

**CASE REPORT**

Glioblastoma Multiforme Metastasizing to Humerus and Craniospinal Axis

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Abstract

Glioblastoma multiforme (GBM) is the most common malignant brain tumour. GBM metastasizing to humerus has never been reported. This is the first such case of recurrent GBM to be reported in medical literature with both extracranial and cerebrospinal dissemination. Our case amply demonstrated the need to keep vigil and high index of suspicion while interpreting the clinical and radiological findings in GBM with a risk of CSF spread and systemic metastases.

Key Words

Glioblastoma multiforme (GBM), Malignant Brain Tumour

Introduction

Glioblastoma multiforme (GBM) is the most common malignant brain tumour. The median survival ranges from 12 to 18 months and 2-year survival is 10-26%. 90% of GBM recur within 4 cm from the original site (1). Symptomatic systemic metastases are reported rarely in GBM. This report deals with a middle aged female who was treated for GBM and subsequently developed symptomatic simultaneous left humerus and vertebral bone metastases, and disseminated leptomeningeal disease and cerebellar and intramedullary deposits.

Case Report

A 54 year old female presented in June 2010 with a 3 month history of progressively worsening headache and recurrent episodes of simple partial seizures involving right hand. A CT-scan of head revealed heterogeneously enhancing solid lesion with necrotic areas in left temporal lobe with mass effect (*Fig. 1*). An MRI of brain showed a heterogeneous intensity mass lesion in left temporal lobe with perilesional edema (*Fig. 2*). She underwent left temporal craniotomy and near total tumour excision

under general anaesthesia in August 2010. Her postoperative histopathology report showed features of GBM, immunopositive for p53 with MIB-1 labelling index of 25%. Specimen sent as thrombosed vessel showed fragments of the same tumour. She received adjuvant radiation therapy (60Gy/30fractions) to brain with concurrent temozolomide. She started complaining of low backache, pain in the neck and left shoulder. She was assessed with MRI brain and spine which showed metastatic deposits in the cerebellum, cervical spinal cord, cauda equina, vertebrae and left humerus (*Fig. 3-6*). She was treated with palliative RT (30Gy/10 fractions) to lumbar spine and cervical spine. She expired two year back.

Discussion

Recurrent GBM is associated with 6-months progression free survival rate of 15-21% and a median survival of 32 to 36 weeks (2). Cerebrospinal seeding has been reported in various autopsy studies to be 15-25% in supratentorial and 60% in infratentorial GBM.

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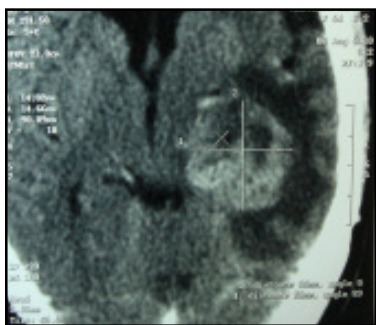


Fig 1. Showing CT-scan of Head Revealed Heterogeneously Enhancing Solid Lesion with Necrotic Areas in Left Temporal Lobe with Mass Effect

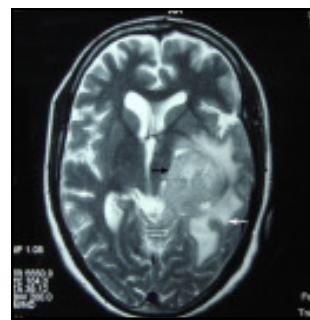


Fig.2 Showing MRI of Brain Showed a Heterogeneous Intensity Mass Lesion in Left Temporal Lobe with Perilesional Edema



Fig. 3-6 Showing MRI Brain and Spine Which Showed Metastatic Deposits in the Cerebellum, Cervical Spinal Cord, Cauda Equina, Vertebrae and Left Humerus

But most cases go unnoticed because of short survival. Symptomatic CSF seeding has been reported in 2% cases. Extracranial metastases are still rarer with reported incidence of 0.2- 1.2%. The sites of extraneural spread reported are to the lungs and pleura, cervical lymph nodes, bones, liver, bone marrow, spleen, skin and heart (3). The commonly involved bones are the vertebrae, ribs, sternum, skull and pelvis. GBM metastasizing to humerus has never been reported. This is the first such case of recurrent GBM to be reported in medical literature with both extracranial and cerebrospinal dissemination. Our case amply demonstrated the need to keep vigil and high index

of suspicion while interpreting the clinical and radiological findings in GBM with a risk of CSF spread and systemic metastases.

References

1. Brandes A, Tosoni A, Franceschi E, *et al.* Recurrence pattern after temozolomide concomitant with and adjuvant to radiotherapy in newly diagnosed patients with glioblastoma: correlation with MGMT promoter methylation status. *J Clin Oncol* 2009; 27:1275-79
2. Wong ET, Hess KR, Gleason MJ, *et al.* Outcomes and prognostic factors in recurrent glioma patients enrolled onto phase II clinical trials. *J Clin Oncol* 1999; 17:2572-78
3. Zhen L, Yufeng C, Zhenyu S, Lei X. Multiple extracranial metastases from secondary glioblastoma multiforme: a case report and review of the literature. *J Neurooncol* 2010; 97:451-57