Brain Tumor Center

Glioma

What is a Glioma?

- Tumor that grows from glial cells; the support cells in the brain.
- Glial cells support the neurons with energy and nutrients and help maintain the blood-brain barrier.

What are the different kinds of gliomas?

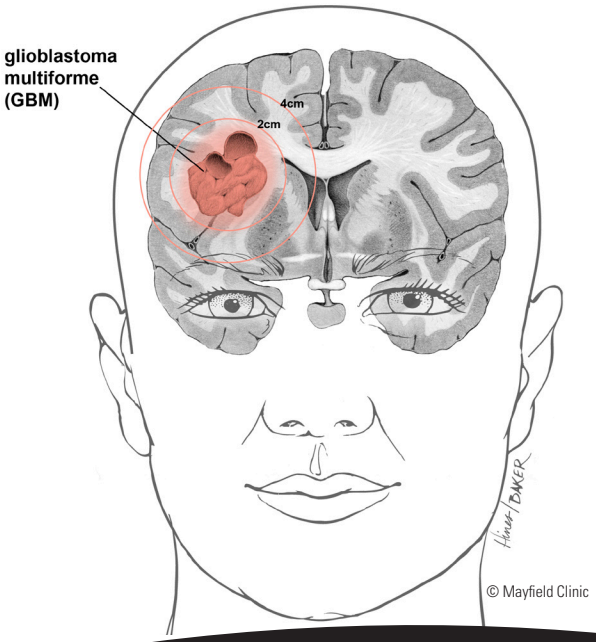
- Gliomas are graded based on analysis of tissue by a pathologist.

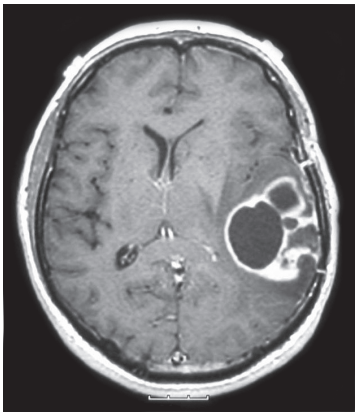
Grade I – Juvenile Pilocytic astrocytoma; typically occurs in children in the cerebellum or brainstem, and occasionally in the cerebral hemispheres. Grade I tumors are slow growing and relatively benign.

Grade II – low-grade glioma; includes astrocytoma, oligodendroglioma, and mixed oligoastrocytoma. Due to the infiltrative nature of these tumors, recurrences may occur.

Grade III – malignant glioma; includes anaplastic astrocytoma, anaplastic oligodendroglioma, and anaplastic mixed oligoastrocytoma. Grade III tumors grow faster and more aggressively than grade II. They invade nearby brain tissue with tentacle-like projections, making complete surgical removal more difficult.

Grade IV – glioblastoma multiforme (GBM); is the most aggressive and most common primary brain tumor. GBMs can spread quickly and invade other parts of the brain, with tentacle-like projections, making complete surgical removal more difficult. It is common for GBMs to recur after initial treatment.





MRI scan of a glioblastoma in the parietal lobe

UC Neuroscience Institute
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What are the symptoms?

- Symptoms occur specific to location of the tumor: headaches, weakness, numbness, personality changes or confusion. Seizures are also common.

What are the treatments?

- Biopsy of the tumor is often necessary to make a diagnosis and rule-out other kinds of tumors. PET scan may help confirm the diagnosis.

• Grade I – Juvenile Pilocytic Astrocytoma

Observation – for small tumors and tumors located in areas that are not candidates for surgery (brainstem) may be observed and may never grow.

Surgery – treatment of choice in most cases, complete removal can be curative.

Radiation – reserved for tumors unable to be surgically removed, residual tumor after surgery, or recurrent tumor.

• Grade II – Low grade Glioma

Observation – for tumors located in areas that are not candidates for surgery or high risk to cause loss of function after surgery. Some tumors may never grow, but others will enlarge or transform to a high-grade tumor warranting treatment.

Surgery – treatment of choice if tumor is able to be removed without causing loss of function. Complete removal can be curative.

Radiation – can be used either following surgery to slow residual tumor growth or in cases where surgery is not an option.

Chemotherapy – not typically used except for recurrent or some high-risk tumors.

• Grade III and Grade IV – Malignant Glioma / GBM

Observation – not typically an option due to malignant and rapid growth.

Surgery – maximal removal of the tumor is recommended if tumor can be removed without causing loss of function.

Radiation – recommended after surgery with multiple fractions over ~6 weeks.

Chemotherapy – given during radiation and after radiation for 6-12 months.

Recurrence is common for most patients, and typically occurs at the site of the initial tumor, usually within 2 cm. Treatment of recurrences can include additional surgery, radiation, chemotherapy or combinations.

Clinical trials – due to the aggressive nature of malignant gliomas, new investigative treatments are being developed and tested. These may include new chemotherapy drugs, immunotherapy, vaccines, or combinations. Please check our available clinical trials.