

## Case Report

# Glioblastoma multiforme in 56 years old patient - A case report

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## Abstract

**Introduction:** Glioblastoma multiforme (GBM) is the most common malignant neoplasm of the central nervous system most frequently located in the supratentorial site and carries a grim prognosis.

**Case report:** A 52 years old male patient presented with headache and vomiting since 3 months. In MRI T2W images showed peripheral hypointense rim with central heterogeneously hyper intense signals suggestive of high grade glioma. Patient was underwent neurosurgery and resected tumor was sent to histopathology department.

**Discussion:** Grossly glioblastomas are relatively circumscribed and often appear to be more clearly demarcated from neighboring tissues. In our case microscopic examination showed presence of dense cellularity, striking pleomorphism, and zones of coagulative necrosis lined by 'palisading' tumor cells characterize the prototypical glioblastoma.

**Conclusion:** As GBM carries poor prognosis and the treatment of malignant gliomas is still a challenge for us, further research on this disease is needed so that better treatments may be developed to improve the quality of life and prognosis of these patients.

## Key words

Glioblastoma multiforme, Striking pleomorphism, Coagulative necrosis.

## Introduction

Glioblastoma multiforme (GBM) is the most common malignant neoplasm of the central nervous system, and carries a grim prognosis.

Although these gliomas may occur in any anatomical site within the central nervous system, they are most frequently located in the supratentorial site [1-3]. Males are slightly more

affected than females (male: female ratio = 1.5: 1). In terms of histology, anaplastic astrocytomas are characterized by hypercellularity, nuclear atypia, mitotic figures, nuclear pleomorphism and vascular proliferation; GBM also has associated necrosis [4, 5]. Surgical resection, followed by radiation therapy with adjuvant chemotherapy is the treatment of choice. Here, we are presenting a case of GBM with classical histological findings.

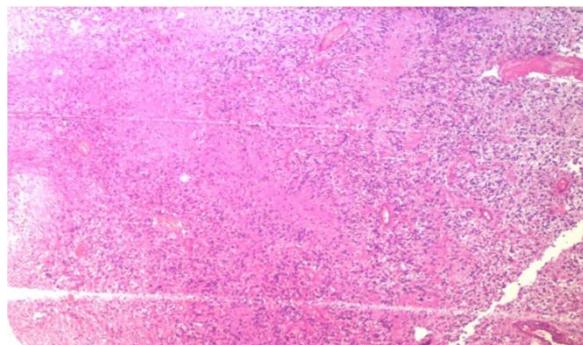
### **Case report**

A 52 years old male patient came to neurology OPD with chief complaint of headache and vomiting since 3 months. There was history of on and off seizures since 2 years. On examination, patient had generalised weakness and he was not able to follow commands. His hematological, serological and biochemical profiles were normal. MRI brain was done and T2W images showed peripheral hypointense rim with central heterogeneously hyper intense signals seen in cortical-sub cortical location of frontal lobe, right supracallosal sulcus extending into anterior part of corpus callosum extending left side. Overall findings were suggestive of possibility of high grade glioma. Patient underwent neurosurgery and resected tumor was sent to histopathology department. Multiple sections were prepared and stained with H and E stain. On histopathological examination, cerebral tissue showed areas of elongated cells with pleomorphic and hyper chromatic nuclei that are associated with vascular neof ormation and also areas of haemorrhage and necrosis (**Photomicrograph - 1, 2, 3**).

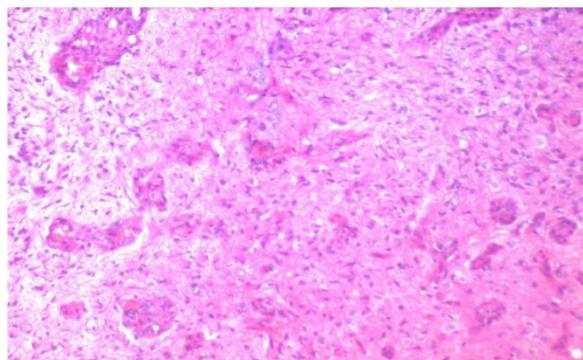
### **Discussion**

The prevalence of primary central nervous system tumors is 130.8 per 100,000. Of these tumors, 20.3% are glioblastoma. The incidence of GBM increases with age, with the median age at diagnosis of 64. In our case patient presented with GBM at 52 years. The tumor is 1.6 times more common in males than females.

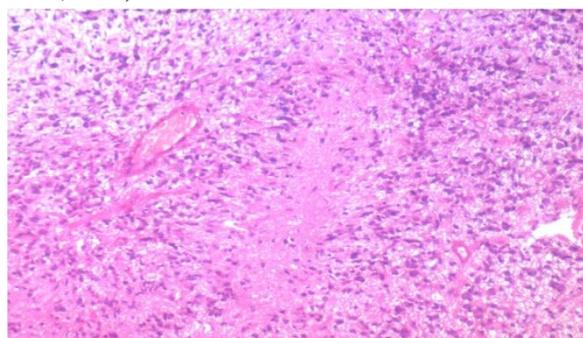
**Photomicrograph - 1:** Hypercellularity and areas of necrosis (H&E stain, 4X).



**Photomicrograph - 2:** Marked nuclear atypia, mitotic figures and vascular proliferation (H&E stain, 10X).



**Photomicrograph - 3:** Zone of coagulative necrosis lined by palisading tumor cells (H&E stain, 10X).



High-grade gliomas present with a variety of signs and symptoms that chiefly depend on their age and the tumor localization. The rate of neurological impairment is characteristically quick and may range from months to days. Seizures may herald the onset, especially when tumors are close to the cerebral cortex. Other common clinical manifestations include hemiparesis, visual deficit, headache, and, in

some cases, signs of intracranial hypertension due to an obstruction of the CSF pathways [2-8]. In our case, the first clinical manifestation was headache and vomiting. A brain MRI is the investigational tool of choice for determining a GBM diagnosis [1, 2, 4, 8]. In our case also MRI brain was done and T2W images showed peripheral hypointense rim with central heterogeneously hyper intense signals seen in cortical-sub cortical location of frontal lobe which is characteristic feature of GBM.

Grossly glioblastomas may seem relatively circumscribed and often appear to be more clearly demarcated from neighboring tissues. Hemorrhagic discoloration and foci of yellow softening indicative of coagulative necrosis impart a variegated appearance. On histologic study, the glioblastoma is a highly cellular and mitotically active neoplasm. Differentiated elements may be intermingled with bizarre multinucleated tumor giant cells, spindled, epithelioid, rhabdoid, signet ring [9-12] or small anaplastic forms altogether devoid of identifying astrocytic features. In our case there was presence of dense cellularity, striking pleomorphism, and zones of coagulative necrosis lined by 'palisading' tumor cells characterize the prototypical glioblastoma.

The treatment of malignant gliomas is still a challenge. Chemotherapy and radiotherapy, far from being satisfactory treatment options, are associated with a significant rate of morbidity [13-16]. Present day treatment includes tumor resection, local radiotherapy and chemotherapy. Craniotomy patients often receive seizure prophylaxis after surgery. The risk of seizures post-craniotomy, however, is low. [17] The 1-year and 2-year relative survival rates for GBM are 29.3 and 8.7 respectively, with less than 4% of those diagnosed with GBM surviving more than 5 years [18].

## Conclusion

Glioblastoma multiforme (GBM) is the most common malignant neoplasm of the central

nervous system, and carries a grim prognosis. Today also the treatment of malignant gliomas is still a challenge for us; further research on this disease is needed so that better treatments may be developed to improve the quality of life and prognosis of these patients.

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