

A CASE OF INTRACRANIAL FUNGAL GRANULOMA MASQUERADING AS MENINGIOMA: THE DIAGNOSTIC DILEMMA

Pathology

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ABSTRACT

Intracranial Fungal Granuloma is a rare clinical entity. It is potentially life threatening; however amenable to treatment if diagnosed early. Meningioma elicits an uncanny resemblance to Intracranial Fungal Granuloma both clinically and radiologically. Here, we present a case study of a 42-year old gentleman who presented with headache, lethargy, lower limb paresis and fever. CEMR Brain findings and clinical examination collectively hinted towards the provisional diagnosis of Meningioma. The patient underwent craniotomy and surgical decompression. Histopathological examination of the excised specimen revealed the diagnosis of Intracranial Fungal Granuloma. Thereafter the patient was administered antifungal therapy to which he responded and was discharged subsequently.

KEYWORDS

Intracranial Fungal Granuloma, Meningioma, Histopathological examination.

INTRODUCTION:

Fungal infections of the brain are rare. They are life threatening unless adequately treated. They pose a diagnostic challenge to clinicians and radiologists because of their resemblance to neoplastic lesions based on clinical features and imaging studies alone¹. They have high rates of death and morbidity, but early diagnosis and prompt treatment with surgery and antifungal therapy may cure a significant number of patients¹. Although fungal infections themselves are relatively frequent, acute granulomatous masses due to fungal infections are rare. Meningiomas are slow growing primary CNS tumors arising out of meninges. Both Meningioma and Intracranial Fungal Granuloma may present with similar clinical features of headache, spastic paresis of lower extremities, focal seizures and diplopia. Rarely an Intracranial Fungal Granuloma may be provisionally diagnosed as Meningioma and treated thereafter. However, histopathological examination confirms the diagnosis of Intracranial Fungal Granuloma.

Case Report:

A 42 years old diabetic, male patient presented with headache, lethargy, lower limb paresis and fever for 12 days. Headache was insidious in onset, gradually progressive in nature, aggravated on office work and relieved temporarily on OTC medications. Lethargy and lower limb paresis were insidious in onset and gradually progressive in nature. On general examination, the patient had moderate pallor and temperature was 101.2^o F. Neurological examination of Higher Functions and Cranial Nerve Functions was within normal limits. There was no sensory neurodeficit. Motor examination of upper limbs was within normal limits. Motor examination of lower limbs revealed tone and power to be decreased bilaterally. No abnormality could be detected on examination of Respiratory, Cardiovascular and Gastrointestinal system. He was a chronic smoker for last 20 years. Hematological investigations revealed pancytopenia. CSF study report was Negative for Malignancy and showed Lymphocytosis. CEMR Brain findings (Fig1, Fig2 and Fig3) denoted an avidly enhancing mass lesion in the parasagittal location of parietal lobe with perilesional edema and Dural Tail Sign, likely of Meningioma.

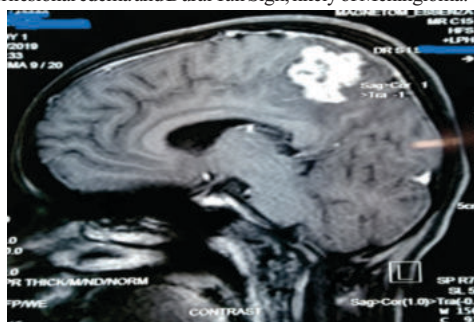


Fig1: CEMR Brain (in sagittal section)

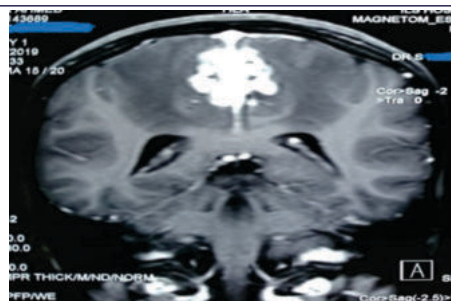


Fig2: CEMR Brain (in coronal section)

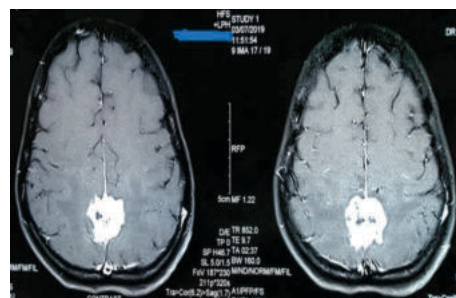


Fig3: CEMR Brain (in axial section)

Patient underwent Craniotomy and surgical decompression. Post operatively patient continued to remain febrile. Histopathological examination of the excision biopsy specimen revealed it to be a case of Intracranial Fungal Granuloma showing giant cells (Fig4 and Fig5) and narrow septate hyphae with acute angle branching (Fig6 and Fig7), suggestive of *Aspergillus*.

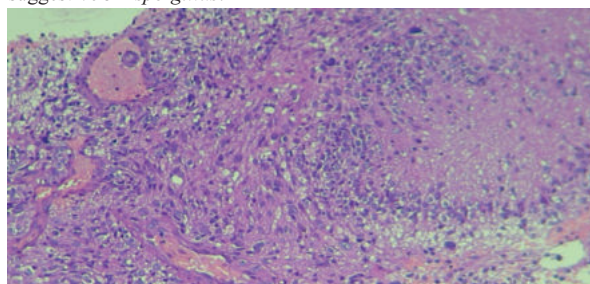


Fig4 : HPE of excision biopsy specimen (H&E stain, 10X) showing giant cell.

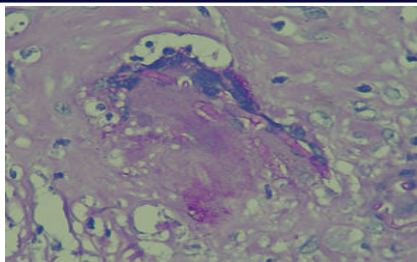


Fig 5: Giant cell with septate fungal hyphae (PAS stain, 40X).

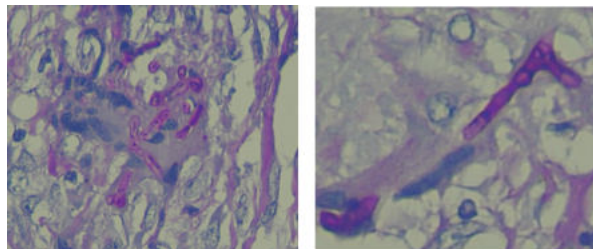


Fig 6 and Fig 7: Acute angle branching of narrow septate hyphae (PAS stain, 40X).

Patient was subsequently administered with an aggressive course of antifungal therapy. The patient responded to this treatment and was discharged within a week.

DISCUSSION:

Meningiomas are extra-axial tumors and represent the most common tumor of the meninges. Typical meningiomas appear as dural-based masses isointense to grey matter on both T1 and T2 weighted imaging enhancing vividly on both MRI and CT⁴. Fungal infections of brain can cause fatal meningitis, encephalitis, abscess formation, vasculitis, or granulomas. The incidence of fungal infections of brain is on the rise due to increased life expectancy, large aging population, malignancy, widespread use of immunosuppressive drugs, longer survival of immunocompromised patients, increased frequency of AIDS and poor nutritional status³. A high index of suspicion for Intracranial Fungal Granuloma should exist for patients with an immunocompromised status and diabetic patients¹. Early diagnosis, aggressive surgical decompression, and a course of promptly initiated antifungal therapy are associated with a better prognosis¹. Fungal granuloma is composed of aggregates of macrophages or histiocytes, inflammatory cells and a caseating necrosis. In this case treatment was initiated with provisional diagnosis of Meningioma followed by surgical resection. However, the patient could be adequately treated and saved only after the challenging diagnosis of Intracranial Fungal Granuloma at a critical junction which altogether paved the way for a definitive and curative therapy for this patient. Therefore, this case report further reinforces the time-tested role of histopathological examination as a gold standard for diagnosis of intracranial fungal granuloma.

CONCLUSION:

The challenging diagnosis of Intracranial Fungal Granuloma could be confirmed only by histopathological examination. Intracranial Fungal Granuloma thus may be considered as one of the differential diagnoses of Meningioma. Intracranial fungal granulomas are uncommon and constitute a surgically amenable and potentially curable group².

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