Case Report

Pulmonary Histoplasmosis : A Rare Opportunistic Infection in an Immunocompromised Host

Radha P Munje[1], Vandana P B[2], Sanjay M Gour[3]
Vijay Walke[4], Gyanshankar Mishra[5], Ninu P Babu[2], Punit Jhawar[4]

ABSTRACT

Pulmonary Histoplasmosis is a respiratory fungal infection caused by inhalation of its spores. It is a rare opportunistic infection which requires high index of suspicion for timely detection. We report a case of a 31 year old immunocompromised female, diagnosed with Pulmonary Histoplasmosis on autopsy.

Key-words- Pulmonary histoplasmosis, Immunocompromised Host

Introduction :

Histoplasmosis is a granulomatous fungal disease caused by the intracellular dimorphic fungus Histoplasma Capsulatum, which has not been commonly reported in the Indian literature[1].

The organism, although with worldwide distribution, is more prevalent in certain parts of North and Central America and has been documented in the soils of the Gangetic plains of India. The clinical spectrum of Histoplasmosis ranges from asymptomatic infection to progressive disseminated histoplasmosis (PDH) depending upon the intensity of exposure and the immune status of the exposed individual. Here we describe an unusual case of pulmonary histoplasmosis in an immunocompromised host diagnosed at autopsy.

Case Report :

A 31 year old female, teacher by occupation, presented to chest OPD with chief complaints of cough with expectoration, breathlessness, fever, generalised weakness since 4 months and 2 episodes of streakyhemoptysis 15 days back. She had no history of tuberculosis, diabetes, systemic hypertension or any major illness in the past. On examination, patient was found to beafebrile; tachypneic with respiratory rate-32/min, PR-112/min, BP was 120/70 mmHg, SPO2-94% on room air. Pallor was present. There was no icterus/ clubbing / cyanosis / pedal oedema or lymphadenopathy. Small maculopapular lesions were found on her upper and lower extremities. Respiratory system examination revealed bilateral crepitations.

On investigations-Hb-10 gm%, TLC-12000/cumm. Chest x-ray showed bilateral nodular opacities with consolidation in the left mid zone. Sputum gram staining and fungal staining with 10% KOH was negative. Fungal culture was awaited. Sputum direct smear as well as CBNAAT was negative for AFB.

CECT thorax was done which revealed consolidation in left upper and lower lobe with multiple oval to round opacities of size 1 x 0.8 cm found in both the lungs with some lesions coalescing and showed cavitatory changes, few were surrounded by ground glass opacities with mediastinal lymphadenopathy.

However patient was found to have retroviral disease. CD4 count was 44. Dermatologist's opinion was taken for the skin lesions and was diagnosed as folliculitis.

Further CT guided biopsy was done which showed fibroblasts, granulation tissue with few lymphocytes, capillaries and histiocytes, not suggestive of malignancy or tuberculosis.

With these findings a possibility of pulmonary fungal infection in immunocompromised host was

[1]Professor and HOD, [2]Junior Resident, [3]Assistant Professor,
[4]Senior Resident, [5]Associate Professor,
Department of Respiratory Medicine,
Indira Gandhi Government Medical College, Nagpur.

Address for Correspondence -
Dr. Radha P. Munje
E-mail : radhamunje@yahoo.com
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kept and patient was started on ART(tenofovir, lamivudine, efavirenz regimen) with tab clotrimoxazole, tab itraconazole, injection clindamycin, injection metronidazole, haematinics and topical antibiotic for folliculitis for 15 days. Patient responded well and was discharged on ART, cotrimoxazole, oral antibiotics and itraconazole and advised regular follow up.

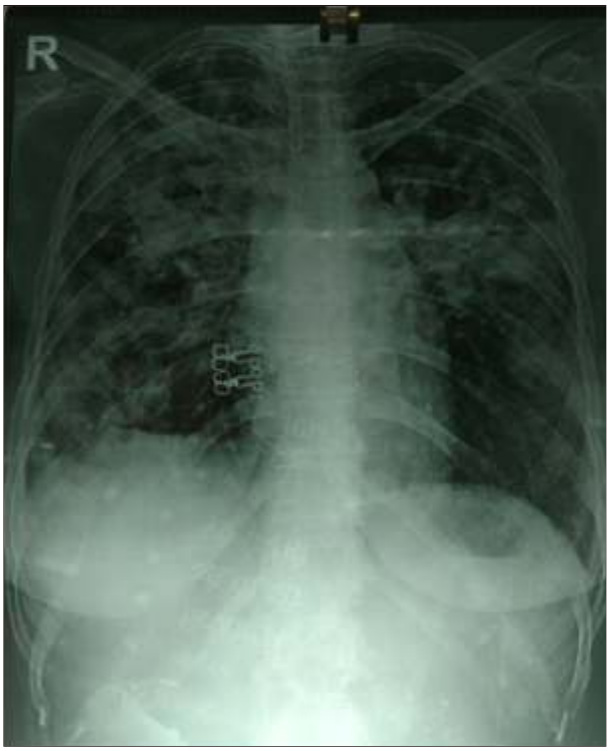
Patient was lost to follow up and 2 months later brought to emergency department and suffered cardiorespiratory arrest and died despite the resuscitative measures. Medical autopsy was requested and histopathological examination with haematoxylin and eosin staining of resected lung specimen showed Histoplasma with intrahistiocytic location and a halo effect around each organism with haematoxylinophilic nuclei. Thus pulmonary histoplasmosis, a rare opportunistic infection, could be diagnosed only on autopsy.

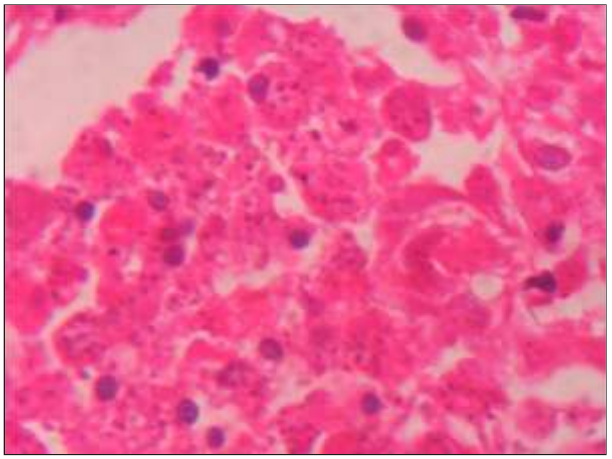
Discussion :

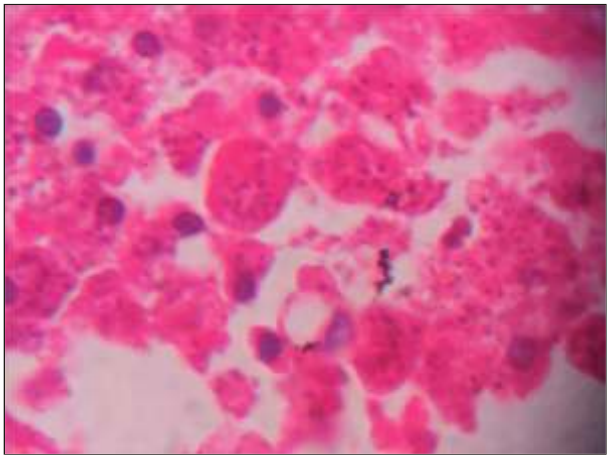
Histoplasmosis is the most common endemic mycosis and a major cause of morbidity in immunocompromised[3]. Histoplasmosis grows as a mold in the soil and converts to a yeast in tissues. H. capsulatum is predominantly found in the areas of North and South America, birds and bat excrement playing an important role by accelerating the organism's sporulation. Infection develops by inhalation route where conidia develop into yeast inside the host. Usually primary infection is asymptomatic and goes undiagnosed, cell mediated immunity playing an important role[5]. Clinical illness occur as reinfection or reactivation especially in immunocompromised hosts[4].

A variety of pulmonary syndromes may be seen with histoplasmosis like :

Acute Pulmonary Histoplasmosis showing diffuse pulmonary involvement often causing respiratory insufficiency. Chest radiographs show interstitial, reticulonodular infiltrates, nodular or patchy airspace disease or miliary pattern suggestive of haematogenous dissemination may be seen.







Subacute Pulmonary Histoplasmosis with small inoculum with chest x-ray showing mediastinal lymphadenopathy with patchy infiltrates runs an indolent course.

Chronic Pulmonary Histoplasmosis being common in patients with underlying lung disease and is characterised by persistent pulmonary symptoms, progressive lung infiltrates, nodules, fibrosis and cavitation6. Upper lobe infiltrates and cavities are characteristic, resembling the findings in tuberculosis. PDH is rare, usually seen in immunocompromised cases. Fever, hepatomegaly, splenomegaly, lymphadenopathy, sepsis with systemic dissemination seen. Chest x-ray shows diffuse interstitial or reticulonodular infiltrates[7]. Mediastinal adenitis, mediastinal granuloma and fibrosingmediastinitis are three mediastinal disorders which may complicate histoplasmosis. Inflammatory complications like arthritis, arthralgia, and pericarditis are also seen[8]. Histopathology, cytology and antigen detection are most useful for rapid diagnosis. Cultures providing the strongest evidence for histoplasmosis but limited delayed growth (2-4 weeks). Thus, isolation, proper identification, and susceptibility testing of the fungal isolates are important steps in the optimal treatment of these infections.[9] Amphotericin B acts more rapidly than triazole antifungal agents and is recommended for moderately severe or severe cases requiring hospitalisation. In patients with AIDS who also have severe PDH, liposomal amphotericin B 3-5mg/kg/d is preferred[10]. Itraconazole is highly effective in most mild to moderately severe cases of PDH, chronic pulmonary histoplasmosis and also in mediastinal manifestation of histoplasmosis.

Conclusion :

Though TB is the commonest opportunistic infection amongst HIV positive patients, in case of unusual presentation or radiological shadows all attempts must be made to isolate various rare opportunistic infections like Nocardia, Histoplasmosis. Timely diagnosis and treatment may be lifesaving.

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