SAQsTeam

CASE 1

Case Scenario:

A 60-year-old man comes to the emergency room with a history of progressive headaches, seizures, and mental status changes for the past 3 months. A magnetic resonance imaging (MRI) was made demonstrating an infiltrating neoplasm invading the cerebral hemispheres and crossing the midline with areas of necrosis and abnormal blood vessels. The patient was treated with Radiotherapy for 2 weeks, but he did not live for long and died after 8 months.

Regarding the case:

Q1)The lesions are most likely?
High grade malignant Glioma (Glioblastoma.)

Q2)What are the differentiation and grade of those lesions?
Low differentiation.
Grade 4 (IV).

Q3)From which cells did the lesion arise from?
Astrocytes.

Q4)Name 3 neurological examinations you will perform on this patient?
-Reflexes.
-Coordination.
-Feeling (sensation.)
-Pain response.
-Muscle strength.

Q5)Why was the patient treated with Radiotherapy and not surgery?
Because in this case surgery is a risky option, and the second best option for his case was to treat him with radiotherapy.

Q6)By crossing the midline, the lesion is called?
Butterfly glioma.

Q7)What are the most likely findings under the microscope?
Pseudopalisading necrosis and/or vascular proliferation.

General Questions:

Q1)What are the different types of Astrocytoma? Talk about each type.
-**Pilocytic:**
In children and young adults, commonly affect cerebellum, Relatively benign (grade 1)
-**Fibrillary:**
In adults -late 40s and older-, commonly affect cerebral hemisphere, classified into 3 variable grades:
Diffuse astrocytoma (grade 2.)
Anaplastic astrocytoma (grade 3.)
Glioblastoma (grade 4.)

Q2)Name the mutation that can cause primary glioblastomas?
-A mutation that causes amplification of the epidermal growth factor receptor (*EGFR*) gene.

Q3) Name the mutation that can cause secondary glioblastomas?
-P53 mutations.

Q4)Name the mechanism and the cells in charge for repair and scar formation in the brain?
-Mechanism: Gliosis.
-Cells: Astrocytes.

Q5)When is it possible to find areas of fibrosis in brain injury?
-We can find it to a limited extent in **penetrating traumas** and in **brain abscess**.

Q6)Explain how primary CNS neoplasm Metastasize?
-By crossing the Blood brain barrier (BBB) and going to other locations by the blood
-By moving toward the Subarachnoid space and getting into the CSF then perhaps moving towards the spinal cord.

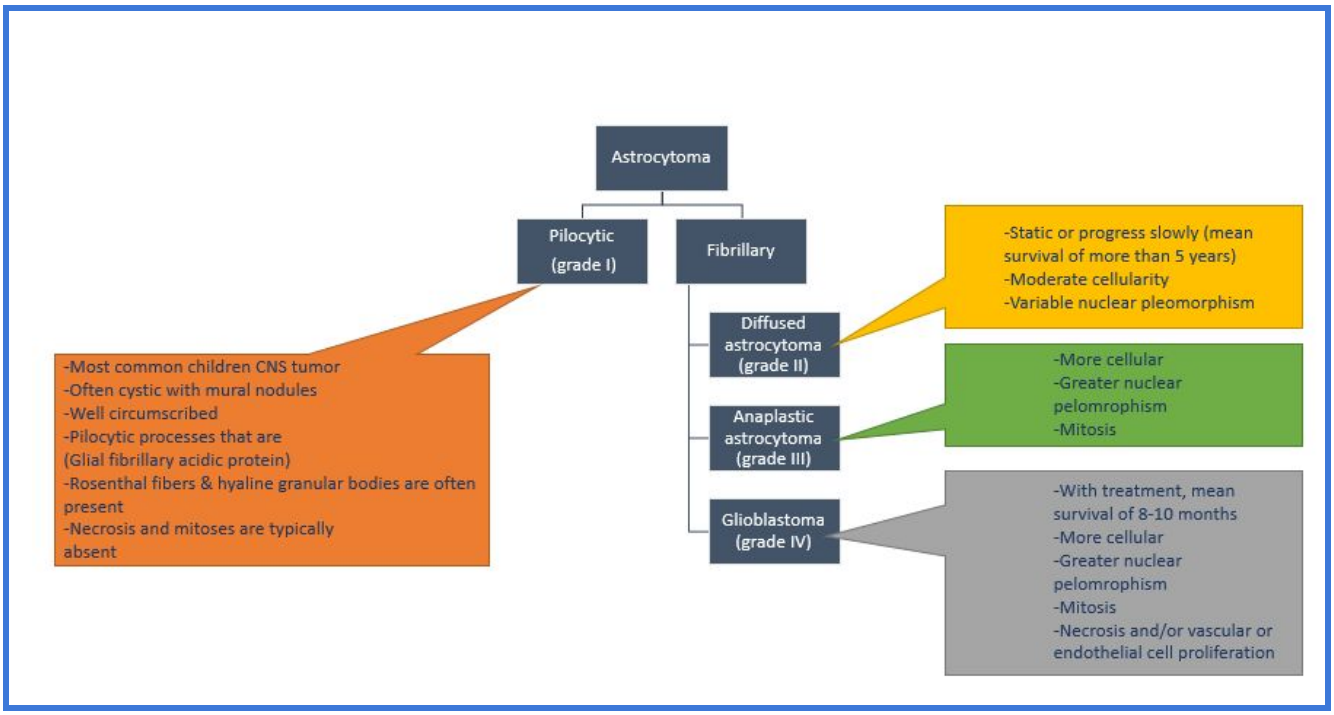
Further important information :

Remember:

1) -In childhood: tumors are likely to arise in the posterior fossa (Bottom of the skull)

-In adults: tumors are likely to arise supratentorial (Forebrain)

2) -Astrocytoma:



3) -Mutations that alter the enzymatic activity of two isoforms of the metabolic enzyme isocitrate dehydrogenase (IDH1 and IDH2) are common in lower-grade astrocytomas.

-Primary glioblastomas are characterized by amplification of the epidermal growth factor receptor (*EGFR*) gene.

-Secondary glioblastomas share *p53* mutations that characterized low-grade gliomas.

-Tumor cells of glioblastoma are GFAP positive.

Done By:

- ★ AbdulRahman Al Arfaj
- ★ Nawaf Al Fawzan