Bitemporal Multicentric High Grade Gliomas: A Case Report

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Citation

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Abstract

Multicentric gliomas are aggressive and uncommon lesions of the central nervous system(CNS) . Multicentric high grade gliomas often have a distinct neuroimaging pattern with poor prognosis. These multicentric gliomas may be either metachronous or synchronous.We present a case of synchronous high grade multicentric gliomas involving the temporal lobes in a young patient who presented with mild symptoms and had no neurological deficits .He was operated for both the lesions and underwent radiotherapy for the same. Although it is difficult to diagnose and treat multicentric gliomas the aim of the surgeon must be to remove the largest and /or the nearest and most accessible lesion without causing additional neurological deficits. Further management, either radiotherapy or chemotherapy is based on the histopathological diagnosis.

CASE REPORT

A 26 year old Right handed male came with complaints of bitemporal headache, nausea, and one episode of generalized tonic clonic convulsions. Patient was seen by a general practitioner and started on anticonvulsants. On general examination patient was well nourished, there were no neurocutaneous Markers on the body. On neurological examination the patient was conscious oriented, and the higher functions were normal. The motor, sensory system, were also normal, and there was no neurological deficit. Fundoscopy showed evidence of bilateral papilloedema.

CT scan with contrast showed 2 separate lesions involving the temporal lobes having a mixed density and enhancing on contrast (figure1). MRI with contrast also showed mixed intensity lesions the right being larger then the left side with enhancement on contrast and surrounding edema (figure 2).

Figure 1

Figure 1

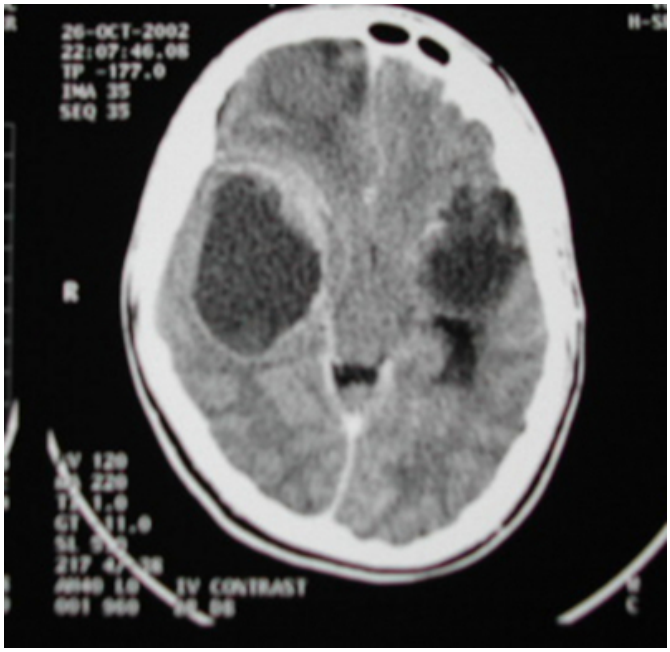
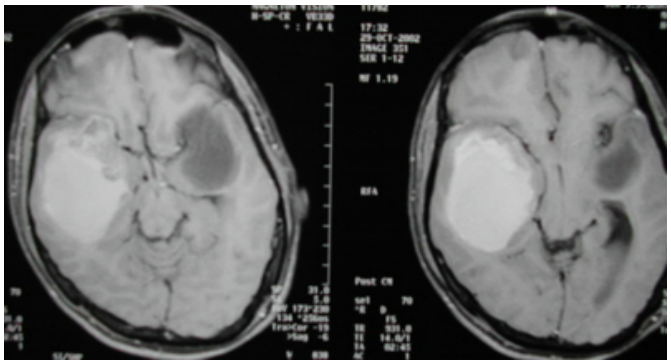


Figure 2

Figure 2



The patient was operated and a gross total excision was carried out on both sides. Grossly the tumor on the right side had a cystic and solid component which was vascular and had a firm consistency, the left side tumor was firm and vascular Post operative period was uneventful.

On histopathology the tumors on right side (figure.1) showed highly pleomorphic nuclei, with increased mitotic activity, with many multinucleate giant cells as well as gemistocytes. The tumor was highly vascular & there was endothelial cell proliferation. the tumor seemed to arise from the sub cortical white matter.

On the left side(Figure.2), the tumor was less cellular, with less degree of pleomorphism, gemistocytic differentiation was appreciated. The background showed fine microcystic degeneration .the tumor was highly vascular and endothelial cell differentiation was not appreciated. PTAH from both tumors brought out glial differentiation, thus suggestive of High grade gliomas.

Figure 3

Figure 3: Right side

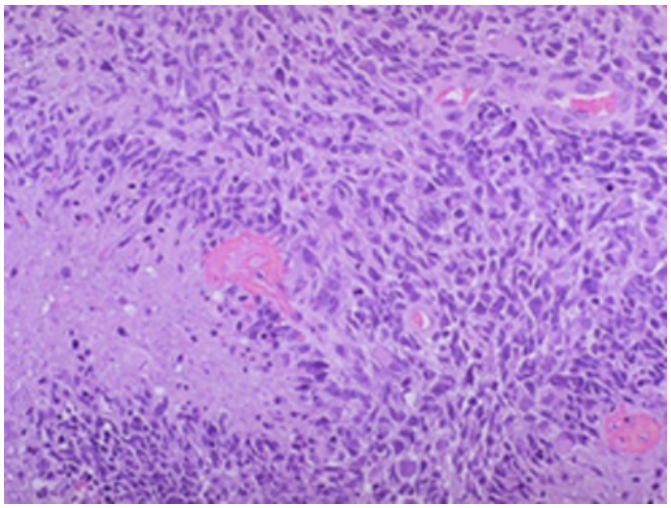
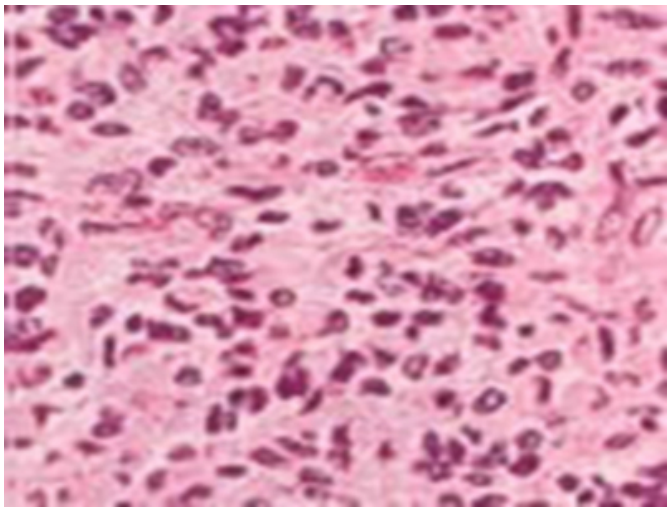


Figure 4

Figure 4: left side



The patient received 30 cycles of whole brain radiation 15 days after the surgical operation.

The patient came for the first follow up after 1 month, but expired within 3 months period.

DISCUSSION

Multicentric gliomas are uncommon lesions of the central nervous system with an unprecise rate of occurrence that diffusely infiltrate large portions of brain. Various incidences ranging from 2.3 to 9 % ([1], [2]) have been reported . Radiological features separate this group of brain tumours and patients have a very short life expectancy even after surgical excision, radiotherapy and chemotherapy.

Multicentric gliomas have a poor prognosis despite all treatment modalities. Djalilian ([3]) estimated the rate of multiplicity in malignant gliomas as 9%. In contrast to Russel and Rubinstein's rate of 4.5% ([4]) .There is still uncertainty on origin and mode of spread of malignant gliomas ([5],[6],[7]) . Willis suggested that evolution of multicentric gliomas is a two step process ([6]). In the first step, a large area of brain parenchyma undergoes neoplastic transformation. During the second phase, various rates of tumour proliferation within the larger field give rise to separate lesions.

Zulch suggested that the multicentric lesion represents metastasis from a primary focus via a yet unknown pathway([7]). Tumour dissemination via CSF pathways has been proposed as another reason for multicentric gliomas(5). No single theory can explain the pathophysiology of this rare entity.

Djalilian analyzed 100 consecutive patients with malignant gliomas in 1999 and he found that 9% of the patients had multicentric lesions, either

synchronous or metachronous, on radiological evaluation.

He suggested that the metachronous lesions could represent dissemination of tumor through the CSF pathways, radiation-induced tumors, radiation necrosis, or new tumor foci ([8]).Sundaresan also reported six cases with multicentric

glioma and stated that metachronous lesions occur more frequently than synchronous lesions ([9]).

In our case, the lesions were synchronous initially and we did not detect an additional lesion on MRI after radiotherapy. Actually, we do not definitely know why these tumors are multiple and the management is therefore always a problem.

Multiplicity of lesions has an obvious effect on management choices. The mass lesion mostly responsible for clinical status must be removed for histopathological examination and to obtain clinical improvement. The location and size of tumour are also important in surgical removal . the aim of the surgeon must be to remove the biggest and nearest lesion that is most accessible without causing additional neurological deficit. Further management , either radiotherapy or chemotherapy is based on histopathological diagnosis.

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