

## Brain Abscess by *Candida Tropicalis*-A Rare Case Report From India



### Medical Science

**KEYWORDS :** Brain abscess; *Candida*; Immune competent

**Pooja .PB**

.Post Graduate,Department of Microbiology,JSS Medical College,Mysore.

**Shivanand Reddy**

Post Graduate ,Department of General Surgery,JSS Medical College,Mysore.

**Vinayak Kadlimatti**

Assistant Proffesor,Department of Neurosurgery,JSS Medical College,Mysore.

### ABSTRACT

*Fungal brain abscess is a rare entity especially in an immune competent host. Here we report a rare case of Candida brain abscess in a 62 year old immune competent patient. The diagnosis was made by CT scan of brain and confirmed by microbiological culture. The patient did not respond to surgical intervention and antimicrobial therapy and succumbed to his illness.*

### Introduction

Brain abscess is a focal, intra-cerebral infection that begins as a localized area of cerebritis and develops into a collection of pus surrounded by well-vascularised capsule [1]. They are relatively uncommon. It results from the invasion of infectious organisms into the brain parenchyma as a consequence of the spread of contiguous infection from non-neural tissue, the result of hematogenous introduction from a remote site or direct mechanical introduction due to penetrating trauma or a surgical procedure [2]. Although brain abscess is generally caused by *Streptococcus* spp., *Peptostreptococcus* spp. etc, yeasts such as *Candida* spp., and other fungi-like *Aspergillus* spp. have also been implicated in 1-17% cases of brain abscess [1,3]. Over the last three to four decades *Candida* species have become the fourth cause of blood infection in hospitals [4]. Herein we report an immune-competent elderly male with brain abscess due to *Candida* species.

### Case Report

A previously healthy sixty two year old male presented to the Casualty Department of JSS hospital in an unconscious state. Patient had history of high grade fever, earache & vomiting for past fifteen days and was having pus discharge from left ear since past four days. On arrival, patient was in a comatose state, febrile (Temperature-100°F), pulse rate was 120/min, his blood pressure was 100/70 mmHg & his Glasgow coma scale was 4 (E1V1M2). Pupils were non-reactive and fixed. Systemic examination revealed no abnormality. Laboratory findings showed-white blood cell count was 19.9–109/L (Polymorphs 87%, Lymphocytes 13%, and Eosinophils 2%), Haemoglobin 15.3 gm% and platelet count 200–109/L. Erythrocyte sedimentation rate was 21 mm in the first hour. Serum electrolytes and rest of parameters were all within normal limits. His HIV status was non-reactive & HBsAg and HCV were negative. Contrast enhanced CT scan showed features suggestive of left parietal-temporal abscess (Figure 1). Immediately left temporal Burr whole craniotomy with aspiration of abscess was done under general anaesthesia. About 40 ml of foul smelling dark serosanguinous thick fluid was aspirated and sent for cytology, bacterial & fungal culture. KOH mount showed budding yeast cells along with pseudohyphae. Gram stained smear also showed budding yeast cells and pseudohyphae. No bacterial element was visualised in wet mount. The aspirated fluid was inoculated on to the blood agar, MacConkey agar & Sabouraud Dextrose agar. After 48 hrs of incubation on Sabouraud Dextrose agar, cream coloured, soft, smooth & pasty colonies were seen. Gram stain from colonies showed oval budding yeast cells along with pseudohyphae. Germ tube was negative. This isolate was further speciated by sugar fermentation and sugar assimilation test and it was

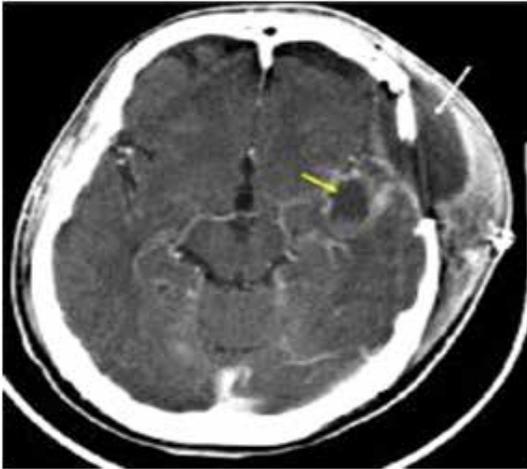
found to be *Candida tropicalis*. The isolate was also inoculated on Hi Chrome agar & in automated system (Microscan WalkAway 40plus system) which also identified the isolate as *Candida tropicalis* (Figure 2). The blood and urine cultures did not reveal growth on SDA, blood agar, and MacConkey agar. The oral, throat swabs and stool culture showed no fungal growth. Patient was started on Amikacin & Metronidazole. However patient succumbed to his illness after two days of antimicrobial therapy by cardio-respiratory arrest.

### Discussion

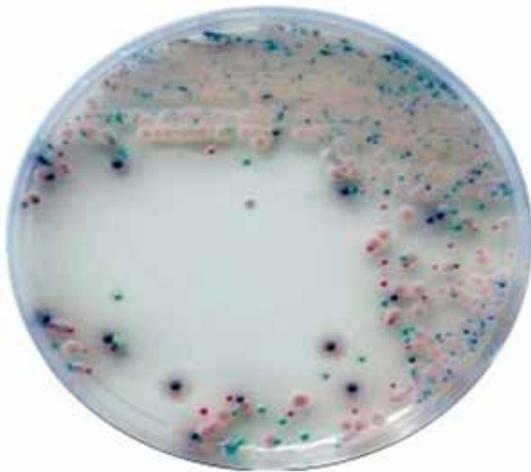
Brain abscesses in humans are quite uncommon because the brain is remarkably resistant to bacterial and fungal infection. This is due to brains abundant blood supply and the relatively impermeable blood-brain barrier [4]. Fungal brain abscesses are rare and usually occur in the immune-compromised, where mortality is high. *Candida* brain abscesses are often implicated in patients with candidaemia and endocarditis. Our patient must have taken broad spectrum antibiotic for the treatment of chronic suppurative otitis media which could have been one of the predisposing factor.

Most common source of microbial infection for brain abscess remains direct or indirect cranial infection arising from the paranasal sinuses, middle ear, and teeth. Seeding of the brain presumably occurs through the valveless veins and permit either direct or retrograde flow into the venous drainage systems of the brain. In our patient there is history suggestive of Chronic Suppurative Otitis Media (CSOM), which continues to be the most frequent predisposing condition in all age groups. This CSOM could have been the entry point from where the infection must have extended to temporal-parietal lobes due to arterial dissemination of infective emboli [5,6]. Diagnosis of brain abscess is based on clinical suspicion and imaging techniques such as CT or MRI scanning [7]. *Candida* typically produce multiple micro abscesses and granuloma which are too small to be detected radiologically, although a single macro abscess, as in this case, may occur [8]. In this case report brain abscess was caused by *Candida tropicalis*. However, a case report by Baradkar et al from India showed isolation of *Candida albicans* from brain abscess [7]. Other studies from worldwide also showed isolation of *Candida albicans* from brain abscess [9].

In conclusion, fungal brain abscess although is a rare entity should be kept in mind when handling brain abscess case as they are associated with a high mortality rate. Aspiration provides the clinical specimen for the diagnosis by culture, which provides the best opportunity to make a microbiological diagnosis. Thus an early recognition by using simple microscopy can assist in prompt initiation of appropriate antifungal therapy.



**Fig. 1** contrast ct showing left temporal lobe abscess.



**Fig 2.**Hi Chrome agar showing blue coloured colonies suggestive of *Candida tropicalis*

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