<table>
<tr><th></th><th colspan="3">Gliomas</th><th>Embryonal</th></tr>
<tr><th></th><th>Astrocytomas</th><th>Oligodendroglioma</th><th>Ependymoma</th><th>Medulloblastoma</th></tr>
<tr><td>Site & Incidence</td><td>-Commonest glioma

-Cerebellum in children

-Cerebrum in adults</td><td>-Oligodendroglial origin (cerebrum)

-Occurs in middle age</td><td>-Ventricles (more in 4th) & lower spinal cord

-Children and young adults.</td><td>-Roof of 4th ventricle

-Commonest childhood brain tumor</td></tr>
<tr><td>N/E</td><td>Soft, grey mass & ill-defined outline

Cut surface → cystic degeneration

High-grade (Grade IV) → necrosis + hemorrhage</td><td>Pink & firm

-Cyst formations

-Calcitication.</td><td>-Fleshy vascular mass

-Calcification.</td><td>-Fleshy, soft grey mass in 4th ventricle

-Penetrate brain → reach subarachnoid space</td></tr>
<tr><td>M/E</td><td>Neoplastic Astrocytes, branched cells with <u>fibrillary background</u> it may be of variable grades of differentiation.
<table>
<tr><td rowspan="1">Localized</td><td>Pilocytic (Grade I)</td><td>-↓Cellularity
-Mature Astrocytes + Fibrillary background
-Bipolar cells + stroma of rosenthal fibers</td></tr>
<tr><td rowspan="3">Diffuse</td><td>Diffuse fibrillary (Grade II)</td><td>-↑ Cellularity
-Pleomorphic Astrocytes + Fibrillary background

Gemistocytic astrocytoma (subtype)
Large astrocytes + Eosinophilic cytoplasm + eccentric nuclei</td></tr>
<tr><td>Anaplastic (Grade III)</td><td>-Pleomorphic less mature astrocytes
- ↑ Mitosis with no necrosis</td></tr>
<tr><td>Glioblastoma multiforme (Grade IV)</td><td>-Primitive astrocytes +↑ Pleomorphism
-Giant cells + Mitosis + Necrosis (palisaded)
-Vascular endothelial proliferation
(Glomeruloid pattern)</td></tr>
</table></td><td>-Rounded cells with uniform round nuclei

-Clear cytoplasm

-Focal calcifications</td><td>Elongated cells arranged perivascular in pseudorosettes.</td><td>Small dark stained cells arranged in rosettes.</td></tr>
</table>

	Meningioma	Tumors of peripheral nerves			Metastatic tumors
		Schwannoma	Neurofibroma	Multiple Neurofibromatosis (Von-Reckling-Hausen disease) (Subtype of Neurofibroma)	
Site & Incidence	-From endothelial cells of **arachnoid villi** -Common in adult females -May turn malignant	-Benign tumor of Schwann cells -**Age**: 50-60 years	___	-Hereditary **autosomal dominant** hamartoma -**Malignant transformation** is **common** than in schwannoma. (10%)	**Most common malignant** tumor in the brain **representing 30%** of brain tumors -Mostly carcinomas, seen in older adult Spread to CNS through Arteries / Veins (**Retrograde**) - **Common sources:** lungs, breast and kidney
N/E	-Firm, **encapsulated** tumor, attached to dura & embedded in brain. **Cut surface:** Greyish-white, whorled appearance.	-**Acoustic Neuroma** (CN VIII, CPA) -**Capsulated**, firm, round/fusiform mass attached to related nerve **at one side**→ Grey-white cut surface ± cysts	Fusitorm mass through which the **nerve pass** -Firm grey -**Uncapsulated.**	-**Café-au-lait spots** (Hyperpigmentation). Localized or diffuse overgrowth of fibrous tissue of overlying skin **(Elephantiasis neuromatosa)**	**Multiple nodules** (variable size) at **grey-white matter junction** -Edema + hemorrhage, necrosis, cysts
M/E	Spindle cells in concentric layers +Calcifications = **Psammoma bodies**	-Spindle cells (Rod-shaped nuclei) -**Arranged in a palisade pattern** -Separated by reticular & collagen fibers	Spindle cells + fibrous stroma + neurofibers	___	-**As primary tumor** -In relation to blood vessels

Tumor effects

Local effects:

- Compression and destruction of the affected site lead to neurologic deficit such as hemiplegia.
- Hydrocephalous.
- ↑ICP caused by tumor and cerebral edema

Manifestations:

• Headache • Papilloedma. • Brain herniation. • Projectile vomiting