

# A case of symptomatic synchronous cervical and cerebellar metastasis after resection of thoracal metastasis from temporal glioblastoma multiforme without any local recurrence

Yasar Karatas, Sahika Liva Cengiz, Mehmet Erkan Ustun

Department of Neurosurgery, School of Medicine, Necmettin Erbakan University, Konya, Turkey

## ABSTRACT

Glioblastoma multiforme (GBM) is the most common and the most malignant primary intracranial tumor in adults and it usually occurs between the age of 40 and 60 years. It is local invasive and recurrent tumor and hence that has a poor prognosis. However, recent advances in tumor surgery, irradiation and chemotherapeutic agent permit long survival and metastasis which is symptomatic. Previously studies reported spinal metastasis, but we report a first case of synchronous symptomatic cerebellar and cervical spinal metastasis after resection of symptomatic thoracic spinal metastasis from temporal GBM without any recurrence of excision areas.

**Key words:** Glioblastoma multiforme, metastasis, prolong survival, surgical excision

## Introduction

Glioblastoma multiforme (GBM) was first described by Rudolph Virchow in 1863.<sup>[1]</sup> Temporal lobe is the most frequent tumor localization in cerebral hemispheres, but cerebellar localization is very rare.<sup>[2]</sup> Standard therapy is surgical resection and chemo-radiotherapy for GBM. Local control of the tumor is the major problem and recurrence usually occurs at the radiotherapy zone.<sup>[3]</sup> Median survival of the patient, diagnosed GBM, is 6 and 12 months.<sup>[4]</sup> At 3 years survival, after the first operation for GBM defined as a long survival and occur about 2-3% of the patient. This poor prognosis is due to high proliferation rates and extensive invasion into the brain tissue.<sup>[5,6]</sup> Hence that the symptomatic metastasis of the GBM seems very rarely.

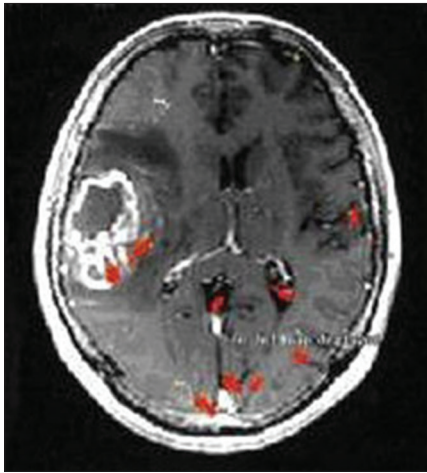
## Case Report

The present case report is about a 55-year-old male patient who was referred to our department for management of headache persisted for a few months. Neurological examination showed that facial paralysis. Magnetic resonance imaging (MRI) of the brain revealed the presence of a mass in the right temporal lobe about 5 cm × 4 cm × 6 cm [Figure 1]. A right frontotemporal craniotomy was performed. Total removal of the tumor was performed. The histopathological study yielded a diagnosis of GBM [Figure 2]. Adjuvant radiotherapy and chemotherapy was performed. The patient presented with weakness of both lower extremities after 2 years of operation. Neurological examination revealed spastic paraparesis (2/5) and sensory impairment below T3 and bilateral positive Babinski response. There was no recurrence on brain MRI. Contrast enhanced thoracal spine MRI showed intramedullary lesion at T4-T7 levels [Figure 3]. Total tumor removal was performed through thoracal 4-7 total laminectomy. Histopathological examination of the specimen revealed GBM. Chemo-radiotherapy was performed again. Physiotherapy proposed after 1 month of operation. There was an improvement on paraparesis after 6 months. Then 5 years later of the first operation, the patient refer to our clinic for progressive quadriparesis, headache, nausea and vomiting. Both lower and upper extremities deep tendon reflexes were hyperactive. Brain and cervical MRI showed cerebellar and cervical mass at C5-6 level [Figure 4]. Both two

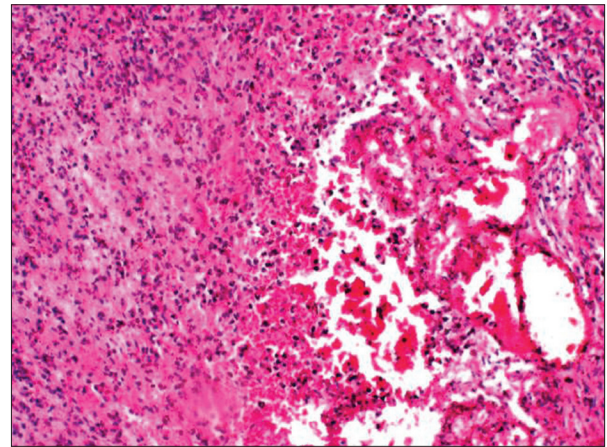
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## Address for correspondence:

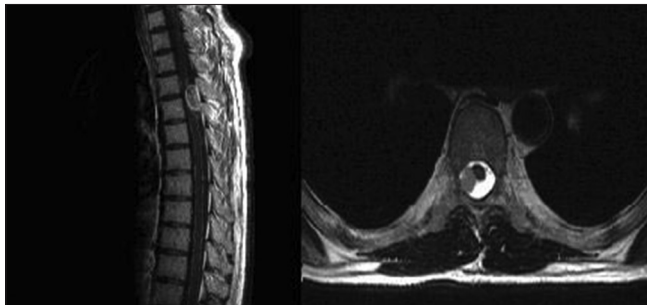
Dr. Yasar Karatas, Department of Neurosurgery, School of Medicine, Necmettin Erbakan University, Konya 42080, Turkey.  
E-mail: yasarkrts@gmail.com



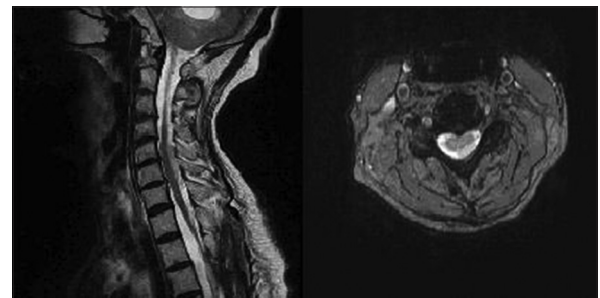
**Figure 1:** Preoperative axial MRI showed right temporal glioblastoma multiforme



**Figure 2:** Photomicrograph of the tumor demonstrating regions of necrosis, microvascular proliferation and pleomorphism (original magnification, x100; haematoxylin-eosin stain)



**Figure 3:** Contrast enhanced thoracal spine MRI showed GBM metastasis



**Figure 4:** Brain and cervical MRI showed cerebellar and cervical metastatic mass of GBM

tumors removal was performed totally. Histopathological study revealed GBM. The patient died due to pulmonary embolism while medical therapy was going on.

## Discussion

Metastasis of the GBM was first described by Davis in 1928.<sup>[7]</sup> The metastasis of the primary central nervous system tumor is very rarely observed. Although GBM metastasis have been reported in autopsy series, it is very rare that come across symptomatic spinal metastasis of GBM.<sup>[8]</sup> The clinical and autopsy series of GBM metastasis show different frequency. Stark *et al.* in their study have reported 3 cases in their 267 patient, diagnosed GBM. The incidence of spinal metastasis has been reported in the range of 20-40% in autopsy series. This is associated with short survival of patient.<sup>[1,9]</sup> Our patient gave symptoms because of his long survival. The most common localization of spinal metastasis is lower thoracal, upper lumbar and lumbo-sacral junction.<sup>[10]</sup> Our case has thoracal metastasis first and then cervical and cerebellar metastasis has been seen at the same time. This is the first case has a both cervical and cerebellar GBM metastasis without local recurrence of intracranial and spinal GBM. The symptoms of glioblastomas associated with the location of the mass and its rate of proliferation.

Glioblastomas usually present with generalized symptoms that are caused by increased intracranial pressure. The most common clinical presentations are headache, seizure, mental disturbance, nausea and vomiting. Headache is the most frequent initial symptom.<sup>[11]</sup> Our patient presented with headache due to increased intracranial pressure and facial paralysis associated with temporal location. The clinical signs of the spinal metastasis are sensory symptoms, radicular pain, back pain, paraparesis, quadriparesis, paraplegia, bowel and bladder and sexual disorders.<sup>[12]</sup> The most common symptom is paraparesis reported by Schwanager *et al.* in the year 1992 and usually seen in the young patient.<sup>[8]</sup> Our patient was 55 years old and has paraparesis when the spinal thoracal metastasis was diagnosed. The patient with spinal metastasis of GBM has 1 year survival and die in a few months after became symptomatic. However, our case live 5 years after spinal metastasis has diagnosed.<sup>[13]</sup>

## Conclusion

As a result, GBM can spread of cerebrospinal pathways and physicians must be careful about the symptoms. Moreover, it is important that total excision is associated with long survival and symptomatic metastasis can be seen in the patient with long survival.

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