



PULMONARY NOCARDIOSIS WITH BETA THALASSEMIA TRAIT IN AN HIV INFECTED PERSON: A CASE REPORT

Medical Science

Dr. Mothi SN	Chairman, Asha Kirana Charitable Trust® Hospital and Research Center, Mysore.
Dr. VHT Swamy	Medical Officer, Asha Kirana Charitable Trust® Hospital and Research Center, Mysuru.
Dr. Sudheer AP	Medical Officer, Asha Kirana Charitable Trust® Hospital and Research Center, Mysore.
Mr. Gururaja KS	Trustee, Asha Kirana Charitable Trust® Hospital and Research Center.
Dr. Srirama BR	Medical Officer, Asha Kirana Charitable Trust® Hospital and Research Center, Mysore.
Dr. H Tanishka Darla*	Intern, Asha Kirana Charitable Trust® Hospital and Research Center, Mysore. *Corresponding Author
Dr. Nayan CP	Medical Officer, Asha Kirana Charitable Trust® Hospital and Research Center, Mysuru.

ABSTRACT

People with human immunodeficiency virus (HIV) infection are prone to develop pulmonary opportunistic infections like Tuberculosis, Pneumocystis carinii pneumonia (PCP), Pulmonary Nocardiosis. It is often underdiagnosed opportunistic infection since the manifestations are similar to Pulmonary Tuberculosis. We have seen patients being started on Antituberculosis Therapy (ATT) empirically, but is no clinical improvement even after 4 weeks of treatment, due to wrong diagnosis.

We present a 63-year-old female patient newly diagnosed with HIV presented with recurring loose stools, vomiting, fever since 8 months, with no chest symptoms. She was evaluated and treated at various Hospitals for chronic Gastro-Intestinal tract illness like Irritable Bowel Syndrome (IBS), Mal Absorption Syndrome, Chronic Diarrhea, Right upper lobe cavitary tumor-? Carcinoid with Hypertension, and was even advised resection of effected lung, emerged out as an absolute different diagnosis – Pulmonary Nocardiosis with beta Thalassemia trait and promptly responded to treatment. In this case we saw common disease with uncommon presentation.

KEYWORDS

HIV, Nocardiosis, Thalassemia, Pulmonary tuberculosis

INTRODUCTION

Pulmonary nocardiosis is known to occur in immunocompromised patients and in those with underlying chronic lung diseases. With the increase in prevalence of human immunodeficiency virus (HIV) infection and the acquired immunodeficiency syndrome (AIDS) in our country, we are likely to have an increase in the incidence of pulmonary nocardiosis. It is often misdiagnosed as pulmonary tuberculosis since its clinical and radiological manifestations are similar to the latter. Given the increased likelihood of smear negative disease in the setting of tuberculosis, we are likely to face more instances of such misdiagnoses in our country. There are occasional reports of nocardiosis in patients with HIV infection.[1],[2]

Beta Thalassemia trait (Thalassemia Minor) is not a disease or a condition, but it is a kind of genetic possibility that you pass on to your descendants. The thalassemia trait has no symptoms and has no treatment.

Case History

A 63-year female newly diagnosed HIV infected presented recurring loose stools, vomiting, fever since 8 months.

Past medical history:

She was investigated at various Hospitals having Gastro-Intestinal tract as the focus of Infection. Not suspected her of having immunocompromised status by most of the Physicians. She was suspected to have Irritable Bowel Syndrome (IBS), Mal Absorption Syndrome, Chronic Diarrhea, Right upper lobe cavitary tumor-? Carcinoid with Hypertension, and was even advised resection of effected lung Family history was nothing significantly contributing to presenting symptoms.

On examination:

Pallor was present, no icterus, cyanosis, finger clubbing, lymphadenopathy or pedal oedema.

Systemic Examination:

Respiratory system – B/L NVBS+,
Per Abdomen – Soft, non-tender, no hepatosplenomegaly
Other systems examination presented with nothing contributory to presenting complaints. BP was 150/100 mmHg, K/C/O Hypertension on antihypertensives, pulse 88 bpm, SPO2 - 99% at Room Air

Laboratory Investigations:

Hb% - 10 gm%,
RBC 3,36,000 cells/UL
Neutrophils- 62%
Lymphocytes- 22%
Monocytes- 15%
Eosinophils- 01%
CD4 count- 20 cells/mm³.
Sputum MTB CBNAAT- Not detected.
SGOT- 90.0 U/L, SGPT- 82.0 U/L.
Serum Creatinine level - 1.1g/dl.

Chest X-ray - fibrocavitary lesion in the right lower lobe of the lung.



Figure 1: Chest X-Ray PA (taken on 19.11.2018)

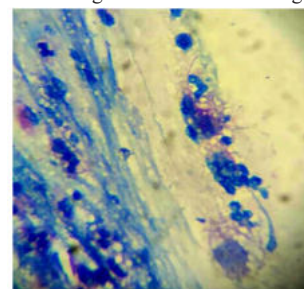


Figure 2: Gram Stain showing Nocardia

Chest X- Ray showed fibrocavitary lesions, suspected to have Pulmonary Nocardiosis (Figure 1), and sputum was sent to Gram's stain for Nocardia. It was suggestive of few nocardia like organisms seen – Nocardiosis (Figure 2). Hemoglobin level dropped from 10g/dl to 7.2g/dl during the hospital stay of 3 days. Blood picture showed that a moderate hypochromic anemia with anisocytosis seen, few polychromatophilic erythrocytes are seen. Many target cells seen. Leucocyte series are normal. Immature or typical cells not found, platelets are adequate, reticulocyte count was 7.6% and Corrected Reticulocyte Count was 1.9% and LDH was 376 u/l, Hb electrophoresis showed mildly elevated HBA2 levels for age -? beta thalassemia trait.

Course in Hospital She was started on ATT. Her loose stools

aggravated and she became severely debilitated. She was diagnosed of Pulmonary Nocardiosis with beta Thalassemia trait. She was started on inj. Amikacin & Tab. Co-trimoxazole. Resolution of clinical symptoms occurred in 3 days of initiation of treatment. Inj. Amikacin was given for 14 days and Co-trimoxazole was continued for 6 weeks.

Since she was newly detected case of HIV, she was initiated on Antiretroviral Therapy- Dolutegravir 50mg and emtricitabine 200mg+ tenofovir 25mg.

DISCUSSION

Patients infected by HIV are predisposed to develop a variety of common and uncommon pulmonary infections. Some unusual infections are those caused by *Rhodococcus*, *Nocardia*, *Cryptococcus* and *Aspergillus*. Of the various species of *Nocardia* that are pathogenic to man, *N. asteroides* is the most common. Diagnosis of pulmonary nocardiosis can be made on the basis of a positive sputum culture in an immunocompromised host.[4],[5]. It has been suggested that microscopic morphology can be suggestive enough to warrant empiric therapy for nocardiosis while awaiting culture results, especially in seriously ill patients and in those with impaired host defense.[4] Empiric treatment should be commenced with sulphonamides or other appropriate anti-nocardial antibiotics.[2]. In our case, we confirmed the diagnosis with Sputum Gram's Stain for *Nocardia*. Most cases of nocardiosis present with respiratory symptoms. The most common symptoms at presentation are chronic cough, chest pain, dyspnoea and haemoptysis.[5] Thus pulmonary nocardiosis can mimic tuberculosis. This is important to bear in mind, particularly in areas where the prevalence of tuberculosis is high and this has been shown by two Indian studies in non-HIV subjects. Pulmonary nocardiosis is a chronic disease which can rarely have an acute course and 85% of the infections reported in one series were considered to be serious.[4] Chronic nocardiosis carries a mortality rate of 33% and acute disease; 66 -72% [2],[4]. In both these studies more than two thirds of the patients diagnosed to have pulmonary nocardiosis were initially diagnosed as having tuberculosis. About 5% of the patients with proven pulmonary tuberculosis were shown to have co-infection with *Nocardia*.[6],[7]. In our case, the patient presented with unusual presentation with symptoms of Chronic Diarrhea, nausea and occasional vomiting. She had loss of Weight of over 25 kgs in 8 months course of illness. Chest X-ray showing fibrocavitary lesion was the only clue towards the suspicion of Nocardiosis. Since the patient was not diagnosed, her course of illness was prolonged for over 8 months. Reports have suggested that there is usually a delay in the diagnosis of pulmonary nocardiosis of about 6 weeks (range: 2 weeks - 4 years). This is attributed to a lack of awareness. The usual reason for requesting culture studies for the detection of *Nocardia* species is when a patient does not respond to the usual anti-bacterial or anti-tuberculous treatment [ATT].[5]. In our case also, the patient was initially started on ATT and worsening of symptoms happened, but later when started treating Nocardiosis, and ATT was stopped, her symptoms subsided.

Nocardiosis presents at an advanced stage of HIV infection [2] and can be fatal in advanced HIV infection. In 19 of 30 patients in a series, nocardiosis caused or contributed to death. Delayed diagnosis, extensive disease and early discontinuation of treatment were associated with a poor outcome.[8]

In an autopsy study of 247 patients who died of HIV-related illnesses, 10 patients (4%) had nocardiosis and among those with AIDS defining illnesses, 5 % had this disease. Of the 10 patients diagnosed to have nocardiosis, 4 had been initially misdiagnosed as having pulmonary tuberculosis. The mean survival after establishing the diagnosis of nocardiosis was only 5 days.[2] In another autopsy study, of HIV deaths the cause of death could be attributed to pulmonary nocardiosis in 2 out of 11 patients treated for pulmonary tuberculosis.[1] In India, the prevalence of nocardiosis as reported in 1973 was 4.6% among patients with suspected tuberculosis.[5]. Although nocardiosis resembles tuberculosis, first line anti-tuberculous drugs have no role in its treatment.[2] Therefore, it is important to establish a definitive diagnosis. Nocardiosis should be considered in the differential diagnosis in any patient with unexplained cavitary or granulomatous pulmonary disease not responding to therapy.[4] If sputum is repeatedly tested negative for acid-fast bacilli in the setting of radiological suspicion of tuberculosis or if the patient's condition worsens despite anti-tuberculous therapy, testing for *Nocardia* species should be considered.

beta protein is not great enough to cause problems in the normal functioning of Hemoglobin. Physicians often mistake the small RBCs in Beta Thalassemia minor as a sign of iron deficiency and prescribe iron supplements. There no treatment required for this condition [3]. This trait was not passed on to its descendants from our patient.

CONCLUSION

Prognosis for Pulmonary nocardiosis in patients with HIV infection depends on the rapidity with which the diagnosis is established. All the patients with Fibrocavitary lesions in the Lungs, Nocardiosis has to be considered under differential diagnosis apart from Pulmonary TB. Early diagnosis of Nocardiosis can be life-saving. Unusual presentations of uncommon infections could not be ignored. Co-existing Hematological manifestations has to be evaluated, and then treatment plan has to be done so that unnecessary treatment can be avoided.

REFERENCES

1. Greenberg AE, Lucas S, Tossou O, Coulibaly IM, Coulibaly D, Kassim S, et al. Autopsy proven causes of death in HIV infected patients treated for tuberculosis in Abidjan, Cote d'Ivoire. *AIDS* 1995; 9:1251-1254.
2. Lucas SB, Hounnou A, Peacock C, Beaumel A, Kadio A, De Cock KM. Nocardiosis in HIV positive patients: An autopsy study in west Africa. *Tuber Lung Dis* 1994;75:301-307.
3. Cooley's Anemia Foundation, www.Cooleysanaemia.org
4. Curry WA. Human Nocardiosis. A clinical review with selected case reports. *Arch Intern Med* 1980; 140:818-826.
5. Baily GG, Neill P, Robertson VJ. Nocardiosis: A neglected chronic lung disease in Africa? *Thorax* 1988; 43:905-910.
6. Gaudes GS, Hemashettar BM, Bagga AS, Chatterji R. Clinical profile of pulmonary nocardiosis. *Indian J Chest Dis Allied Sci* 1999; 41:153-157
7. Verghese SL, Madhavan HN, Sekar B. Isolation and characterization of nocardia from clinical specimens. *J Indian Med Assoc* 1996; 94:58-59 & 70.
8. Uttamchandani RB, Daikos GL, Reyes RR, Fischl MA, Dickinson GM, Yamaguchi E, et al. Nocardiosis in 30 patients with advanced human immunodeficiency virus infection: Clinical feature and outcome. *Clin Infect Dis* 1994; 18:348-353.

In beta Thalassemia trait one of the two genes is abnormal but lack of