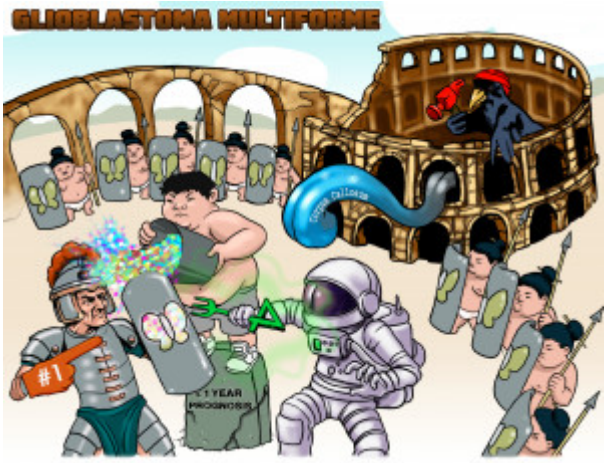
Glioblastoma Multiforme

Glioblastoma multiforme is a malignant, fast-growing tumor of glial cells. It is considered to be an infiltrative tumor of astrocytes, classified as a Grade 4 astrocytoma. It is the most common malignant primary lesion of the brain. . Among malignant brain tumors, glioblastomas have the worst prognosis.Survival is typically less than one year after diagnosis. This tumor tends to present in the cerebral hemispheres and is known as a butterfly glioma due to its ability to cross the corpus callosum in a pattern resembling a butterfly. Histologically and grossly, this tumor is characterized by its alternating areas of necrosis and hemorrhage. Anaplastic tumor cells may be seen bordering an area of central necrosis known as pseudo-palisading tumor cells. Since this tumor is derived from glial cells, it stains positive for glial fibrillary acidic protein (GFAP) in immunohistochemical studies.



PLAY PICMONIC

Most Common Malignant Primary Brain Tumor
#1 Foam-finger
Glioblastoma is the most common malignant primary brain tumor. It is most commonly seen in older adults with a peak incidence between ages 75-84. The most common primary brain tumors are meningiomas, and the most common cancers in the brain overall are metastases.

Grade 4 Astrocytoma
(4) Fork Astronaut
This tumor originates from astrocytes. It is the most aggressive and has the poorest clinical outcome of all astrocytomas, classifying it as a Grade 4 astrocytoma.

Can Cross Corpus Callosum
Coliseum with a structure resembling the corpus callosum
This tumor tends to present in the cerebral hemispheres and can cross the corpus callosum.

Butterfly Glioma
Butterfly Shields
This tumor is also known as a butterfly glioma due to its ability to cross the corpus callosum in a butterfly pattern. This can be visualized on MR imaging of the head.

Pseudo-palisading Tumor Cells
Sumo Palisading
Anaplastic tumor cells tend to be seen bordering areas of central necrosis in glioblastoma. These are known as pseudo-palisading tumor cells.

Areas of Necrosis and Hemorrhage
Necrosis-crow with Hammer
Glioblastoma is known for its alternating areas of necrosis and hemorrhage, which can be seen histologically as well as in its gross appearance. The rapid growth of this tumor means it quickly outgrows its blood supply, resulting in necrosis and hemorrhage throughout the area of the tumor.

Stain Astrocytes for Glial Fibrillary Acidic Protein (GFAP)
Glitter-FAT-guy
This tumor originates from astrocytes, thus it can be identified through special staining for glial fibrillary acidic protein.

Grave Prognosis
Gravestone
This tumor is very fast-growing and infiltrative. It has a poor prognosis of around 1 year after diagnosis with treatment.