

### Pilocytic Astrocytoma:

- **Age group:** children
- **Location:** cerebellum
- **Grade:** 1
- **Special features:**
  - Often **cystic**, with a **mural nodule**
  - **Rosenthal fibers** & hyaline granular bodies are often present

### Diffuse astrocytoma (Grade II)

- Static or **progress slowly**
- Moderate cellularity
- Variable nuclear pleomorphism

### Glioblastoma (Grade IV)

All the features of anaplastic astrocytoma, **plus:**

**Special features:** progress quickly, pseudopalisading  
Necrosis and/or vascular or endothelial cell proliferation

#### **Associations:**

- secondary glioblastomas share **p53 mutations** that characterized low-grade gliomas
- While primary glioblastomas are characterized by amplification of the epidermal growth factor receptor (**EGFR**) **gene**

### Fibrillary Astrocytoma

- **Age group:** Adults in the 4<sup>th</sup> and 6<sup>th</sup> decade
- **Location:** Commonly cerebral hemisphere

### Anaplastic astrocytoma (Grade III)

- More cellular
- Greater nuclear pleomorphism
- **Mitosis**

### Medulloblastoma:

- **Age group:** children
- **Location:** cerebellum
- **Grade:** highly malignant (IV)
- **Special features:** sheets of anaplastic primitive ("small blue") cells

### Meningioma

- **Age group:** adults
- **Location:** it arises from the meningotheial cells of the Arachnoid layer
- **Grade:** variable, but the main subtypes are:
  - Syncytial
  - Fibroblastic
  - Transitional
  - Atypical meningiomas grade 2
  - Anaplastic (malignant) grade 3
- **Special features:** Whorled pattern of cell growth and psammoma bodies

### Schwannoma

**Age group:** fifth or sixth decade  
**Location:** often encountered within the cranial vault in the cerebellopontine angle  
**Genetic abnormality:** Sporadic schwannomas are associated with mutations in the *NF2* gene  
**Special features:** Cellular **Antoni A pattern** and less cellular **Antoni B pattern**  
nuclear-free zones of processes that lie between the regions of nuclear palisading are termed **Verocay bodies**

### Ependymoma

- **Age group:** first two decades of life
- **Location and age group:** ventricular system, including the central canal of the spinal cord.
- **In the first two decades of life:** they typically arise near the fourth ventricle
- **In adulthood:** they arise in the spinal cord.
- **Grade:** 2
- **Special features:**
- **Rosettes and perivascular pseudo-rosettes**

### Oligodendroglioma

- **Age group:** adults in their 40s and 50s
- **Location:** Cerebral hemisphere with a predilection to white matter
- **Genetic abnormalities:** loss of heterozygosity for chromosomes 1p and 19q
- **Grade:** 2 and Anaplastic form grade 3
- **Special Features:**
  - Round nuclei, often with a cytoplasmic halo (**ripe egg appearance**)
  - Blood vessels anastomose and create an interlacing pattern (**chicken wire appearance**)

## Astrocytomas

## Gliomas

## Brain Tumors