Extensive Spinal Glioblastoma Multiforme: A Case Report

Jha R* Gupta A**
*M Ch Neurosurgery Resident, NAMS, Bir Hospital, **Head, Functional and Radiosurgery Medanta, The Medicity, India

ABSTRACT

Spinal Glioblastoma Multiforme is a rare disease which is difficult to manage even after good investigation and reasonable care.

KEY WORDS: Spinal Cord, Glioblastoma Multiforme, Hydrocephalus

INTRODUCTION

Glioblastoma Multiforme (GBM) is a common glial tumour of the adult brain. However, primary GBM of the spinal cord is a rare condition. Glioblastoma Multiforme of the conus medullaris is a rare and highly aggressive entity that can quickly progress to a dismal state. Proper early histologic diagnosis with close clinical and radiological follow-up is important for the management of this very aggressive tumour. We present a rare case of Glioblastoma Multiforme extending from conus to thalamus, highlighting the need for awareness and prompt treatment.

CASE REPORT

A 29-year-old young male presented with symptoms in the form of numbness and weakness of the right lower limb below knee for the duration of 8 months prior to admission in our hospital. Over next 1-1½ months the left lower limb and lower abdomen also developed hypoesthesia. Examination revealed right sided ankle weakness that was MRC Grade 4 (Medical Research Council, UK) and dissociated sensory loss to pain and temperature involving L4 through S1 dermatomes, left more than right.

He was investigated, and an MR study of the spine carried out that revealed hyperintensities in the conus region with subtle cord expansion. He was advised to undergo a biopsy from this lesion, given the progressive course of the disease, coupled with cord expansion. At this time, he chose to take treatment elsewhere, and was treated with bolus of intravenous methylprednisolone. This resulted in some degree of improvement, and he began walking without support.

Five months later, the patient started having tingling, numbness and paraesthesia over finger tips. Over next 15 days his weakness increased and involved both of upper limbs. He presented to us in the Emergency Room with respiratory distress and severe quadriplegic. On examination he was conscious but very restless. Cranial nerves were normal, tone was decreased and power was 0/5 in all four limbs. There were occasional flicker of movements in the forearms. He was unable to co-operate for any sensory examination. All tendon reflexes were absent.

Repeat MR imaging showed a non-enhancing lesion, with cord expansion extending from the conus upto bilateral thalami (Fig 1-3). CSF was done which showed mild lymphocytic pleocytosis with increased protein without any malignant cells. At this time, the patient underwent partial L1 laminectomy and biopsy of intramedullary lesion. At surgery, the lesion was reddish-pink, moderately vascular, with no defined plane of cleavage from the normal spinal cord tissue.

Correspondence:
Dr Rajiv Jha, NAMS, Bir Hospital
email: medraji18@hotmail.com
Figure 1.

Figure 2.

Figure 3.

Histopathology was suggestive of GlioblastomaMultiforme (Fig4). Patient remained on ventilatory support and finally succumbed to the disease after 1 week.

DISCUSSION

Glioblastomamultiforme (GBM) is the most common glial cell tumor of the adult brain. However, primary GBM of the spinal cord is a rare condition. Spinal cord astrocytomas are rare, constituting approximately 1% of all primary central nervous system tumors, and 6 to 8% of all spinal cord tumors. Few spinal cord astrocytomas are anaplastic in nature; most are slow-growing lesions. Glioblastomas represent approximately 7.5% of all intramedullary gliomas and approximately 1.5% of all spinal cord tumors. Whereas supratentorial GBM is common in the middle-aged and elderly population, the spinal variety is mostly seen during the second and third decades and shows a predilection for the thoracic region.
Extensive Spinal GlioblastomaMultiforme: A Case Report

Like cerebral GBM, the exact etiology of spinal GMB remains uncertain; however, radiation exposure may play a role. Histologically, neuroglial cells outnumber neurons 5 to 10 times and comprise about one half the total volume of brain, as well as in the spinal cord. The relative ratio of glial to neuronal cells is constant in brain and spinal cord. However, because of the difference in the masses of the 2 organs, the absolute number of cells (including the glial cells) in the spinal cord may be 1/10th in number of those in the brain. This may be a contributory factor for the relative rarity of spinal involvement. The high rate of leptomeningeal spread has been attributed to the relatively thin parenchyma in the spinal cord, and hence, the shorter distance to the subarachnoid space.6

Because of the likelihood of early spread and poor prognosis in spinal GBM, we agree with the majority of authors who recommend aggressive multimodal therapy. Available modalities include surgery, radiotherapy, chemotherapy, and immunotherapy. In this case, as it was initially only confined to the conus, prompt management would have been made surgery feasible and beneficial. Later, because of extensive infiltration of the whole spinal cord and thalamus, it was practically impossible to remove any significant portion of the tumor without causing significant morbidity. However, in cases where the neurologic deficits are already permanent and the tumor occupies the lower lumbar or sacral segments, a total resection can be attempted, as described by Marchan et al,7 in the form of a cordectomy. Another option is to carry out a surgical transection, which holds value in not allowing the contiguous spread of disease cephalad, as happened in our patient. Because of the difficulties inherent in treating spinal GBMs, outcome is very poor and survival time after onset is 15 months (range 6–28 months).8,9 The most important factor in deciding the prognosis is histologic grade10; therefore, every attempt should be made to obtain a tissue diagnosis. Intracranial dissemination through cerebrospinal fluid channels is a common feature in spinal GBM, making the prognosis even worse.6

Above described patient had many uncommon features such as an extensive lesion from conus to thalamus, the lesion being non-enhancing on contrast injection as well as the absence of malignant cells in the cerebrospinal fluid. Unfortunately, patient was in treated as a case of NeuromyelitisOptica for 6 months elsewhere which resulted not only in delay in diagnosis, but also in the lesion becoming inoperable. Patients with diffuse enlargement of cord, with a progressive clinical course even in the absence of any enhancing lesion should preferably be subjected to biopsy in order that early diagnosis and timely management of the disease can be carried out.

CONCLUSION:

GBM of the spinal cord is a rare condition. This condition should be suspected in any patient with a diffuse enlargement of the spinal cord, even in the absence of post contrast enhancement especially with a progressive clinical history. A timely diagnosis is very important for early aggressive treatment in order for the patient to have the best chance for survival which sadly remains short.

REFERENCES