Original Research Paper

Volume - 11 | Issue - 02 | February - 2021 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Internal Medicine

DISSEMINATED TALAROMYCOSIS IN HIV/AIDS - A CASE REPORT

Dr Kumar Anand Shrutiraaj* Physician, 154 GH, Zakhama, Kohima-797005, Nagaland, India.*Corresponding Author

Dr Parijat Das Clinical Microbiologist, MH Chennai-600032, Tamil Nadu, India.

Dr Manish Ranjan Assistant Professor, Heritage Institute of Medical Sciences, Bhadwar, Varanasi-221311.

ABSTRACT Talaromyces marneffei (previously *Penicillium marneffei*), a dimorphic fungus distributed widely in nature, is an emerging pathogen associated with high mortality and morbidity. It infects individuals with some form of underlying immune-deficiency like HIV, malignancy, transplant-recipients, autoimmune diseases, prolonged steroid therapy etc. Although it's prevalence among HIV/AIDS patients has reduced with the widespread use of Anti-Retroviral Therapy (ART), yet due to increase in patients with other immune deficient states and improved diagnostic modalities, its overall prevalence has increased. It is remarkably and specifically seen in patients who are native to or have visited South-east Asia, eastern India or southern China. Few disseminated T. marneffei infections have been reported from India. We report a case of disseminated T. marneffei in a HIV patient with profound immune-deficiency. This case highlights the importance of considering it as an important differential in cases of patients with characteristic skin lesions having underlying immune deficiency belonging to a specific geographical area.

KEYWORDS : Opportunistic Infection, Dimorphic fungi, ART, Emerging pathogen

CASE REPORT

A 29 year old male, resident of north-eastern part of India, was found to be HIV positive during evaluation for decreased appetite and unintentional weight loss three years back. Initial CD4 count was 259 cells/µL. All hematological and biochemical parameters were normal and screening for opportunistic infections (OIs) was negative. Patient was started on anti-retroviral therapy (ART), which he tolerated well. He however defaulted on treatment; following which he was admitted few weeks later with complaints of protracted fever, dull dragging pain right hypochondrium and unintentional weight loss. Clinically he was emaciated, had generalized lymphadenopathy and hepatomegaly. Investigations revealed disseminated tuberculosis with involvement of abdomen, lymph nodes and pleura and the CD4 count was found to be 6 cells/µL. He was started on Anti-Tubercular Therapy (ATT), later ART was introduced how much. Clinical course was closely monitored for features of Immune Reconstitution Inflammatory Syndrome and was managed symptomatically. Patient responded well to treatment and improved gradually. However following discharge, again after three months, he defaulted on treatment and was lost to follow up. Later, he was brought in the emergency department in a state of septic shock with multi-organ dysfunction. He also had generalized lymphadenopathy and massive hepato-splenomegaly. There were multiple erythematous papulo-nodular lesions ranging from 0.5-1 cm in diameter scattered over whole of body including face, trunk and limbs, which had central umbilication & necrosis and easily bled on touch. Fine Needle Aspiration Biopsy from one of the lesions showed yeast like cells of *Talaromyces marneffei* engulfed by macrophages as well as scattered in the background of smear. He was managed with broad spectrum antibiotics, antifungals, steroids, airway management and other supportive care. Despite best of the treatment and care his condition continued to deteriorate and patient succumbed to his illness after 2 days of admission in ICU.

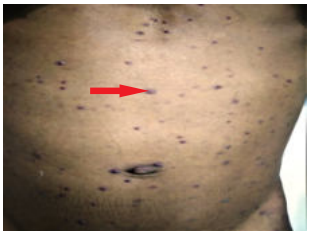
DISCUSSION

Talaromyces marneffei is an emerging opportunistic pathogen (1). It is a thermally dimorphic fungus that causes life threatening disseminated infections in individual native to or has visited Southeast Asia, eastern India or southern China (1). The disease ranks third amongst OIs in patients with AIDS in endemic areas after tuberculosis and cryptococcosis and is generally seen when the CD4 cell count is <50 cells/µL (2). *T. marneffei* has been isolated from bamboo rats (*Rhizomys* spp, and *Cannomys badius*) (4) but their role in human infection is unknown. Infection occurs more commonly during the rainy season (5) and is acquired by inhalation of conidia. There is no person to person transmission.

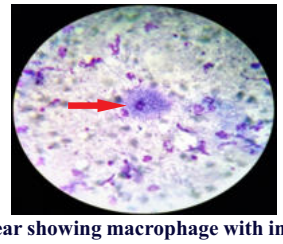
It typically presents with a chronic illness averaging 4 weeks in duration associated with low-grade fever, weight loss, malaise, anaemia, leucocytosis and skin lesions (2). Skin lesions are commonly seen on the face, upper trunk, and extremities and may present as papules, pustules, nodules, ulcers, or abscesses and in HIV-infected individuals are often umbilicated resembling molluscum contagiosum or may have central necrosis (9). Hematogenous dissemination commonly occurs in patients with HIV/AIDS. However, in people without HIV/AIDS, *T. marneffei* is more likely to involve mouth, lungs and liver and the skin lesions appear smoother without central umbilication/necrosis (9). Involvement of lymph nodes, liver, spleen, lung, kidney, skin, bone, bone marrow, adrenal, tonsil, bowel, and meninges have been reported in autopsies of patients of disseminated disease (6). Residence or visit to an endemic area must raise suspicion.

[Fig -1] Characteristic skin lesions with central umbilication (Red Arrow) over forehead

Diagnosis is based on identification of the organism on smear, histopathology, or culture. Culture specimens include bone marrow, blood, lymph node, skin lesions, bronchoalveolar lavage, or sputum. Microscopic examination of clinical materials reveals yeast like forms (2-3 × 2-6.5 µm) both within phagocytes and extracellularly (7).



[Fig -2] Characteristic skin lesion over abdomen



[Fig -3] Skin smear showing macrophage with ingested yeast cells with septal division

Three types of histopathologic reactions are seen in *T. marneffei* infection (7) with granulomatous or suppurative changes in patients with normal immunity and necrotizing reaction more commonly seen in immunocompromised patients. Culture at 30° C produces a mould with fruiting body typical of *Penicillium* spp. Formation of a soluble red pigment that diffuses into the agar is also seen. The mould form can be converted to a yeast form by incubation at 37° C. Diagnosis by immunologic techniques is still in experimental stages (8).

Without appropriate antifungal treatment it has a dismal prognosis. Successful treatment of disseminated infection has been reported with Amphotericin B for 2 weeks followed by oral Itraconazole for 10 weeks (3). Secondary prophylaxis in HIV-infected patients with Itraconazole (200 mg once daily) is used to prevent relapse which is discontinued after response to ART (CD4 cell count of ≥100 cells/μL for at least 6 months) (3). However patients who are HIV positive need prolonged suppressive therapy to prevent relapse.

CONCLUSION

T. marneffei is an emerging opportunistic infection reported mainly from South-east Asia, eastern India or southern China especially in patients of HIV with CD4 count < 50 cells/μL. Diagnosis is made by identification of the organism on smear, histopathology, or culture. Immunologic tests to aid diagnosis are still in experimental stages. Dissemination is generally the rule in immune-deficient patients Prognosis remains dismal without appropriate antifungal therapy for disseminated infection (1, 9). Further understanding the pathophysiology and development of rapid means for detection in humans are important challenges. Future research will lead to a better understanding of this emerging infection.

REFERENCES

1. Vanittanakom N, Cooper CR, Jr, Fisher MC, Sirisanthana T. 2006. *Penicillium marneffei* infection and recent advances in the epidemiology and molecular biology aspects. *Clin Microbiol Rev* 19:95–110.
2. Supparatpinyo, K., C. Khamwan, V. Baosoung, K. E. Nelson, and T. Sirisanthana. 1994. Disseminated *Penicillium marneffei* infection in Southeast Asia. *Lancet* 344:110–113.
3. Supparatpinyo, K., K. E. Nelson, W. G. Merz, B. J. Breslin, C. R. Cooper, Jr., C. Kamwan, and T. Sirisanthana. 1993. Response to antifungal therapy by human immunodeficiency virus-infected patients with disseminated *Penicillium marneffei* infections and in vitro susceptibilities of isolates from clinical specimens. *Antimicrob. Agents Chemother*. 37:2407–2411.
4. Cooper CR. From bamboo rats to humans: the odyssey of *Penicillium marneffei*. *ASM News*. 1998;64:390-396.
5. Le T, Wolbers M, Chi NH, et al. Epidemiology, seasonality, and predictors of outcome of AIDS-associated *Penicillium marneffei* infection in Ho Chi Minh City, Viet Nam. *Clin Infect Dis*. 2011;52:945-952.
6. Drouhet E. Penicilliosis due to *Penicillium marneffei:* a new emerging systemic mycosis in AIDS patients traveling or living in Southeast Asia: review of 44 cases reported in HIV infected patients during the last 5 years compared to 44 cases of non AIDS patients reported over 20 years. *J Mycol Med*. 1993;4:195-224.
7. Deng Z, Ribas JL, Gibson DW, et al. Infections caused by *Penicillium marneffei* in China and southeast Asia: review of eighteen published cases and report of four more Chinese cases. *Rev Infect Dis*. 1988;10:640-652.
8. Chaiyaroj SC, Chawengkirttikul R, Sirisinha S, et al. Antigen detection assay for identification of *Penicillium marneffei* infection. *J Clin Microbiol*. 2003;41:432-434.
9. Kawila, R., Chaiwarith, R., & Supparatpinyo, K. Kawila et al.: Clinical and laboratory characteristics of *Penicilliosis marneffei* among patients with and without HIV infection in Northern Thailand: a retrospective study. *BMC Infectious Diseases*.2013;13:464.