Doi: 10.32677/IJCR.2017.v03.i04.019 Case Report

A case report of secondary cutaneous cryptococcosis in a retrovirus positive patient

M L Kala Yadhav, Saba Samreen

From Department of Microbiology, Bangalore Medical College and Research Institute, Bengaluru, Karnataka, India

Correspondence to: Dr. Saba Samreen, Department of Microbiology, Bangalore Medical College and Research Institute, #15/A-16, 3rd Main Road, BHEL Officers Layout, SR Krishnappa Garden, Bengaluru - 560 041, Karnataka, India. Phone: +91-9880095096. E-mail: kysrz_sam5@yahoo.com

Received - 18 July 2017 Initial Review - 09 August 2017 Published Online - 27 September 2017

ABSTRACT

Cryptococcosis is a systemic mycosis caused by the capsulated yeast *Cryptococcus neoformans*. Cryptococcus remains an important opportunistic pathogen in HIV positive patients. It is usually acquired through inhalation of spores and by invasion of the respiratory system, and then, the organisms may spread hematogenously to other viscera mainly central nervous system. Although there are some reports of primary cutaneous cryptococcosis, cryptococcal skin disease is a rare feature of disseminated cryptococcosis and has poor outcome if undiagnosed and untreated. We present a case of secondary cutaneous cryptococcosis in a 50-year-old male, who was diagnosed as a case of retroviral disease 3 years back but not on anti-retroviral therapy.

Key words: *Central nervous system cryptococcosis, Disseminated cutaneous cryptococcosis, HIV*

Cryptococcosis is a systemic mycosis caused by the capsulated yeast *Cryptococcus neoformans* found in soil, often associated with pigeon droppings. Infection most often involves the lungs or central nervous system (CNS), and less frequently the blood, skin, skeletal system, and prostate. The infection is usually acquired by inhalation, direct inoculation, or infection of a cutaneous lesion [1]. Since the incidence of cryptococcosis is greatly increased in immunocompromised patients, especially among patients with HIV, solid organ transplant recipients, those on chronic steroid therapy, cryptococcosis is considered an opportunistic fungal disease [2].

Cryptococcus remains an important opportunistic pathogen in HIV positive patients despite considerable decline in prevalence during the highly active anti-retroviral therapy era. Although there are some reports of primary cutaneous cryptococcosis, cryptococcal skin disease is a rare feature of disseminated cryptococcosis and has poor outcome if left undiagnosed and untreated [3]. We present a case of secondary cutaneous cryptococcosis in a retrovirus positive patient.

CASE REPORT

A 50-year-old male patient, who is a known case of retroviral disease for the past 3 years but not on antiretroviral therapy (ART), presented with complaints of fever with chills, headache, and backache for 2 months. Headache was holocranial, and throbbing in nature. At the time of admission, general condition of the patient was good without any focal neurological deficits After 1 week of admission, he developed skin lesions in the form of papules and pustules of about 3-6 mm in size with slight central depression over face, neck, and trunk. The lesions resembled molluscum contagiosum (Fig. 1). Crush smear from papule was sent for microbiological examination.

On laboratory investigations, his total leukocyte count was 6340 cells/mm^3 and platelet count was 1.48 lacs/mm^3 and renal function tests (serum urea-27 mg/dl, serum creatinine-0.5 mg/dl) were normal. His CD4 count showed 31 cells/µl. Ultrasonography abdomen and pelvis showed hepatomegaly with steatosis and splenomegaly. Cerebrospinal fluid (CSF) examination showed glucose of 80 mg/dl and protein of 0.5 mg/dl with 12 cells/mm^3 (all were mononuclear cells). CSF was sent for microbiological examination which was positive for cryptococcus (plenty of yeast forms) and a diagnosis of cryptococcal meningitis was made. Gram stain of CSF and crush smear from papule-showed spherical budding yeast cells of size 5-20 µm resembling Cryptococcus (Fig. 2). India ink preparation showed capsulated organisms (Fig. 3). Culture on Sabourauds dextrose agar incubated at 37°C was positive for cryptococcus and was confirmed by Grams stain and India ink preparation from the colonies. Culture on Bird seed agar at 37°C yielded brown-to-black colonies resembling *C. neoformans*. Christensen's urease test showed hydrolysis of urea. Nitrate was assimilated. CSF cryptococcal antigen test by latex agglutination was also positive.

Patient was diagnosed as a case of secondary cutaneous Cryptococcosis with Cryptococcal meningitis. Patient was started on injection Amphotericin B 5 mg/day over 6 h, which was later, increased to 50 mg/day. Patient was also given injection Flucytosine and Tablet Fluconazole 400 mg/day twice a day for

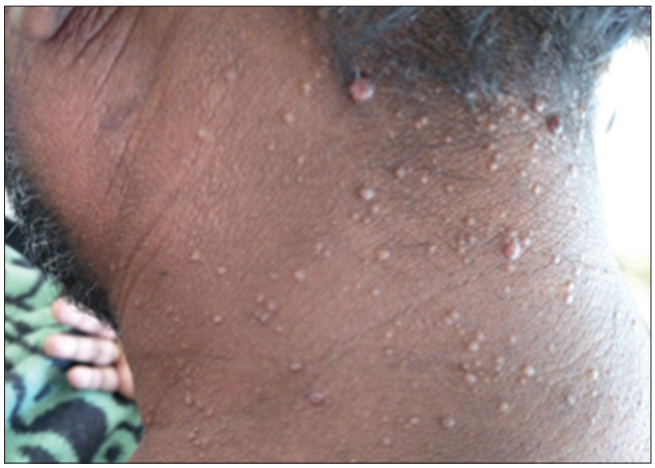

Figure 1: Showing cutaneous lesions

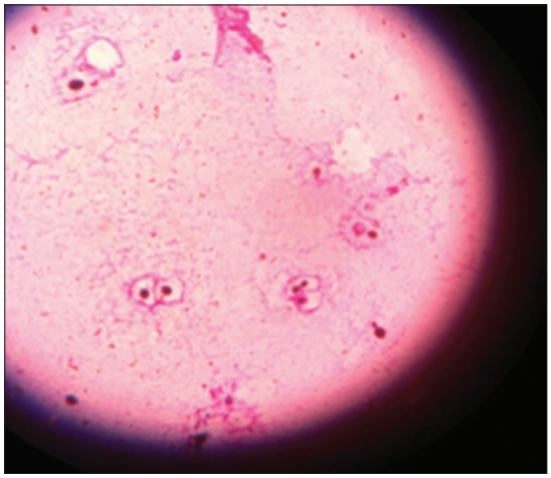

Figure 2: Gram-positive capsulated budding yeasts

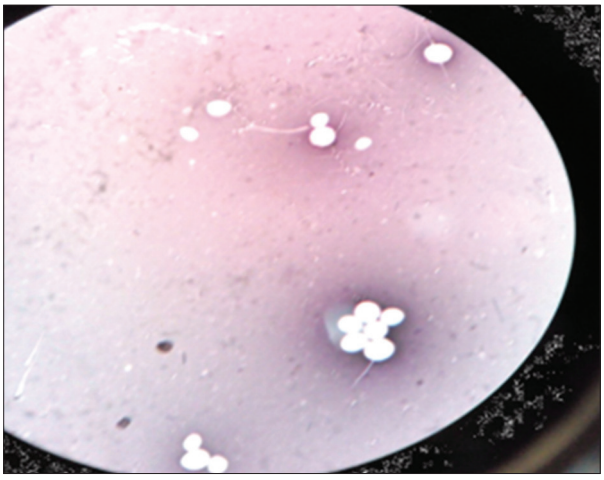

Figure 3: Showing capsulated yeasts on India ink

2 weeks. The lesions subsided following treatment and patient showed signs of recovery and was discharged.

DISCUSSION

C. neoformans is an encapsulated fungus that can cause fatal infections in immunocompromised host. Patients with T cell deficiencies are more susceptible to infections. Among the hospitalized HIV-infected patients in India with CD4 counts <100 cells/mm3, up to 50% have cryptococcal meningitis [4,5]. Although cryptococcosis mainly involves CNS, the most common extra neural site of infection is skin. Approximately 10-20% of the systemic cryptococcal infections become manifested in skin in immunocompromised patients. Cutaneous cryptococcosis can be of two types - primary and secondary. Secondary cutaneous cryptococcosis mainly by hematogenous spread, occurs following manifestations of the disease at other sites; hence, represents disseminated cryptococcosis. Most of the cases of cryptococcal meningitis occur in ART naive people [6].

Skin lesions typically appear as pedunculated dome-shaped papules with an umblicated center [7]. They are usually secondary and act as a key marker of disseminated infection; especially, in patients with low cell-mediated immunity. Nicolas et al. described a case of cutaneous Cryptococcosis without systemic involvement occurring as the first manifestation of AIDS with a large crusted ulcerated skin lesion on the scalp, successfully treated with fluconazole [3].

CONCLUSION

Early recognition of the cutaneous lesions is important, as they can be the first sign of disseminated cryptococcosis. Thus, early diagnosis and treatment can improve the quality of life of these patients, and increase their life span. Delay in diagnosis may lead to substantial morbidity and mortality.

REFERENCES

1. Lacaz Cda S, Heins-Vaccari EM, Hernandez-Arriagada GL, Martins EL, Prearo CA, Corim SM, et al. Primary cutaneous cryptococcosis due to *Cryptococcus neoformans* var. gattii serotype B, in an immunocompetent patient. Rev Inst Med Trop Sao Paulo. 2002;44(4):225-8.
2. Dismukes WE, Pappas PG, Sobel JD. Clinical Mycology. New York: Oxford University Press, Inc.; 2003.
3. Nicolas C, Truchetet F, Christian B, Dorvaux V, Cuny JF. Large crusted ulceration of the scalp: First manifestation of cryptococcosis in an AIDS patient. Ann Dermatol Venerol. 2000;127(2):188.
4. National AIDS Control Organization. Annual Report (2010-2011). New Delhi: Department of AIDS Control Ministry of Health and Family Welfare, Government of India.
5. Park BJ, Wannemuehler KA, Marston BJ, Govender N, Pappas PG, Chiller TM. Estimation of the current global burden of cryptococcal meningitis among persons living with HIV/AIDS. AIDS. 2009;23(4):525-30.
6. Kumarasamy N, Solomon S, Flanigan TP, Hemalatha R, Thyagarajan SP, Mayer KH. Natural history of human immunodeficiency virus disease in southern India. Clin Infect Dis. 2003;36(1):79-85.
7. Srivastava GN, Tilak R, Yadav J, Bansal M. Cutaneous *Cryptococcus*: Marker for disseminated infection. BMJ Case Rep. 2015;2015:bcr2015210898.

Funding: None; Conflict of Interest: None Stated.

How to cite this article: Yadhav MLK, Samreen S. A case report of secondary cutaneous cryptococcosis in a retrovirus positive patient. Indian J Case Reports 2017;3(4):227-228.