefully cleaning the wound the discharge was collected. It was inoculated on Blood and Chocolate agar. Gram staining was performed which showed filamentous gram positive branching structures. Modified ZN staining with 1% H2SO4 showed acid fast filamentous structures. Later the sample was inoculated on Lowenstein-Jenson (LJ) and Sabouraud Dextrose Agar (SDA) without antibiotics media. The growth appeared in 4-5 days on SDA & VLJ. On SDA colonies were dry chalky yellow to orange coloured. For speciation of Nocardia, urease test was done and thermotolerance at 45oC was tested. The strain was urease producer and thermostolerant proving it to be Nocardia asteroides. The patient was treated with cotrimoxazole (double strength) and followed up at regular interval. Examination of the patient 4 weeks later showed some significant clinical improvement. However, the patient was continued on the same treatment and was seen at the end of 2 month. The patient showed marked clinical improvement and absence of discharge from sinuses, and gradually healing of the sinuses.

Keywords: Immunocompetent, Nocardia Asteroids, Multiple Sinuses.

INTRODUCTION
Nocard, a French microbiologist and veterinary pathologist, first isolated Nocardia in 1888 and described the species Nocardia faraneux, a lymphatic and visceral disease of oxen. Nocardia infections in humans range from chronic skin lesions to a progressive pulmonary disease with documented haematogenous dissemination to virtually any organ in the body. (1) Nocardia spp. are ubiquitous, soil-borne, aerobic, very fine and branching gram-positive and weakly acid-fast filamentous actinomycetes with a tendency to fragment into bacillary and coccoid forms. (2) Nocardia are opportunistic pathogens, producing infections in patients who are Immunocompromised or have debilitating diseases. (3) Three clinical variants have been identified: a superficial acute skin and soft tissue infection, a lymphocutaneous infection, and a deeper infection, mycetoma. Mycetoma is commoner than the other two clinical variants. None of these three types possess any characteristic feature that would make a definitive clinical diagnosis possible. (4)

We are hereby reporting an incidental case of lymphocutaneous nocardiosis mimicking lymphatic filariasis in an immunocompetent five year old male

CASE REPORT
A five year old male, presented with swelling on left leg since 1 year. Swelling started from foot ascended up to thigh, non-pitting, non-tender. Swelling associated with sinus formations. Multiple sinuses with discharge present over extensor aspect of leg and foot. Discharge was whitish, turbid, non-foul smelling, non-purulent, granular type. Patient also had a history of fever of acute onset moderate grade, continuous not associated with chills and rigors since 15 days and one episode of seizures 10 days back. Generalised tonic, clonic lasted for 5 minutes associated with fever and aborted spontaneously. There was evidence of ulcer of size 2 X 1cm at the first web space. The case was admitted to the ward with provisional diagnosis of febrile seizures with lymphatic filariasis.
INVESTIGATIONS
On investigation chest X ray & X-ray of leg for long bones was done. The chest X ray was normal and no evidence of long bone involvement in X ray. Non contrast CT scan of brain also was normal. The Doppler study showed no venous abnormality. The blood count was done it showed 70% polymorphonuclear neutrophils, 26% lymphocytes. Liver function test, kidney function test were within normal limit.

MICROBIOLOGICAL WORK-UP
Peripheral smears (PS) were sent to the department of Microbiology as the case was suspected as filariasis. PS report was normal with no evidence of microfilarial forms even with Diethylcarbamazine (DEC) provocation. we visited the patient to get a clue for diagnosis at the first instance it doesn’t look like a clinical picture of filariasis but we observed multiple sinuses over his right leg but there was no discharge at that time. On next day one of the sinuses produced purulent discharge. After carefully cleaning the wound the discharge was collected. It was inoculated on Blood and Chocolate agar. Gram staining was performed which showed filamentous gram positive branching structures. Modified ZN staining with 1% H2SO4 showed acid fast filamentous structures. Later the sample was inoculated on Lowenstein-Jenson (LJ) and Sabouraud Dextrose Agar (SDA) without antibiotics media. The growth appeared after 4-5 days on SDA &LJ. On SDA colonies were dry chalky yellow to orange coloured. For speciation of Nocardia, urease test was done and thermotolerance at 45oC was tested. The strain was urease producer and thermotolerant proving it to be Nocardia asteroides.

CLINICAL COURSE, TREATMENT, AND FOLLOW-UP
The patient was treated with cotrimoxazole (double strength) and followed up at regular interval. Examination of the patient 4 weeks later showed some significant clinical improvement. However, the patient was continued on the same treatment and was seen at the end of 2 month. The patient showed marked clinical improvement and absence of discharge from sinuses, and gradually healing of the sinuses. The patient was asked to continue the treatment.

DISCUSSION
Nocardia species are aerobic, filamentous, gram-positive bacteria that are found in nature as soil saprophytes. They are uncommonly reported human pathogens and cause disease predominately in immunocompromised hosts. The true incidence of nocardial infections is unknown and may be underestimated in the medical literature, because nocardiosis can masquerade as a variety of more common granulomatous, neoplastic, or infectious processes. The clinical presentation of nocardiosis includes localized cutaneous disease and primary pulmonary infection, often with dissemination to other organ systems. The genus Nocardia comprises several species of clinical importance. Among these, N. brasiliensis is the main pathogenic organism for primary cutaneous infection, followed by N. asteroides, which usually causes fulminant systemic infection. Human Nocardia infections are rare. The respiratory tract is the most commonly involved system, but CNS and cutaneous diseases have also been reported. Infection with N. asteroides has been reported rarely, but generally in Immunocompromised patients, eg, those with malignancies receiving chemotherapy, post-transplant patients, and AIDS patients. There have been a few case reports of primary cutaneous nocardiosis caused by N. asteroides in immunocompetent patients. The mode of transmission is accidental inoculation. It is prevalent among the rural population where agriculture is the main way of livelihood. Adult males, especially bare-foot walkers, are the common sufferers of mycetoma. A history of thorn prick or splinter injury is common in patients with superficial cutaneous infection. Unusual modes of inoculation like animal scratch, burn injury and insect when asked about history of trauma to his left leg, boy gave history of thorn prick a year back on dorsum of his left foot. The thorn prick injury was neglected by the patient and his relative no attempts were made to remove the foreign body out of it. This thorn prick site was transformed into a discharging sinus 6 month later. The patient was admitted to our hospital for treatment of febrile convulsion episode which he got a week before the admission. The paediatricians were looking to the case as a case of lymphatic filariasis because of swelling over his entire left leg. The boy had visited a lot of medical practioners in the past was prescribed analgesics, antibiotics for the swelling but it was not relieved. This case highlights the importance of proper history taking as...
well as an important role of good microbiological laboratory at every hospital for correct diagnosis of long standing & chronic infections. Culture morphology and biochemical characteristics is the gold standard tests for definitive diagnosis of Nocardia and species identification. This was done in our case too.

Most cases of localized nocardial infection have been treated successfully with trimethoprim-sulfamethoxazole (TMP-SMX) double strength. Other antimicrobials that have proven effective in treating nocardiosis are minocycline, dapson, imipenem, tetracycline, and aminoglycoside antibiotics. The optimum duration of therapy for nocardial infections can range from 6 week for minor infections to 1 yr for severe systemic diseases. The patient was followed up for 2 months in this period there was significant reduction of swelling. The discharge totally stopped.

To conclude, Primary cutaneous nocardiosis remains a diagnostic challenge. The majority of nocardial abscesses and lymphocutaneous infections are misdiagnosed due to non-specific clinical pictures and the difficulties involved in isolation of the organism. Rapid and reliable molecular techniques are not available with us still the conventional gold standard test of culture and biochemical identification hols good for nocardial infection diagnosis. A high degree of clinical suspicion & enthusiastic microbiological back u is needed for the diagnosis of such conditions.

REFERENCES

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