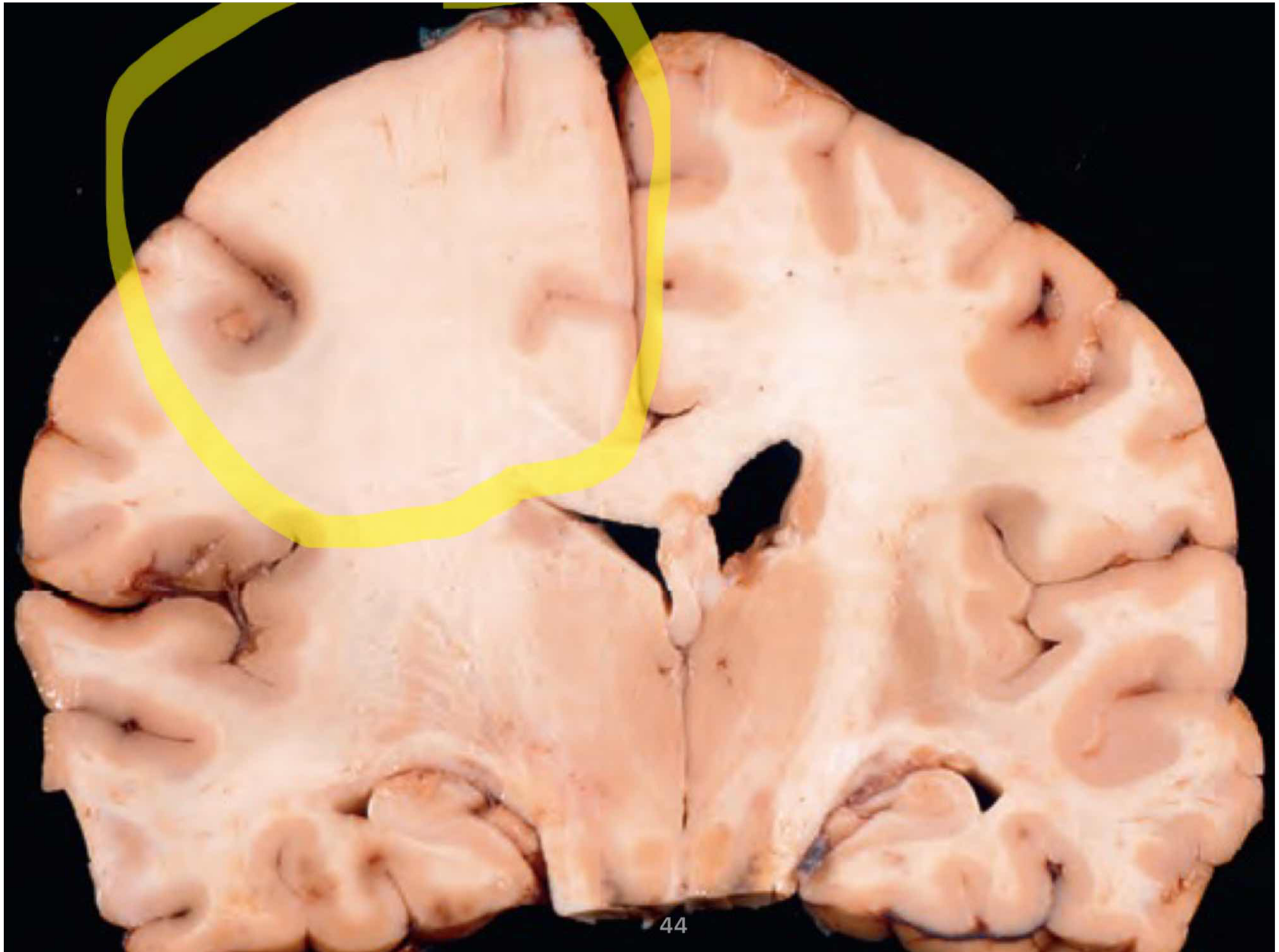
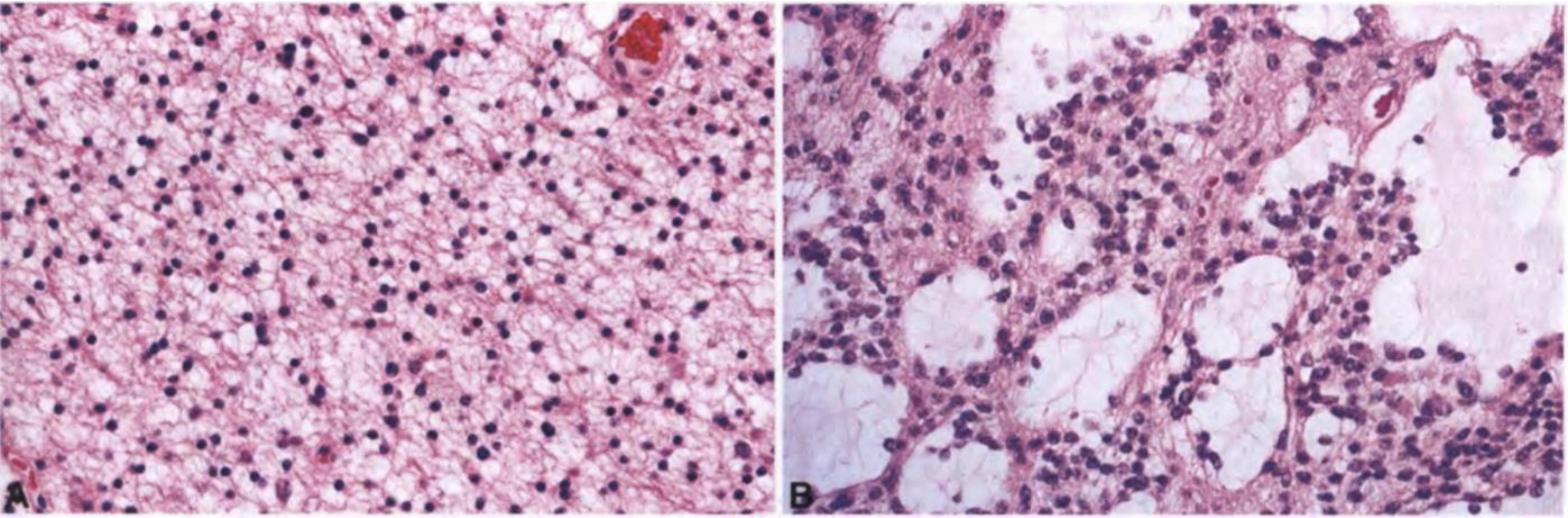
PATHOLOGY LAB

Modified by kotkot
Checked by doc maram

Diffuse astrocytoma ,grade 2 &3
Infiltrative ,gray-white matter junction isn’t distinct

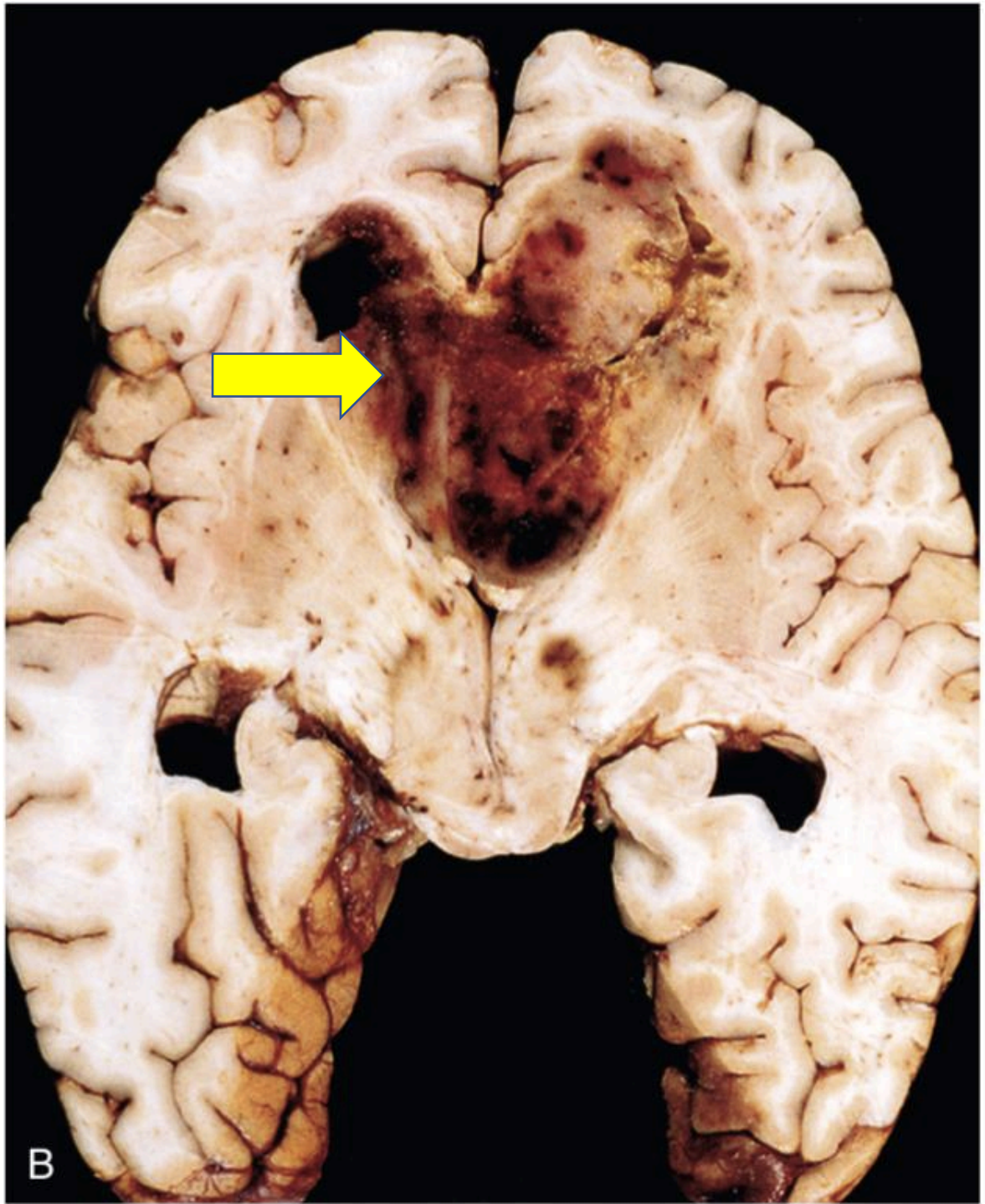


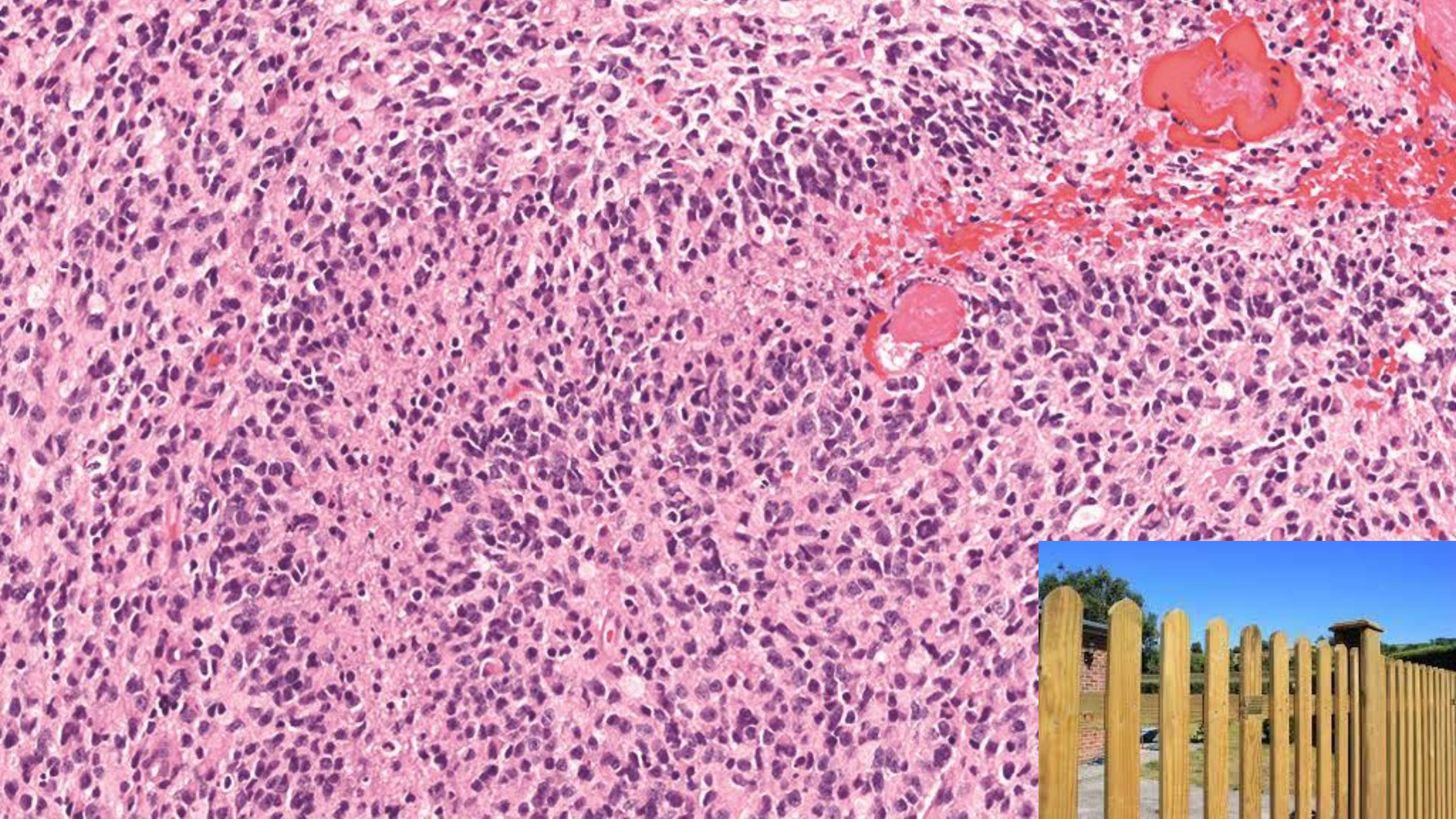


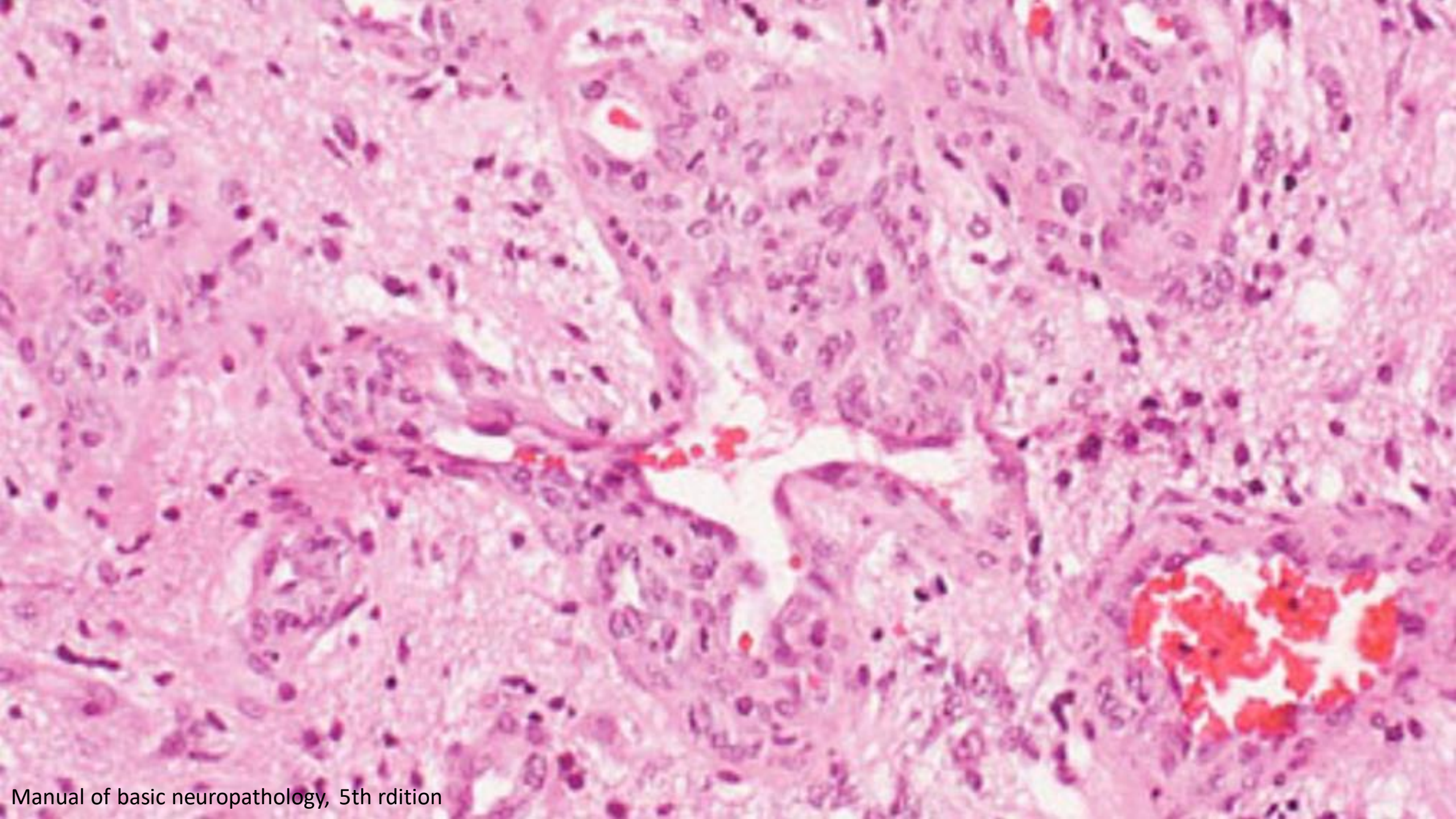
WHO classification of tumors of the central nervous system revised 4th edition,2016,

Dark dots ,hyperchromatic astrocytes

- **Macroscopic:**
- variation in the gross appearance of the tumor from region to region is characteristic (was called **glioblastoma multiforme**).
- Some areas are firm and white, others are soft and yellow (due to tissue necrosis), others show regions of cystic degeneration and hemorrhage.







Manual of basic neuropathology, 5th rdition

- **Microscopic:**
  - anaplastic astrocytoma features + either:

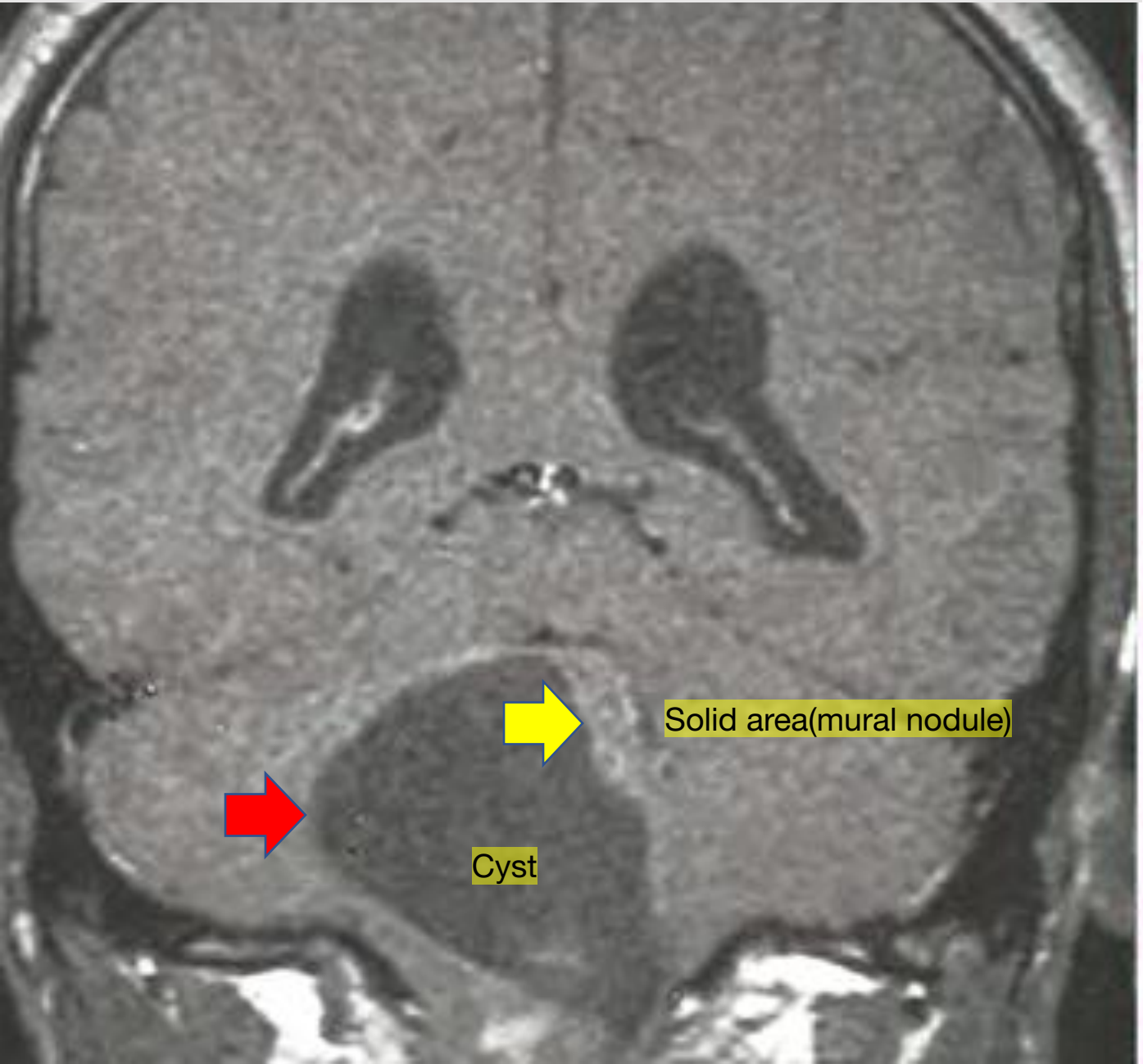
Necrosis: irregular zones of necrosis surrounded by dense accumulations of tumor cells (**palisading necrosis)**

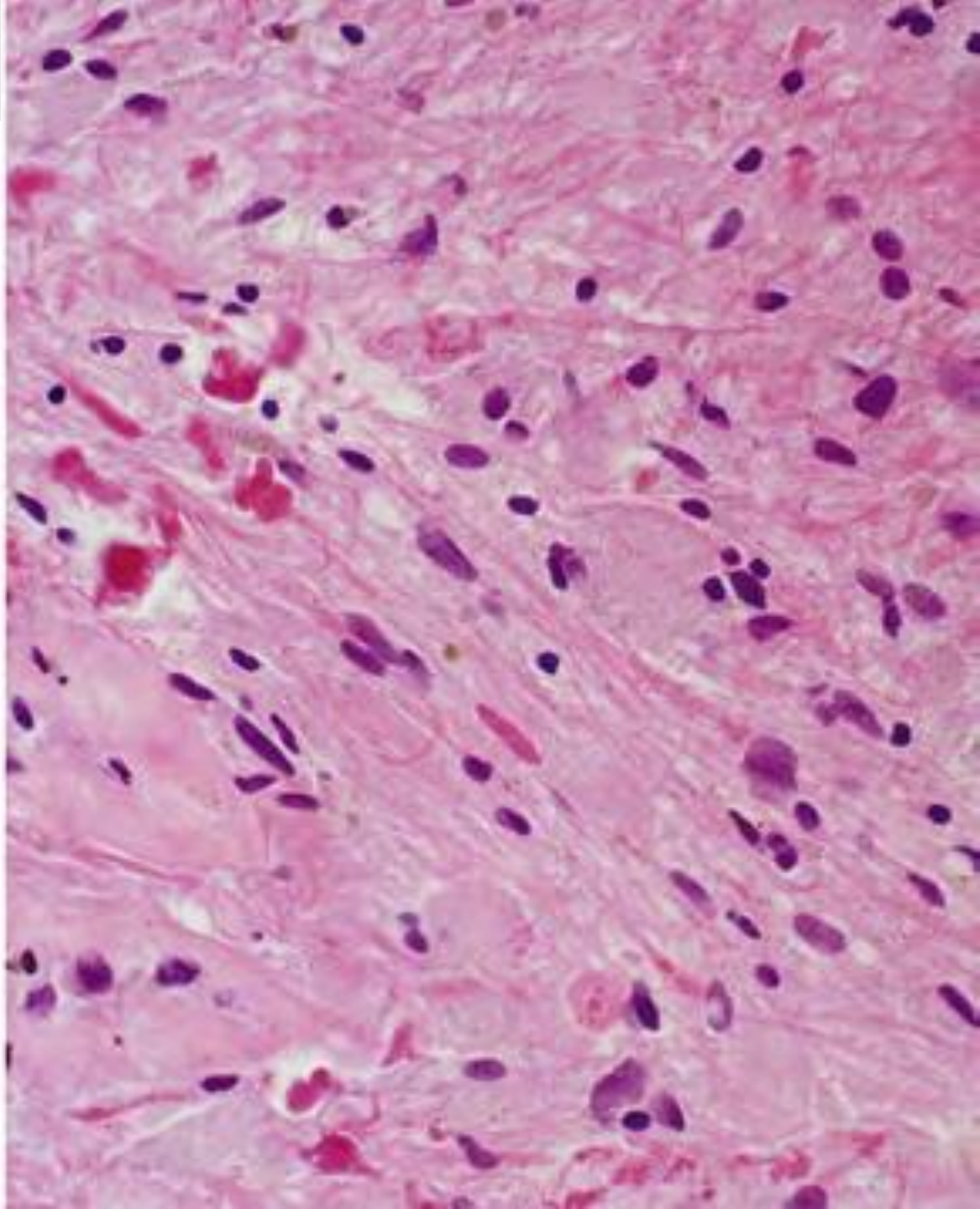
or

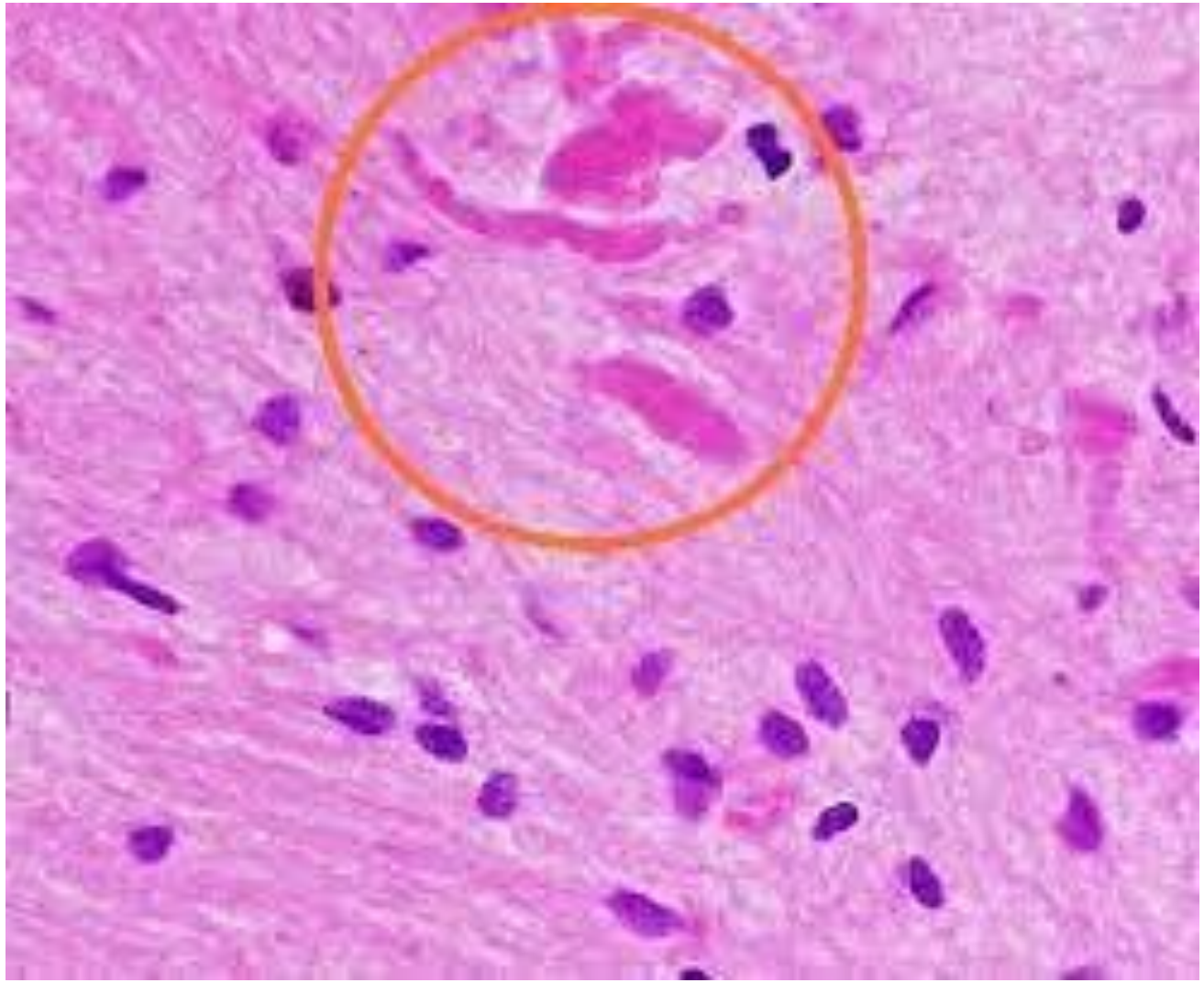
microvascular proliferation:

the presence of abnormal vessels with walls composed **2** ≥ layers of vascular wall cells.

well circumscribed, cystic with a mural nodule in the wall of the cyst or solid

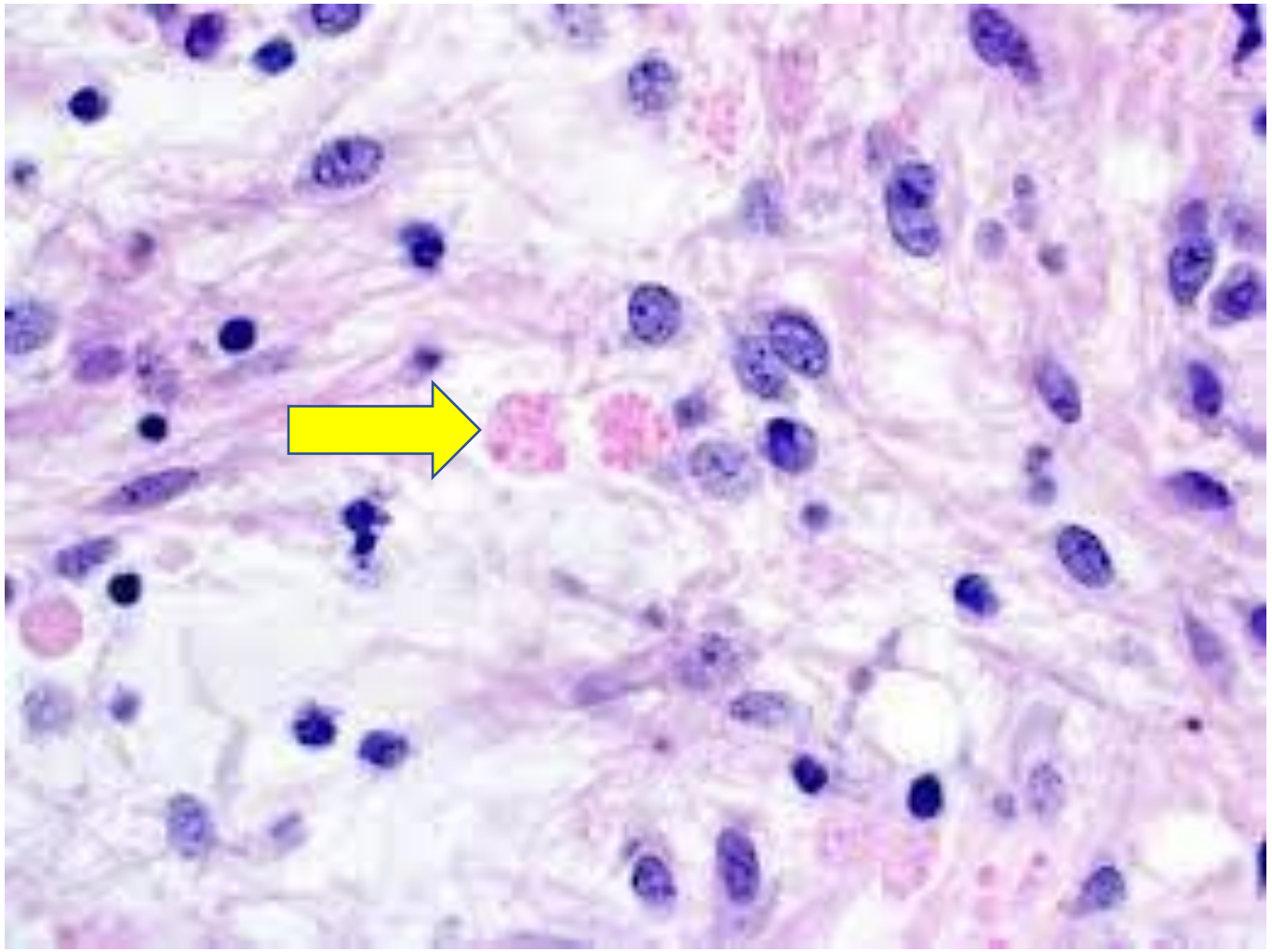






Rosenthal fibers

- are rounded or elongated, homogenous, and brightly eosinophilic structures within the astrocytic processes
- made of clumped intermediate filament proteins, primarily glial fibrillar)
- Can be physiologic (gliosis) or pathologic (PA) and Alexander disease

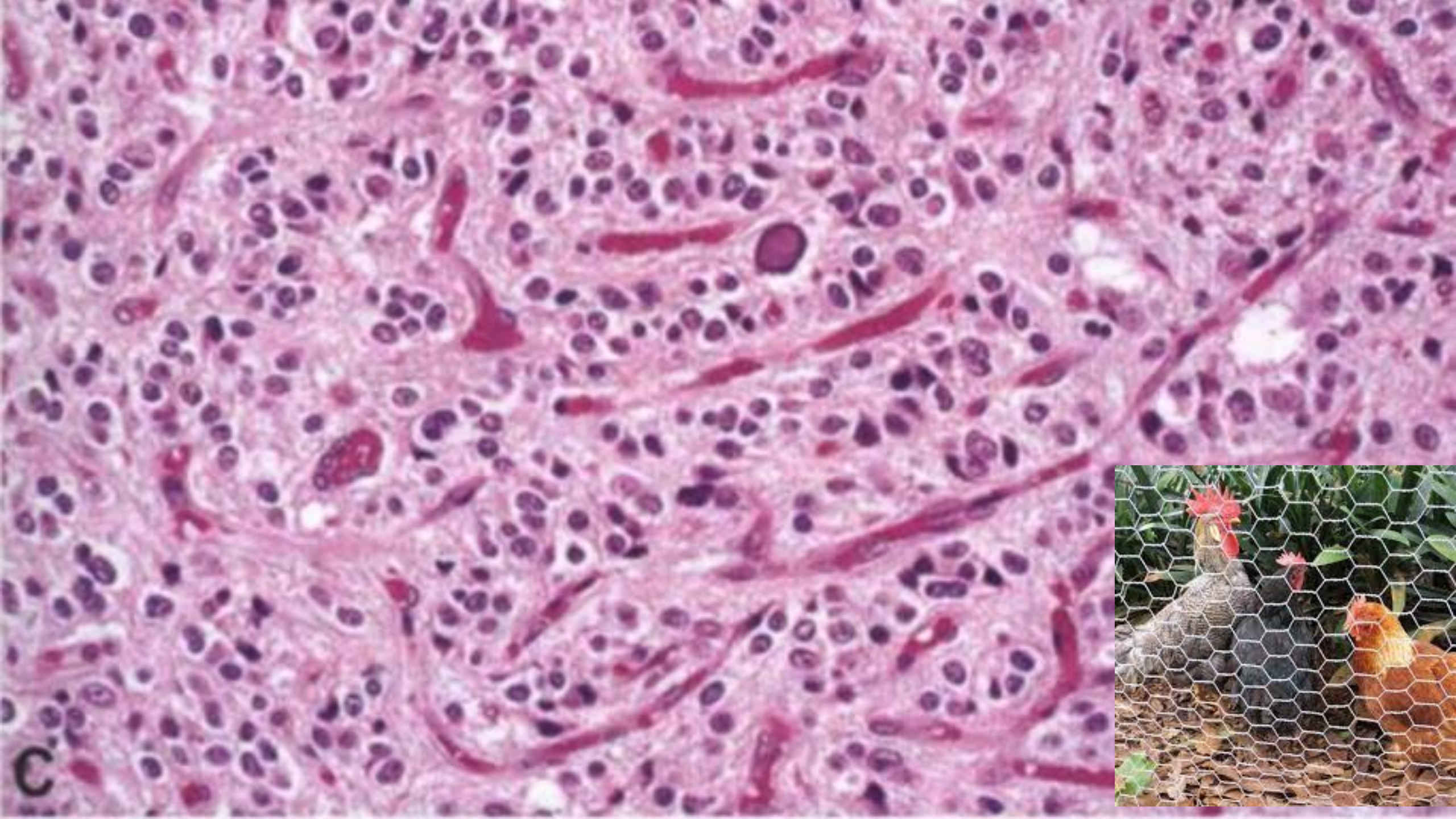


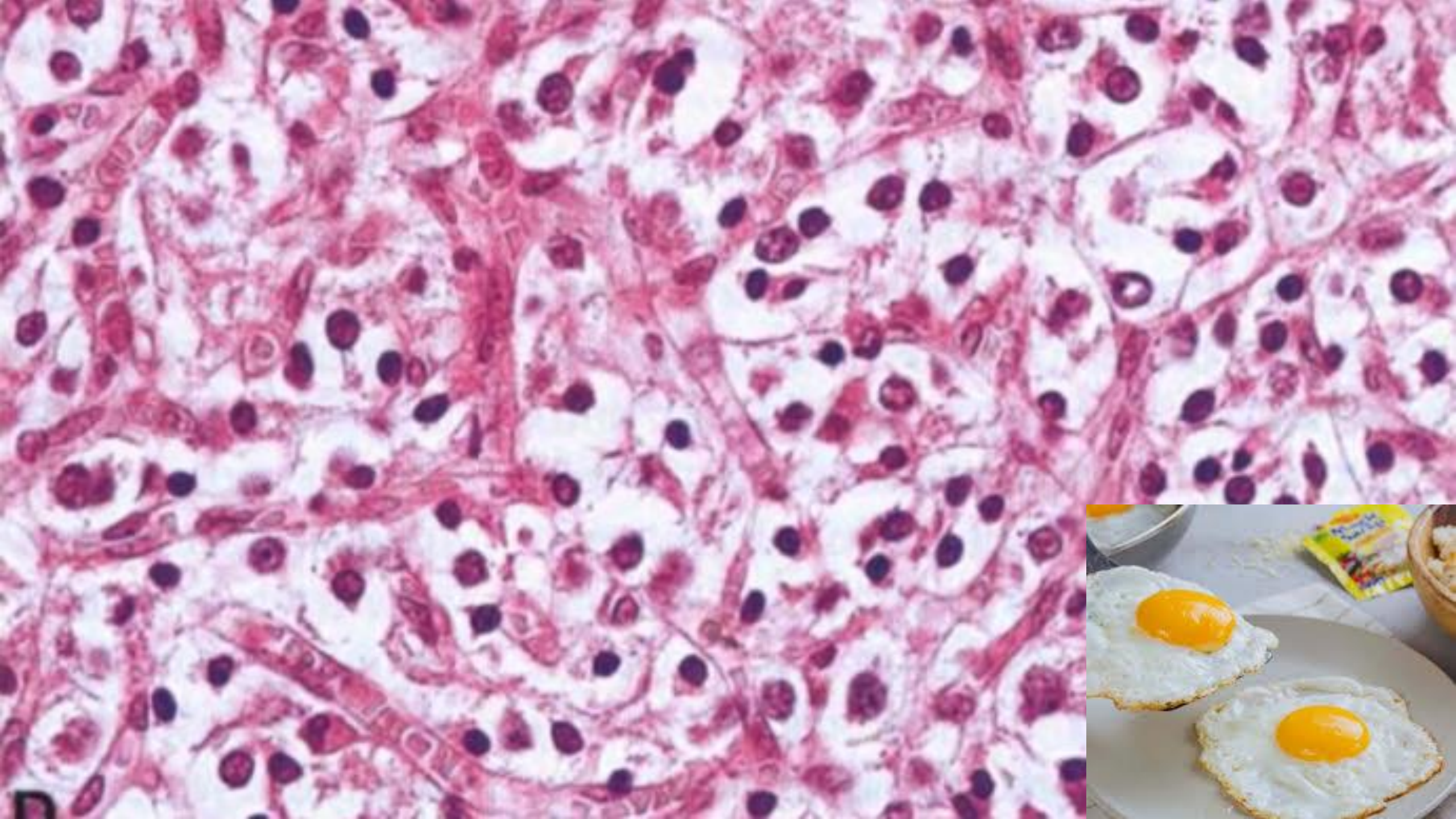
- ***Eosinophilic granular bodies:***

rounded hyaline droplets in cytoplasm of astrocytes seen in PA and ganglion-cell tumors.

Oligodendroglioma ,WHO grade 2, microscopic:

- sheets of regular uniform cells resembling oligodendrocytes
- round nuclei containing finely granular chromatin **(salt and pepper)**
- The nuclei are surrounded by a clear halo of cytoplasm → **fried-egg appearance**.
- delicate network of anastomosing capillaries **"chicken-wire"**





Ependymoma

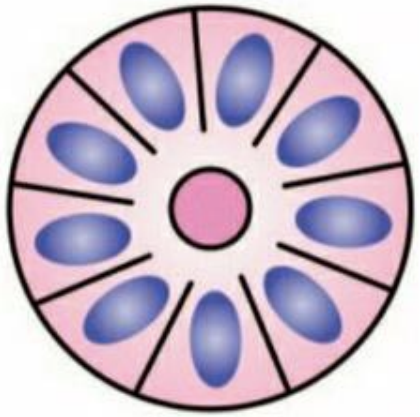
Ependymal rosettes:

- tumor cells arranged around central canal or lumen that resemble the embryologic ependymal canal, with long, delicate processes extending into a lumen.

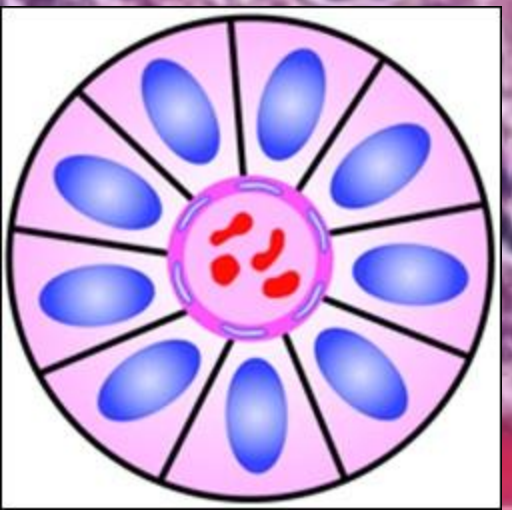
Perivascular pseudorosettes:

- tumor cells radially arranged around vessels.
- Called "pseudo" because the central structure is not formed by the tumor itself, but instead represents a native, non-neoplastic element.

Ependymal rosettes

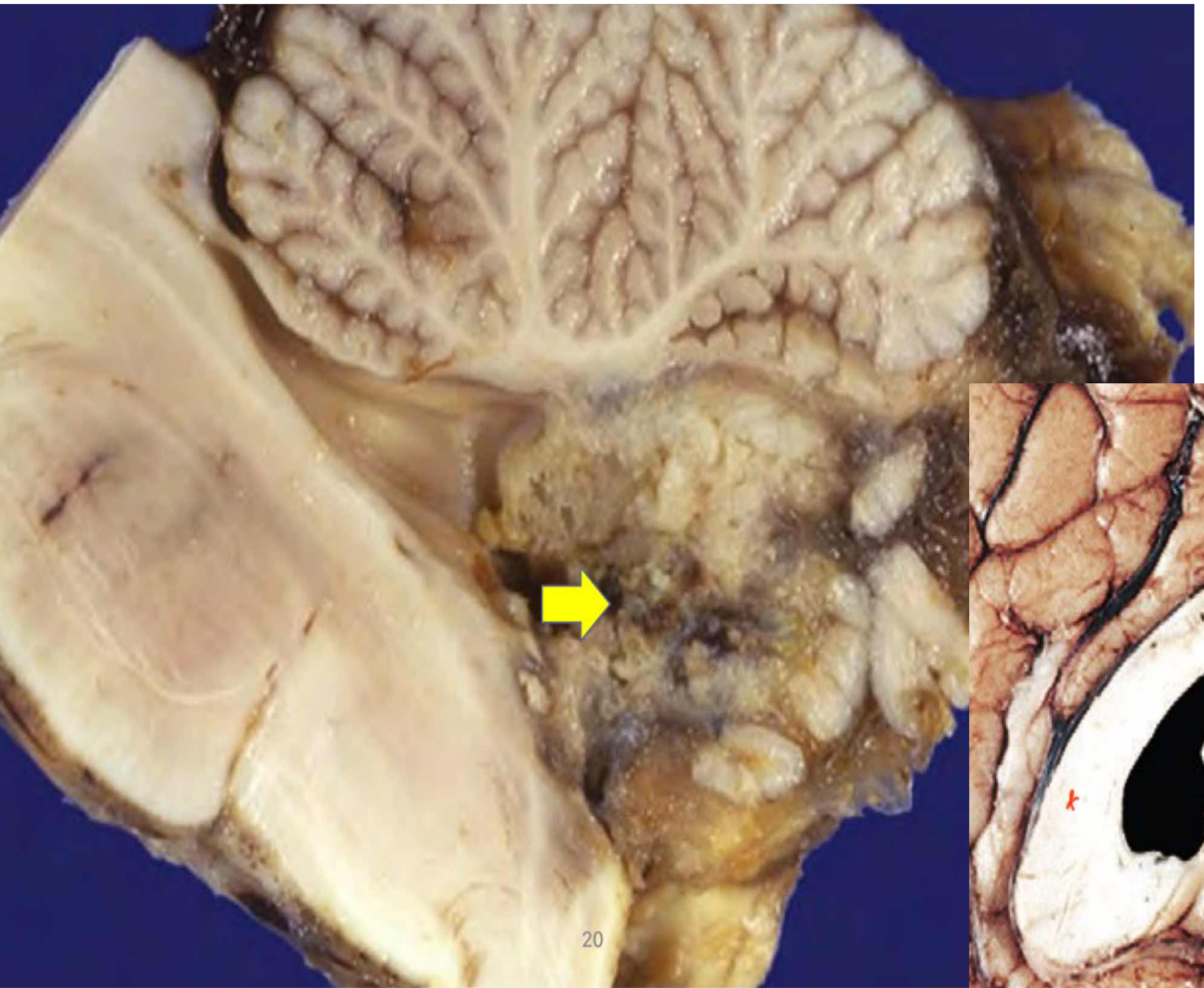


perivascular pseudorosettes



Medulloblastoma, WHO grade 4:

- predominantly in **children**
- mainly in **cerebellum**
- **All are highly malignant, WHO grade 4**
- **radiosensitive**.
- the prognosis for untreated patients is **dismal**
- **5-year survival rate may be as high as 75%** with total excision, chemotherapy, and irradiation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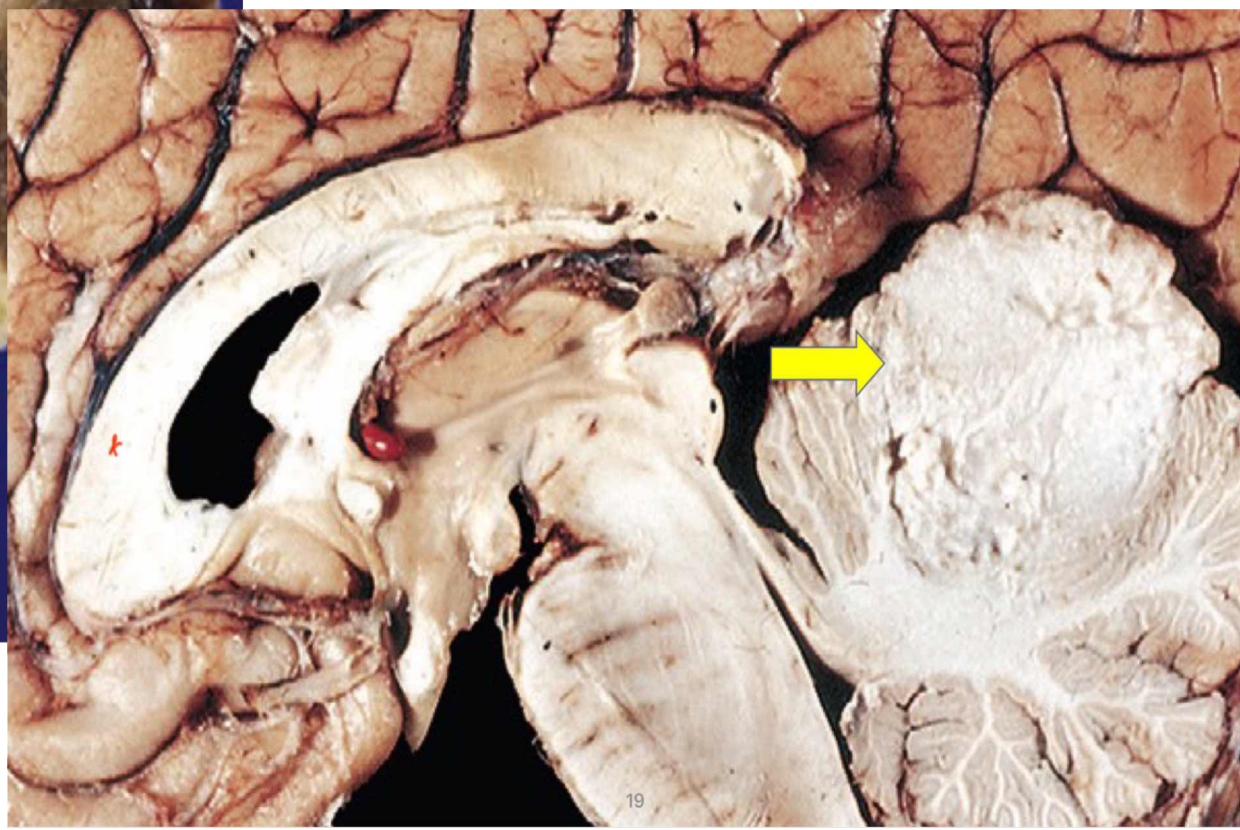
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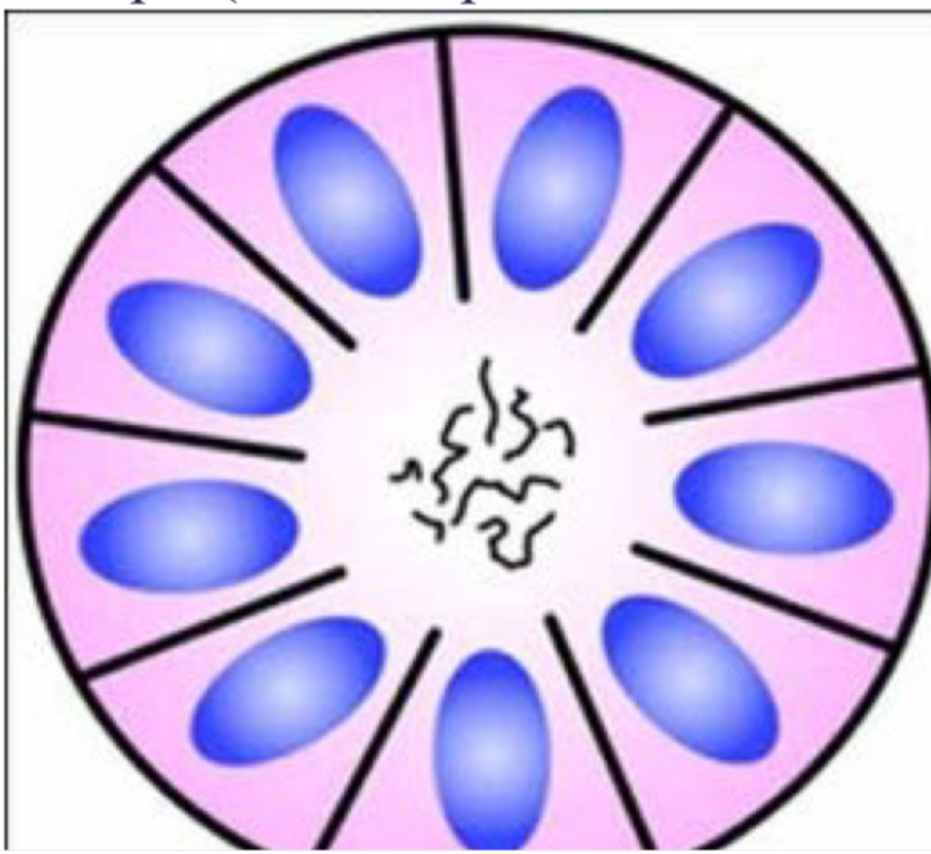
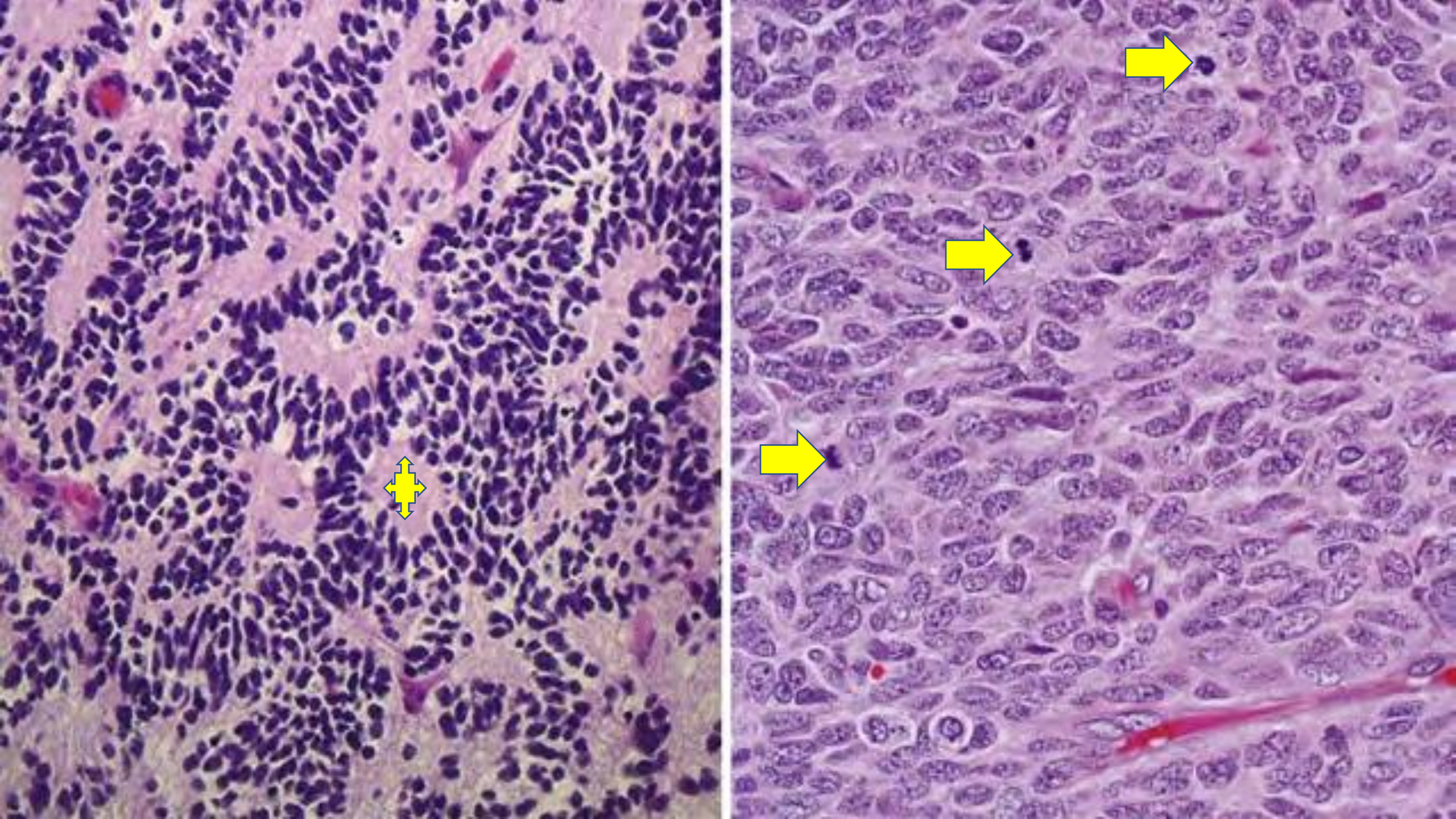
Morphology:

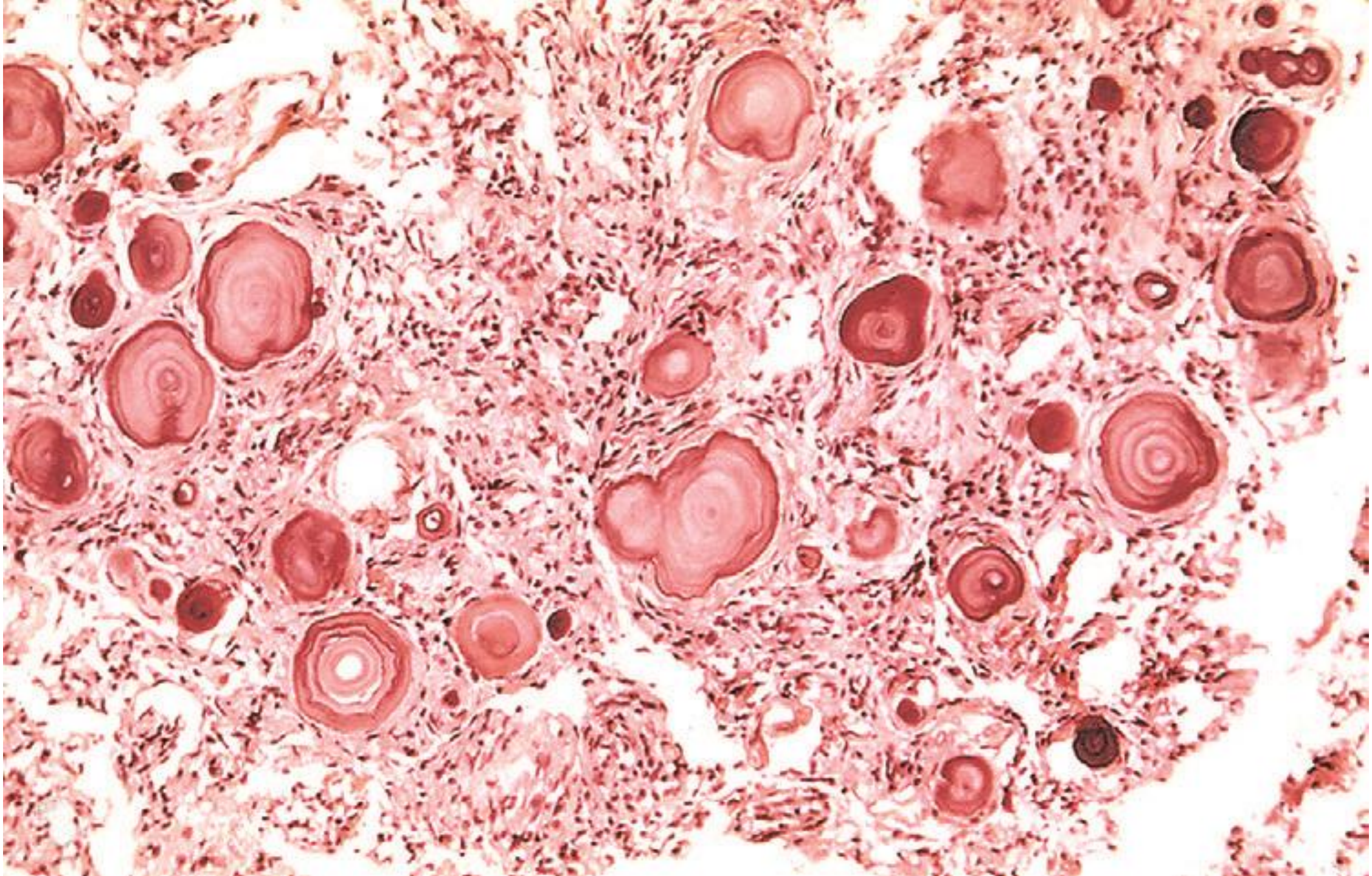
- **Homer Wright Rosettes:**
  - primitive tumor cells surrounding central neuropil (delicate pink material formed by neuronal processes).
  - Represents focal neuronal differentiation
  - Not specific; seen also in neuroblastoma and pineablastoma





Meningiomas (WHO grade 1):

- well-defined dura-based masses that may compress the brain but do not typically invade it +/- overlying bone extension.
- Epithelioid cells arranged in whorly (syncytial)pattern +/- psammoma bodies
- Many histologic patterns, with no prognostic difference
  - meningothelial (most common)→clusters of epithelioid cells with fuzzy or indiscernible cell membranes
  - Other patterns include fibroblastic, transitional, and psammomatous



Metastatic tumors

- The most common primary sites are **lung, breast, skin (melanoma), kidney, and gastrointestinal tract (**80% of cases).

- **sharply demarcated masses**, often at the grey-white matter junction, and elicit local edema

- The boundary between tumor and brain parenchyma is sharp at the microscopic level with surrounding reactive gliosis.

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