



ORIGINAL RESEARCH PAPER

Pathology

CYTOLOGICAL DIAGNOSIS OF CRYPTOCOCCUS IN CEREBROSPINAL FLUID – A CASE REPORT

KEY WORDS: Cryptococcus, Cerebrospinal fluid, Meningitis

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ABSTRACT Cryptococcal meningitis is one of the Acquired Immuno Deficiency Viral defining serious illness with high mortality(1) . We report 56 years male, a known case of human immunodeficiency virus positive patient on anti retroviral therapy presented with headache, neck stiffness, fever, altered sensorium. Brain imaging showed multiple calcification in cerebellar, falx cerebri region. Cerebrospinal fluid examination revealed organisms in aggregates surrounded by wide capsule. Gram staining, India ink preparation showed capsulated budding yeast cells. Latex agglutination was positive. Sabourauds dextrose agar showed white creamy colony of Cryptococci in cerebrospinal fluid. We are presenting this case for rarity in cytological analysis.

INTRODUCTION:

Cryptococcosis is an infection caused by yeast *C. neoformans*(1). It is found in excreta of birds, mainly pigeons and chickens, and in soil contaminated by them. Yeast is spread by aerosol and transient colonization of respiratory tract and skin occurs. Meningitis is the most common clinical manifestation of systemic infection. Without adequate treatment, mortality is 70 to 80%. Untreated cerebro meningeal cryptococcosis is almost invariably fatal.

CASE REPORT:

A 56years male, known case of retroviral infection on antiretroviral therapy presented with constitutional symptoms and associated with projectile vomiting, headache, fever, altered sensorium for 1 day.

Investigation revealed multiple calcification in cerebellar, falx cerebri region. CSF tapping was done and sent for cytological examination .

MICROSCOPY:

Smear studied by staining with hematoxylin and eosin showed numerous organisms in aggregates with spores surrounded by wide capsules with scanty inflammatory infiltrates.

GRAM STAINING:

Gram positive budding yeast cells were seen under microscopy.

INDIA INK STAINING:

Budding yeast cells of *Cryptococcus* with negative staining of capsule were seen.

LATEX AGGLUTINATION TEST:

Positive

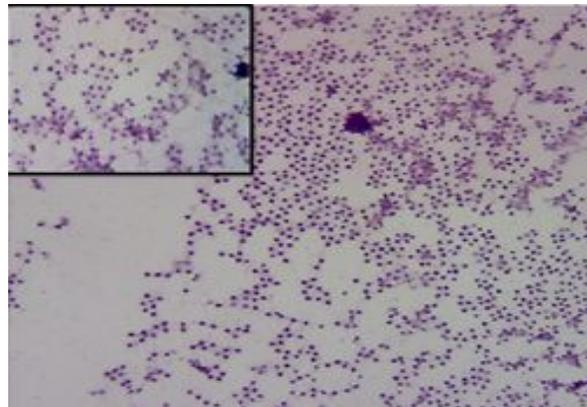


Fig 1: Cytomorphology shows Cryptococcus. Inset- Spores with highmagnification

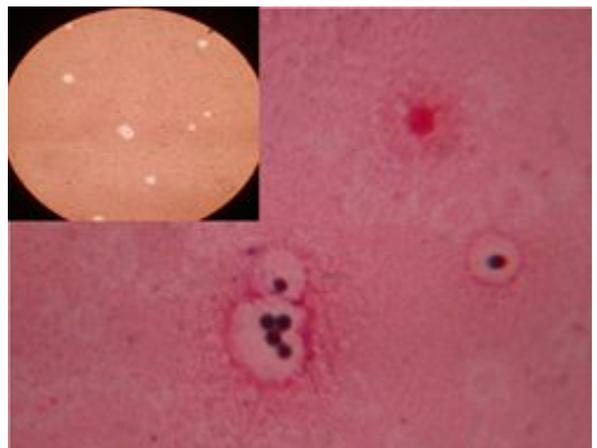


Fig2: Gram staining for Cryptococcus Inset : Negative staining for India ink

CULTURE:

Culture was done in Sabourauds dextrose agar media and incubated. Growth was found after 24 hours as mucoid, cream to buff colored colonies.



Fig 3: Growth of Cryptococcus in culture, Inset: Latex agglutination test

DISCUSSION:

Cryptococcal meningitis is now a less-frequent but still relatively common opportunistic infection associated with AIDS. Disease

occurs late in the course of AIDS, with severe immune suppression. Widespread disease is usual; meningitis is the most common manifestation(2). Cryptococcosis is predominant cause of fatal fungal infection in patients with AIDS and ranks fourth among CNS infections. Cryptococcal meningitis has traditionally been considered typical of chronic granulomatous meningitis, in which there are foci of inflammation in the basilar meninges, occasionally cerebral mass lesions, but more generally a diffuse lymphocytic meningitis(2)

Cryptococcal meningoencephalitis is the primary clinical presentation for the life-threatening stage of this infection. Pathogenic organism is *Cryptococcus neoformans*. It is a asexual budding yeast recovered from environment and human infection. It is a ubiquitous encapsulated yeast found throughout the world. Capsule thickness varies and it acts as a virulence factor. A capsulated strain is less virulent and occurs in immunosuppressed state as in acquired immunodeficiency syndrome or following corticosteroid treatment, malignancy, organ transplantation, sarcoidosis. With the usage of HAART treatment and widespread use of Fluconazole there is decrease in the rate of infection. Various modes of infection include Pulmonary, CNS, Visceral, Osseous, and Cutaneous. Meningoencephalitis is the most common manifestation when CD4 count is less than 100cells/mm³. Symptoms appear in 1-2 weeks and the classical triad being headache, fever and malaise.

To conclude, clinical diagnosis is difficult in sub-acute cases due to nonspecific presentation. Cerebrospinal fluid analysis and culture is needed for definitive diagnosis and treatment.

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