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Rare Presentation of Community Acquired Cryptococcal Meningitis in Immunocompetent Individual

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Abstract:

Cryptococcal Infections that mainly caused by Cryptococcus species and occurs huge and in a wide range variation of hosts, and ranging from the severely immunosuppressed to those people, who are phenotypically "normal" immune systems.

Mortality from the cryptococcal meningitis is high and it also developed countries, due to current antifungal drugs inadequacy. Accordingly, the complicatios also raised the intracranial pressure.

Early diagnosis of disease and treatment process can reduce the effectiveness of cryptococcal meningitis that helps to decrease the rate of mortality.

Morbidity and mortality also associated underscores the early microbiological diagnosis and importance of precise. A high level of iThe clinical suspicion of high index level and the mycological surveillance is more essential that help in the early diagnosis process as well as appropriate therapy.

1. Introduction

Cryptococcal meningitis is caused by the encapsulated yeast Cryptococcus neoformans **(1 , 2)** It is often the first opportunistic infection diagnosed among the patients with HIV/AIDS.1 It occurs in non-HIV immunosuppressed patients like renal transplant recipients, patients receiving immunosuppressive agents like glucocorticosteriods, cytotoxic chemotherapy, patients with hematologic disorders **(3)**

Cryptococcal meningitis is also develops apparently in immuno-competent individuals that is rare extremely. Early diagnosis of disease can assist the clinician to reduce the effectiveness of cryptococcal meningitis that can reduce the mortality rate as well.

We report an immunocompetent 46 years old lady who was admitted with an altered sensorium and high grade fever. She was diagnosed to disseminated cryptococcal infection. She was treated with Amphotericin B injection but succumbed to her illness.

2. Case Report

A 45 year old female presented her history of fever for past 10 days which was high grade, intermittent and not associated with any rigors and chills. Fever was also associated with and non – projectile vomiting and headache. 2 days prior to admission to our hospital she developed complaints of altered sensorium in the form of drowsiness and irrelevant talk.

On admission she was febrile with temperature of 102oF, with altered sensorium. Her Glasgow Coma

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scale was 10/15. She was hemodynamically stable with blood pressure and the range of blood pressure was 140/80 mmHg, pulse rate was 118 beats per minute and RR or respiratory rate of 21 per minutes. On examination she had neck rigidity and Kernig's sign was positive. Her fundus examination showed no evidence of papilledema. Other neurological examinations were found to be normal. All other systemic examinations were also found to be within normal limit.

Her investigation revealed Hb of 13.6g/dl, WBC- 7900, DLC [N-79, L-16, E-2, M-3], Urea-17mg/dl, Creat-0.6mg/dl, Direct Bilirubin-0.3mg/dl, Total Bilirubin-0.6mg/dl,SGOT-29,SGPT-27,ALP-155,GGT-134,T.Proteins-7.0gm,S.Albumin-3.2gm,Na-133,K-2.7,Cl-90, Bicarbonate-19. Her cerebrospinal fluid analysis showed WBC count 61, lymphocyte- 99%, RBC-783, with CSF Glucose rate 20 mg% and simultaneous CBG was 120 mg/dl. CSF protein was 256. On the other hand, CSF microscopy showed that Cryptococci ink smear in India (Figure 1), and cryptococcal antigen was detected by latex agglutination test.

CSF and blood culture also grew Cryptococcus neoformans. Contrast enhanced CT scan of brain showed effaced sulci bilaterally with lateral ventricles, basal cisterns and Sylvian fissures narrowing bilaterally suggestive of meningitis. She was treated with injection Amphotericin B intravenously and also followed by fluconazole. She developed seizures and refractory hypokalemia probably secondary to amphotericin B and failed to recover. She succumbed to her illness on 5th day of admission to intensive care unit.

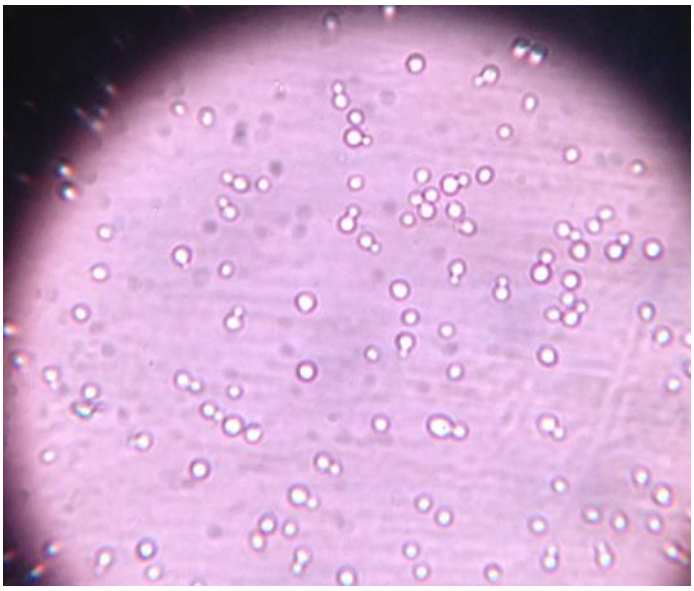

Figure 1 CSF Microscopy showing Crytococcal Neoformans in Indian ink stain

3. Discussion

C. neoformans has been found in soil contaminated with pigeons and chicken droppings., (**3**) In our case patient was farmer by occupation and had chickens at her home. C neoformans is classically of three varieties, five serotypes and eight molecular types. C.neoformans in humans colonize in the upper respiratory tract region.

The main site of infection are central nervous system, pulmonary and extra pulmonary sites like skin, prostate and eyes. Cryptococcal meningitis in immunocompetent individuals presents with symptoms and sign of meningitis such as headache, fever, and neck stiffness, as it was in our case. The other rare presentations in immunocompetent individuals are visual and hearing loss cognitive impairment and ataxia due to obstructive hydrocephalus with ventricular dilatation, which were not present in our case.

Cryptococcus neoformans forms white mucoid colonies in Sabourauds dextrose agar. (**2**)Cryptococcal polysaccharide antigen in body fluids by rapid and simple latex agglutination tests are highly sensitive

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above 90%, and at a titre greater than 1:4 is very specific.

In immunocompromised Cryptococcal antigen in SF and serum India ink examination of CSF which is 70 to 90% positive. On the other hand the culture and antigen testing of CSF fluid may be negative in immunocompetent individuals, making the diagnosis hard. India ink examination is positive in only 50-70% of immunocompetent individuals.

Sometimes the CT may show ring-enhancing lesion due to granulomatous response of the immunocompetent individual to the encapsulated fungus. **(1)**

Guidelines for treatment in immunocompetent in include, as amphotericin B , induction therapy, and flucytosine is given for 4 weeks and in patients without any neurological complications and negative outcome of SF yeast culture , it is given for two weeks. A patients with some neurological issues it is for a period of six weeks. Accordingly consolidation therapy with fluconazole for eight weeks and maintenance therapy also with fluconazole prescribed for 6-12 months.

In a study by Zhu LP et al 19.6% death were reported among patients who received initial therapy as amphotericin B. Death were attributed to delayed diagnosis, coma, seizures and cerebral herniation. Although, our patient was treated with injection amphotericin B, late presentation and refractory hypokalemia may have contributed to the death of our patient.

4. Conclusion

Cryptococcal meningitis is rare among immunocompetent individuals. Patients presenting with meningitis and has history of contacts with pigeon and chickens must be evaluated for cryptococal infection. India ink may help in early diagnosis in a country like India, where resources are limited. Early diagnosis and treatment with amphotericin B may be lifesaving.

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