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SYSTEMIC NOCARDIOSIS : A RARE INFECTION

Medicine

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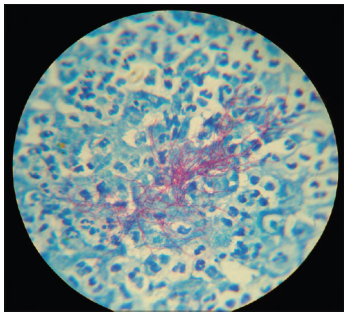
ABSTRACT

Nocardiosis is an infectious disease that occurs in cutaneous, pulmonary and disseminated forms. It is usually associated with host defense defect. Infection arises by direct skin inoculation or inhalation. Immunocompromised status, alcoholism & certain lung diseases predispose to pulmonary & CNS nocardiosis. Our patient was a 70 yr old alcoholic male suffering from dermatomyositis for which he was on prolonged oral steroids. He had lung infection with CNS spread, which was diagnosed as Nocardiosis. He was put on high dose Trimethoprim- Sulphamethoxazole, Meropenem and Ceftriaxone. With appropriate treatment, the mortality rate for pulmonary or disseminated nocardiosis outside the CNS can be significantly decreased. Cure rates of almost 100% are found in patients with skin or soft tissue involvement, compared with 90% in pulmonary disease, 63% in disseminated infection, and 50% in brain abscess. CNS disease carries a higher mortality rate.

KEYWORDS

INTRODUCTION

Nocardiosis results from infection by the members of genus Nocardia, which are ubiquitous environmental saprophytes that cause localised or disseminated disease in humans & animals. Infection arises by direct skin inoculation or inhalation. Immunocompromised status, alcoholism & certain lung diseases predispose to pulmonary & CNS nocardiosis. Pulmonary and/or systemic nocardiosis is more common in adults than children and in males than females. Nearly all cases are sporadic, but outbreaks have been associated with contamination. The majority of cases of pulmonary or disseminated disease occur in people with a host defense defect. Most have deficient cell-mediated immunity. Pneumonia and disseminated disease are both thought to follow inhalation of fragmented bacterial mycelia. Pneumonia, the most common form of nocardial disease in the respiratory tract, is typically subacute; symptoms have usually been present for days or weeks at presentation. Infiltrates vary in size and are typically dense. Single or multiple nodules are common, sometimes suggesting tumors or metastases. Infiltrates and nodules tend to cavitate. Empyema can be found in quarter of the cases. In half of all cases of pulmonary nocardiosis, disease appears outside the lungs. In one-fifth of cases of disseminated disease, lung disease is not apparent. The most common site of dissemination is the brain. The typical manifestation of extrapulmonary dissemination is a subacute abscess. The characteristic histologic feature of nocardiosis is an abscess with extensive neutrophil infiltration and prominent necrosis.



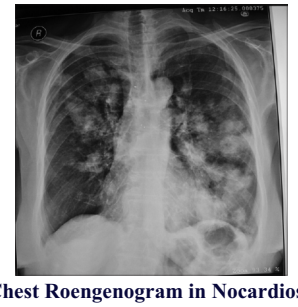
Modified Acid fast stain showing beaded filamentous bacteria

First step in diagnosis is examination of sputum or pus for crooked, branching, beaded, gram-positive filaments 1 µm wide and up to 50 µm long. Most nocardiae are acid-fast in direct smears with a weak acid on decolourization. Nocardiae grow relatively slowly; colonies may take up to 2 weeks to appear and may not develop their characteristic appearance. In Nocardial pneumonia, sputum smears are often negative. Bronchoscopy or lung aspiration is usually necessary in such cases. Trimethoprim-Sulphamethoxazole is the drug of choice in Nocardiosis. Patients with severe disease are initially treated with combination of drugs.

We report a case of pulmonary and CNS Nocardiosis in a patient suffering with dermatomyositis.

CASE REPORT

A 65 year old male was admitted to Civil hospital, Ahmedabad in Feb 2018. The patient was normotensive and non diabetic. In November 2017 patient was diagnosed with dermatomyositis for which he was put on steroids, methotrexate and alendronate. In February 2018 patient presented with complains of cough , breathlessness and altered behaviour. On examination, blood pressure 130/80 mmHg, respiratory rate of 23 per minute. On auscultation patient had crepitations in right and left mid zone & left lower zone. On CNS examination, he had altered sensorium ,responding to deep pain stimuli,with normal size ,reacting to light pupils. Patient's blood , sputum and CSF samples were sent for examination and he was started on oxygen support, higher antibiotics with empirical cover for meningitis and pneumonia. Blood examination revealed leucocytosis and thrombocytopenia. Urine routine micro showed presence of pus cells. Chest Roentgenogram was suggestive of consolidation with cavitation in bilateral mid zone and left lower zone .Sputum examination showed presence of gram positive cocci in pairs and short chains and branching gram positive, acid fast filamentous bacilli suggestive of Nocardia species. MDCT Thorax was done which showed consolidations with intrinsic cavitation in both middle and lower zones with multiple scattered nodular lesions in rest of the both lungs. CSF examination was suggestive of increased proteins and sugar and oligocellular picture. MRI brain was done in which multiple numerous embolic lesions were found in both cerebral -cerebellar hemispheres and brain stem.



Chest Roengenogram in Nocardiosis

Patient was started on high dose Trimethoprim-Sulphamethoxazole , Meropenem and Ceftriaxone with monitoring of blood count, liver and renal function.

Discussion and Conclusion

Pulmonary and/or systemic nocardiosis occurs worldwide. The annual incidence, estimated on three continents (North America, Europe, and Australia), is ~0.375 case per 100,000 persons and may be increasing. Microscopically Nocardia appear as gram positive, beaded weakly acid fast branching rods. N. beijingensis infections appear to be more commonly involved in cases from eastern Asia

Our patient was a known case of dermatomyositis on steroid and methotrexate. The investigations were suggestive of sepsis with pneumonia and spread to central nervous system. Other differential diagnosis like tuberculosis and fungal infections for such an immunocompromised status were ruled out using sputum and CSF examination which were conclusive of Nocardial infection. Patient was put on high dose Trimethoprim-sulphamethoxazole , Meropenem and Ceftriaxone .

A thorough history, meticulous clinical examination, laboratory investigations, imaging studies and a high level of clinical suspicion is necessary to diagnose Nocardial infections. Timely diagnosis and treatment are necessary to prevent significant morbidity and mortality. With appropriate treatment, the mortality rate for pulmonary or disseminated nocardiosis outside the CNS can be reduced to <5%. CNS disease carries a higher mortality rate. Nocardiosis infections tend to relapse. Patients should be followed carefully for at least 6 months after therapy has ended.

REFERENCES

1. Harrison's principle of internal medicine 19th edition.
2. Mandell, Douglas and Bennett's Principles and practices of infections diseases.