

A rare case of glioblastoma multiforme with bone metastasis

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ABSTRACT

Glioblastoma multiforme (GBM) is the most aggressive form of primary brain tumor. The median survival time is 14 months. Extracranial metastases from GBM are even rare, with a reported frequency of only 0.44%. A rare case of GBM with bone metastases is presented in this paper. This is the first such case reported at Gujarat Cancer Research Institute, which is a radiotherapy center with maximum cancer patient load in India.

Key words: Bone metastasis, extracranial metastases, glioblastoma multiforme, radiotherapy

INTRODUCTION

Gujarat Cancer Research Institute is the largest Asian Cancer Institute with about 200,000 cancer patients treated annually. No other institute in India deals with so many patients. Yet this is the first case of distant metastases in glioblastoma multiforme (GBM) reported by the institute, which clearly shows the rarity of this case report. Very few such cases have been reported in the literature in the past. Because of the limited number of patients, no randomized trial for the treatment of such cases is possible. GBM is the most aggressive brain tumor. Even with concurrent temozolomide, the survival has not improved beyond 14–18 months.^[1,2] Due to the short survival rate, distant metastasis is very rarely seen in patients with GBM.^[3] One such rare case is reported here.

CASE REPORT

A 48-year-old male presented with headache and episodes of seizures for 3 months. Magnetic resonance

imaging (MRI) brain [Figure 1] revealed a mass lesion in the body of corpus callosum and right parafalcine gyrus with perilesional edema in the right fronto-parietal lobe. Stereotactic biopsy was done, and histology was suggestive of GBM. Radical radiation therapy (RT) 60 Gy/30 Fr at 2 Gy/Fr was given concurrent with tablet temozolomide 100 mg OD. RT was completed within 6 weeks. At 1 month of follow-up, the patient presented with a headache but neurological examination was normal, so he was managed symptomatically and adjuvant tablet temozolomide 250 mg was started. After two cycles of adjuvant temozolomide, the patient presented with a backache. Bladder and bowel control were still present. MRI brain showed 18 mm × 24 mm × 18 mm hypointense lesion on T1-weighted image with peripheral nodular enhancement in the body of corpus callosum with diffuse perilesional edema. MRI spine [Figure 2] showed wedge compression in D4 and L2 vertebra suspicious of metastases. Computed tomography-guided biopsy from the L2 vertebra showed metastatic GBM. The patient had become paraplegic, lost bowel and bladder control. In view of, the poor general condition of the patient, a single high-dose fraction of 8 Gy was given to D4 and L2 vertebra. The patient was advised for bevacizumab, but there were financial constraints.

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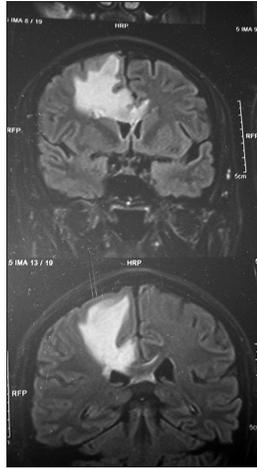


Figure 1: Magnetic resonance imaging brain before radiation therapy showing a mass lesion on T1-weighted image in the body of corpus callosum and right parafalcine gyrus with perilesional edema in the right fronto-parietal lobe

Hence, he was kept on best supportive care. The patient is still alive 4 months after the detection of metastasis.

DISCUSSION

Extracranial GBM metastases occur in only about 0.4–2.0% of patients with GBM. The low incidence of metastases may be because of lack of lymphatic drainage in brain.^[1,2] Furthermore, the overall survival in patients with GBM is 10–16 months,^[3] and this may be another cause of the few cases reported with distant metastases.^[4] The hypotheses proposed for developing metastases in GBM is that in the patients who undergo stereotactic biopsy or craniotomy,^[5] the malignant cells get access to the dural vessels. A few cases of hematogenous^[6] metastases in bone, lung, and pleura have already been reported in the past. Vertebra is the most common site in the bone.^[7,8] Maximum patients have local recurrence also accompanied with distant metastases. A few cases of solitary distant metastases without local relapse have also been reported.

CONCLUSION

In the present case, the patient had undergone stereotactic biopsy and developed bone metastases within 2 months of completion of radiotherapy. Though the incidence is very low, but still research needs to be done for more treatment options in such cases.

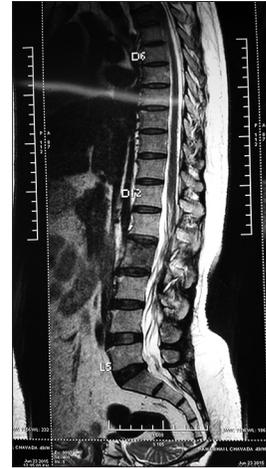


Figure 2: Magnetic resonance imaging spine showing wedge compression in D4 and L2 vertebra suspicious of metastases

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Conflicts of interest

There are no conflicts of interest.

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