CASE REPORT

INCIDENCE OF OLIGODENDROGLIOMA IN A PATIENT WITH MULTIPLE SCLEROSIS. A CASE REPORT

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ABSTRACT

The occurrence of oligodendroglioma is rare in the presence of multiple sclerosis (MS) and only few cases have been reported. It might be clinically difficult to pick up a growing tumor in the setting of the relapsing and remitting nature of multiple sclerosis. The pseudotumoural plaque of MS can masquerade the proper diagnosis of a brain tumour. We have reported a 22-year-old male who presented with vision loss and partial simple seizures. His radiological findings were suggestive of multiple sclerosis with a focus of abnormal signal in left frontal lobe. The patient underwent left frontal craniotomy and biopsy which revealed oligodendroglioma, and then he received EBRT (external beam radiotherapy) which markedly improved his symptoms.

Key **words:** Multiple sclerosis, Oligodendroglioma, Brain tumor

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INTRODUCTION

Multiple sclerosis (MS) is remitting and relapsing immune mediated disorder characterized by plaques of demyelination throughout central nervous system arise at multiple points in time. In MS most common presenting complains are blurred vision with decrease visual acuity, diplopia, nystagmus, paresthesia in extremities, ataxia, dysarthria, hyper-reflexia, ankle clonus and fatigue. Epilepsy and aphasia are uncommon features. Somatosensory, auditory and visual evoked response tests can identify MS lesion which are clinically silent. MRI is useful to exclude multiple sclerosis, however CSF shows mild lymphocytic pleocytosis, elevated IgG (80%) and oligoclonal bands (75-90%).

The presence of a brain tumor in the patient of MS, though rare, but can definitely prove to be a challenge to diagnose, since the lesions of MS can be mistaken as that of a tumor and vice versa.[1] Hence, it is more likely that true incidence of concurrence is not determined.[2]The causal relationship or separate course of each disease is ambiguously understood. Only few cases have been documented ,and this rare occurrence could be attributed to the cumulative effect of healthcare, efficient clinical surveillance and improved immunity during the course of MS.[3] The presentation of clinical deficits and the relapsing and remitting nature of MS can considerably mask the presence of a brain tumor and it thus may remain undiagnosed.[4] In most of the cases, MS precedes the development of brain tumors.[5] Oligodendroglioma may also resemble other brain tumors, therefore, histological evaluation is necessary.[6] Making a diagnosis of brain tumor in patients of younger age can also be of significance in mortality reduction.[7] The simultaneous appearance of both diseases might offer therapeutic limitations and thus call for a descriptive prognostic assessment to lower the mortality burden.[8]

This case report describes the patient of MS who developed oligodendroglioma.

CASE REPORT

A 22 year old male presented with history of blurred vision, paraperesis and fits for 06 weeks. Vital signs and general physical examination were normal. Neurologic examination showed intact higher mental functions, non-fluent dysphasia, decreased visual acuity on cranial nerve examination, power in lower limb 3/5, positive Babinski' sign with normal cerebellar functions and intact sensory system.

MRI brain revealed multifocal asymmetrical diffusely scattered abnormal signal areas seen involving grey and white matter junction of brain parenchyma at fronto-temporo-parietal region, associated with mild perilesional edema and mass effect, low on T1, high on T2 and flair images show incomplete ring enhancement. Finding are suggestive of multiple sclerosis (fig :1).

Patient underwent craniotomy and resection of frontal lobe SOL in March 2018. Histopathology favor oligodendroglioma WHO grade II with low Ki-67 index (Fig:2).

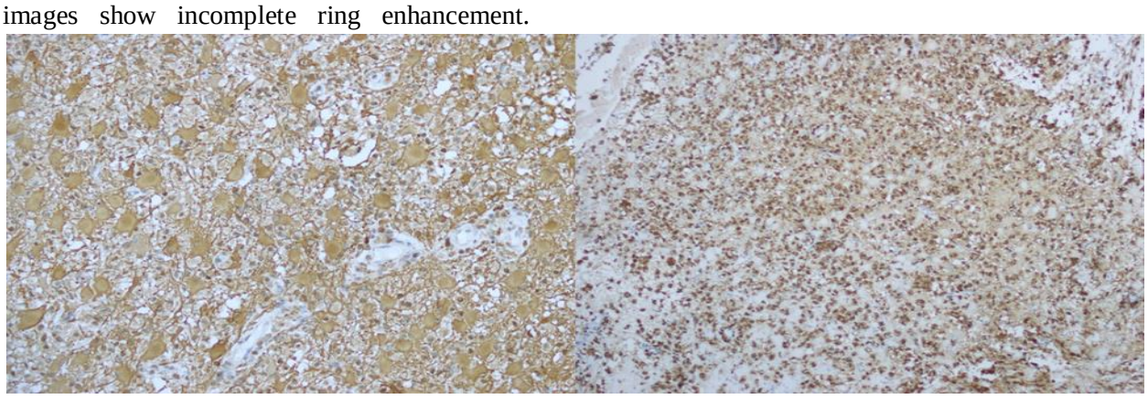
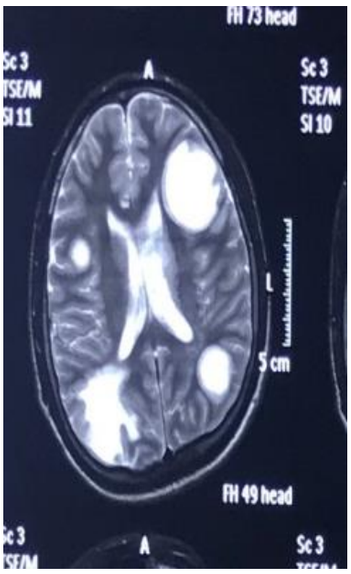
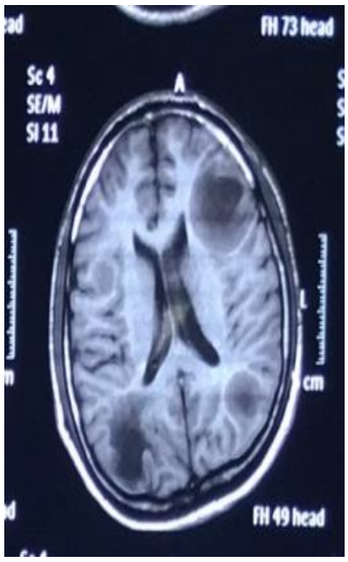


Fig2: Sections examined reveal glial tissue exhibiting a lesion composed of aggregates and sheets of cells with abundant clear cytoplasm, round vesicular nuclei and variably conspicuous nucleoi. On immune-histochemistry and polymerase chain reaction 1p36 &19q13 not detected however CD-68 was positive.





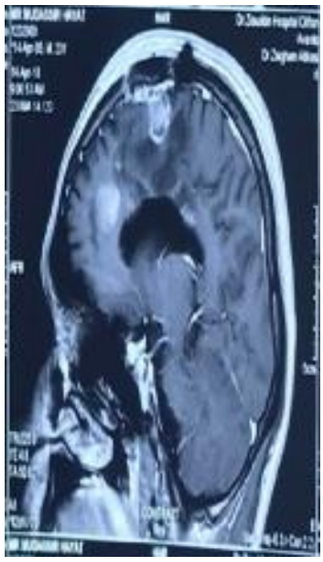


Fig:01 Fig:02 Fig:03 Pre-Op Axial Images Post-Op Sagittal

CSF detailed examination was unremarkable. CSF culture was negative for any bacterial (including AFB) and fungal growth. Post operative MRI brain showed evidence of multiple abnormal intensity areas in supratentorial location. These lesions were of variable sizes with perilesional edema.T1W and T2W MR Sequences showed lesions were hypointense and hyperintense respectively. (Fig:03). Patient underwent external beam radiotherapy (EBRT) by 3-dimensional conformal therapy technique (3D-CRT) 5400cGy in 27 Fraction over a period of 6 weeks. Patient symptomatically improved with infrequent seizures for which he is taking phenytoin. At follow up visit symptoms markedly improved, can walk with support, with power of all limb 4/5 and sensation intact however still suffering from slurred speech. Follow up MRI brain shows partial resolution of ODG lesion; however atrophic changes progressed significantly as compare to pre radiotherapy scan.

DISCUSSION

Multiple sclerosis (MS) is long lasting inflammatory disease cause by immune mediated attacks on myelinated axon in central nervous system resulting in physical disability of varying degree within 20-25 years in one third of patients. Symptomatic episodes that occur months or years apart and affect different anatomic locations are hallmark of MS. Concurrence of MS and glioma with causal relationship or by co-incidence is still under debate. A close relationship in both rare conditions with respect to some pathological features were first observed in 1973.[9] It was hypothesized that MS stimulate neoplastic transformation of brain's supporting cell e.g. reactive astrocyte and glial cell etc., hereditary or acquire like bipotential cytolytic agents i-e Papova virus are supposed to be causative factors.[9]

Differential diagnosis is first issue since MS plaque and glioma resemble each other[10]. Though no definite trail available showing management of concurrent MS and brain tumor however data from case report and experimental observation shows MS activity significantly decrease on both clinically and imaging (MRI) & safety of radiotherapy was described in one case report[11].Brain specific antigen related toxic effect also noted in cases of MS treated by surgery and radiotherapy[11,12]. MS relapse review also suggests that radiotherapy also act as a promoting factor. A study shows that sphingosine analog FTY720 found to effective in treating MS, this analog also shows apoptotic activity in vitro in stem cell derived from human Gliobastoma multiforme malignant brain tumor.[13,14.]

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