CASE REPORT

# Cryptococcal Peritonitis in a Patient with Liver Cirrhosis:Case Report

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**ABSTRACT**- Disseminated cryptococcosis is generally seen in immunocompromised patients mainly associated with Human Immunodeficiency Virus. Spontaneous cryptococcal peritonitis among patients of disseminated cryptococcosis is a rare presentation, which is presented in cases with cirrhosis of liver. It can be confused with spontaneous bacterial peritonitis. Strong clinical awareness and index of suspicion in a cirrhotic patient with peritonitis as well as early diagnosis and treatment is required as it is difficult to distinguish from spontaneous bacterial peritonitis. We described here a case of disseminated cryptococcosis with cryptococcal peritonitis in a cirrhotic male.

**Key-words-** *Cryptococcosis*, Cryptococcal peritonitis, Liver cirrhosis

## INTRODUCTION

Liver disease in a non HIV diabetic patient is an important risk factor for the cryptococcal disease. Studies have reported the prevalence of cirrhosis to be 4.5%–9.5% [1]. According to the National Institutes of Health, cirrhosis is the 12th leading cause of death by disease [2]. Major complications of cirrhosis include ascites, variceal bleeding, hepatorenal syndrome, hepatic encephalopathy, spontaneous bacterial peritonitis, and portal hypertension. Due to immune dysregulation, uncommon pathogens become more common and virulent in these patients [3]. Because of the high morbidity and mortality, prevention, early diagnosis, and proper management of these infections are necessary to improve survival. Here we report a case of cryptococcus peritonitis in a cirrhotic male.

## CASE REPORT

A 72 yrs male was admitted to our hospital with complaints of breathlessness and anasarca. His conscious level on Glasgow Coma Score scale for eye, verbal and a motor response was 10 (E3V3M4).

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On Examination heart rate was 70/min, $SpO_2$ 100% on oxygen, blood pressure 100/50 mm of Hg, bilateral crepitus and wheezing present, abdomen tense (ascites present), $S_1S_2$ normal, pallor present, and icterus present.

Laboratory examinations revealed glycosylated haemoglobin 5.4, deranged liver function test, international normalized ratio 5.69, prothrombin time 64.2 sec, sodium 116 mmol/l (predictive accuracy of MELD score increases by hyponatremia, which is a common finding in decompensated liver disease), potassium 5.5 mmol/l total leukocyte count was $12.71x10^9$/l, hemoglobin 8.2 g/dl, urea 201 mg/dl, creatinine 4.07 mg/dl. Child pughs score was 13 and MELD score was 38. Ascitic fluid routine examination revealed: cell count 800/cu mm with a predominance of neutrophils and presence of encapsulated budding yeast cell. Ascitic fluid for culture and sensitivity was sent. Gram Stain showed Gram positive budding yeast cell. India ink was positive for *Cryptococcus* (Fig. 1). After 48 hours of incubation, it grew mucoid colonies of *Cryptococcus*. Blood culture (Bactec 9120) was positive on 4th day. Colonies were identified as *Cryptococcus neoformans* (vitek 2 Compact, biomereux). Immediately patient was started on amphotericin B (25 mg in 50 ml normal saline over 30 min for 2 days followed by 75 mg). Despite treatment patient's condition deteriorated, urine output decreased continuously and a patient could not survive. The death could be attributed to progressive liver failure, hepatic encephalopathy, acute on chronic kidney disease with super imposed cryptococcal peritonitis.

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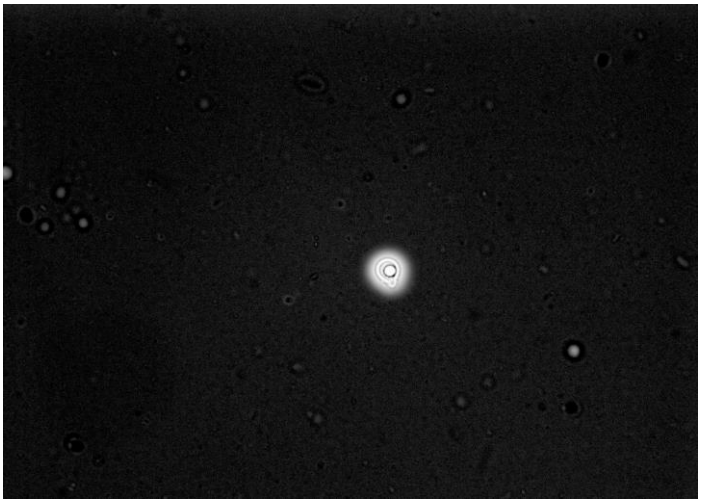

**Fig. 1:** IndiaInk preparation showing Cryptococcus

He was admitted to our hospital five months back for fracture neck femur and upper end humerus right side. Hemiarthroplasty was done. A month later he was admitted with complains of altered sensorium, slurring of speech with per rectal bleed, ascitis and decreased urine output. He was managed conservatively and discharged in stable condition.

He was a known case of Type 2 diabetes since 14 yrs, coronary artery disease since 8 yrs, hypertension since 2 yrs and chronic liver disease since 1 year. He under went percutaneous transluminal coronary angioplasty for coronary artery disease and endoscopic variceal ligation.

## DISCUSSION

Disseminated cryptococcosis is commonly found in HIV infection, solid-organ transplantation, chronic organ failure (renal and liver), immunosuppressive medications, hematologic malignancy, chronic lung disease, rheumatologic disorders, cases of gastrointestinal (GI) bleed and CAPD patients [4-7]. Cryptococcal peritonitis is seen in 7.4% of HIV cases, 2% in non HIV cases. CP is considered a rare manifestation of cryptococcosis in cirrhosis [8].

In a study, it was found that among 33 HIV-negative patients with disseminated disease, cirrhosis was present most commonly and was also associated with grave prognosis. Leukocyte impairment, decreased opsonin activity, and complement dysfunction are known to predispose cryptococcosis in cirrhotic patients. [8] Infection of ascitic fluid (spontaneous fungal ascitis) in HIV-negative patients accounts for less than 5% of all cryptococcosis cases. Cryptococcal peritonitis is the second most common infection in patients with cirrhosis [9].

In a study 61 cases were reviewed and cirrhosis was the major factor associated with CP [10]. Peritoneal fluid analysis reveals pleocytosis with lymphocytic predominance. Few studies have reported PMN as in our case [9,11,12].

Very few studies from India have reported CP in decompensated liver disease [13]. The mortality rate is very high, ranging from 70 to 80% [8,13]. In our case India ink preparation was performed immediately which showed encapsulated budding yeasts. This may emphasize the need for this test to be used for initial screening in suspected cases. The patient had a MELD score of 38 and Child pughs score 13 both of which showed a poor prognosis.

Treatment of cryptococcosis depends on the site and immune status of individuals. Guidelines for CNS cryptococcosis are well established but no specific guidelines exist for treatment of cryptococcal peritonitis [14]. Prognosis in disseminated cryptococcosis with cirrhosis for HIV-negative patients with 30 day mortality is reported as 100% in one study. In HIV infected cases liver cirrhosis came out to be the strongest predictor of 30-day morality (hazard ratio 16.3) [8]. In 50% of the cases the process is said to be transudative which is also seen in our case [7].

## CONCLUSIONS

We concluded in this study that spontaneous cryptococcal peritonitis in a patient with disseminated disease is a rare manifestation of *C. neoformans* infection. Grave prognosis is associated in cases where cryptococcosis is present with liver cirrhosis as seen in this case. Very few cases have been reported till date. Studies regarding prophylactic treatment for a cryptococcal infection in cases where there is history of a GI bleed and liver disease should be performed to draw a consensus towards an empirical therapy.

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