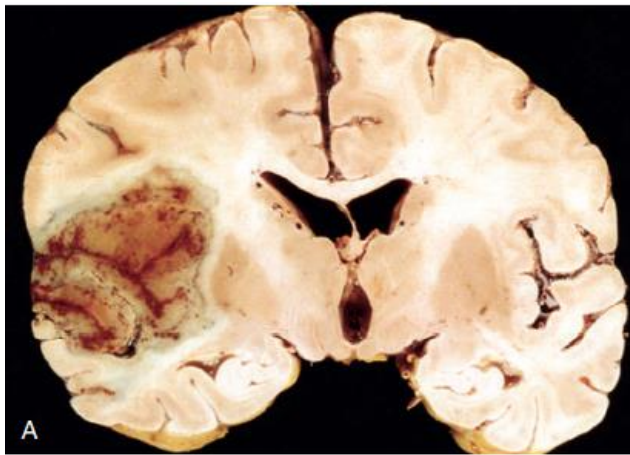


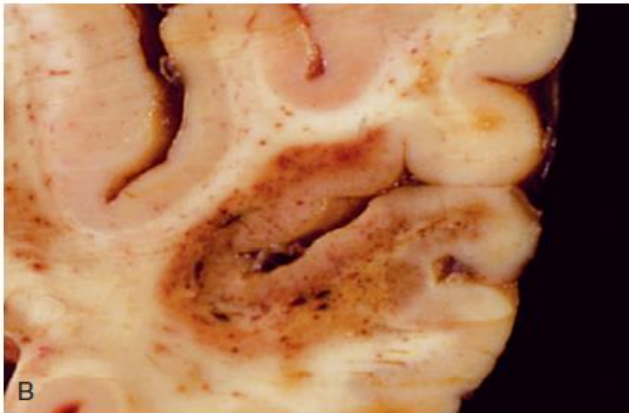
CNS lab

Dr. Sura Al Rawabdeh

27-12-2023



(A) Section of the brain showing a large, discolored, focally hemorrhagic region in the left middle cerebral artery distribution (hemorrhagic, or red, infarction).



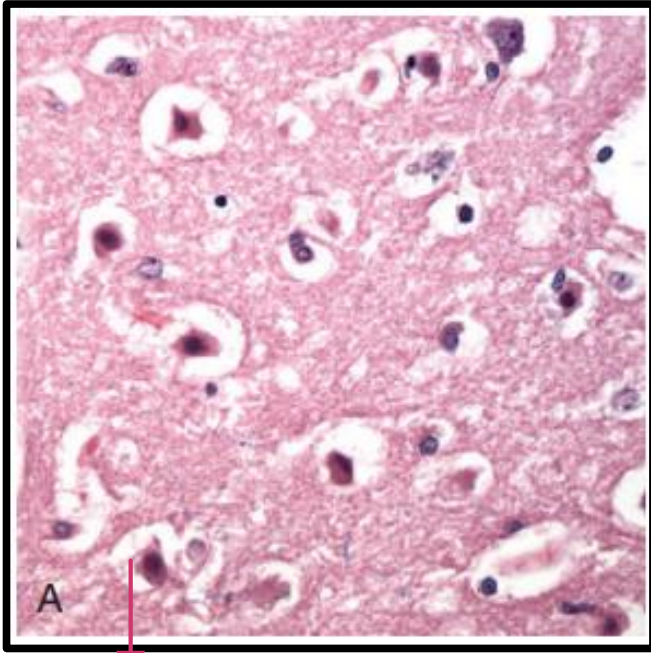
(B) An infarct with punctate hemorrhages, consistent with ischemia-reperfusion injury, is present in the temporal lobe. (

tissue loss

Old cystic infarct shows destruction of cortex and surrounding gliosis.

C

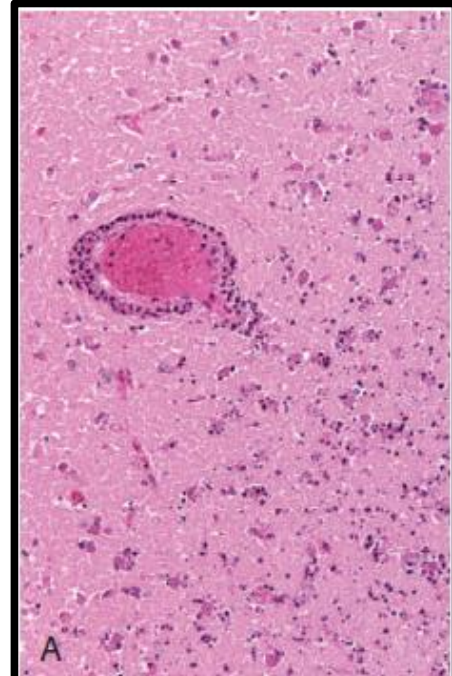




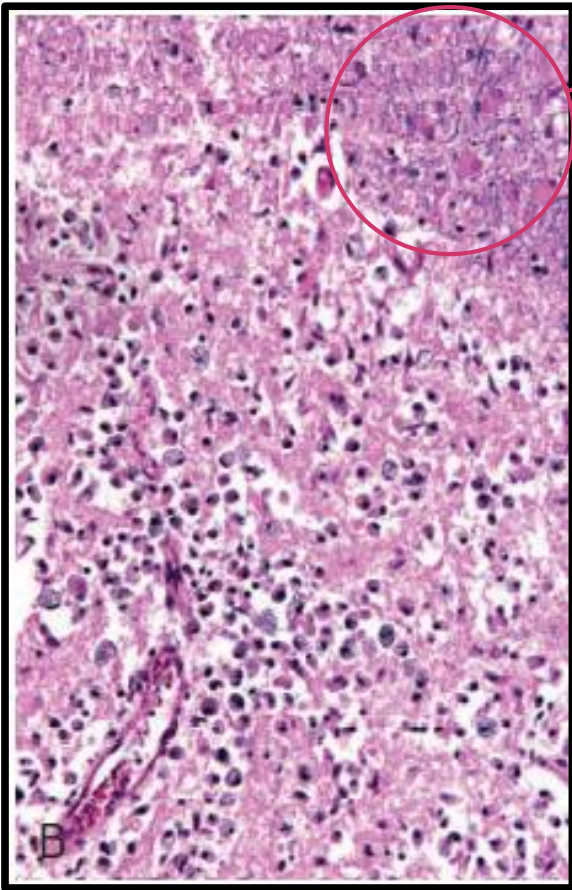
A

cytoplasmic vacuolation,
early, cells didn't die,
eosinophilic cytoplasm

margination of
cells around the
BV

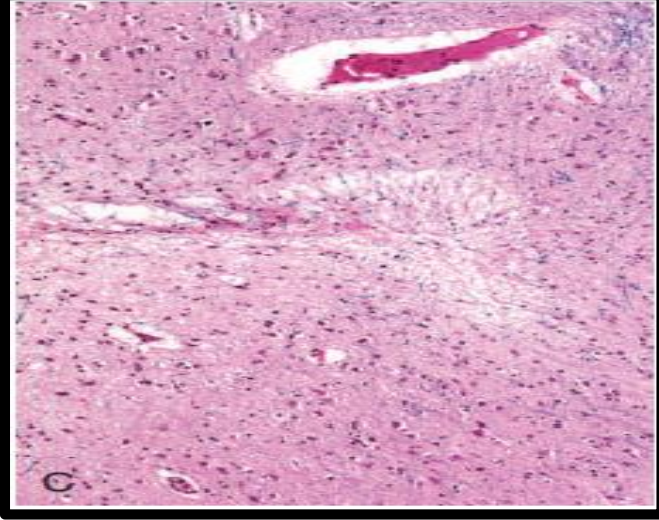


A



necrosis no viable cells
vascular proliferation +
macrophages
repair mechanism in brain
not neoplastic

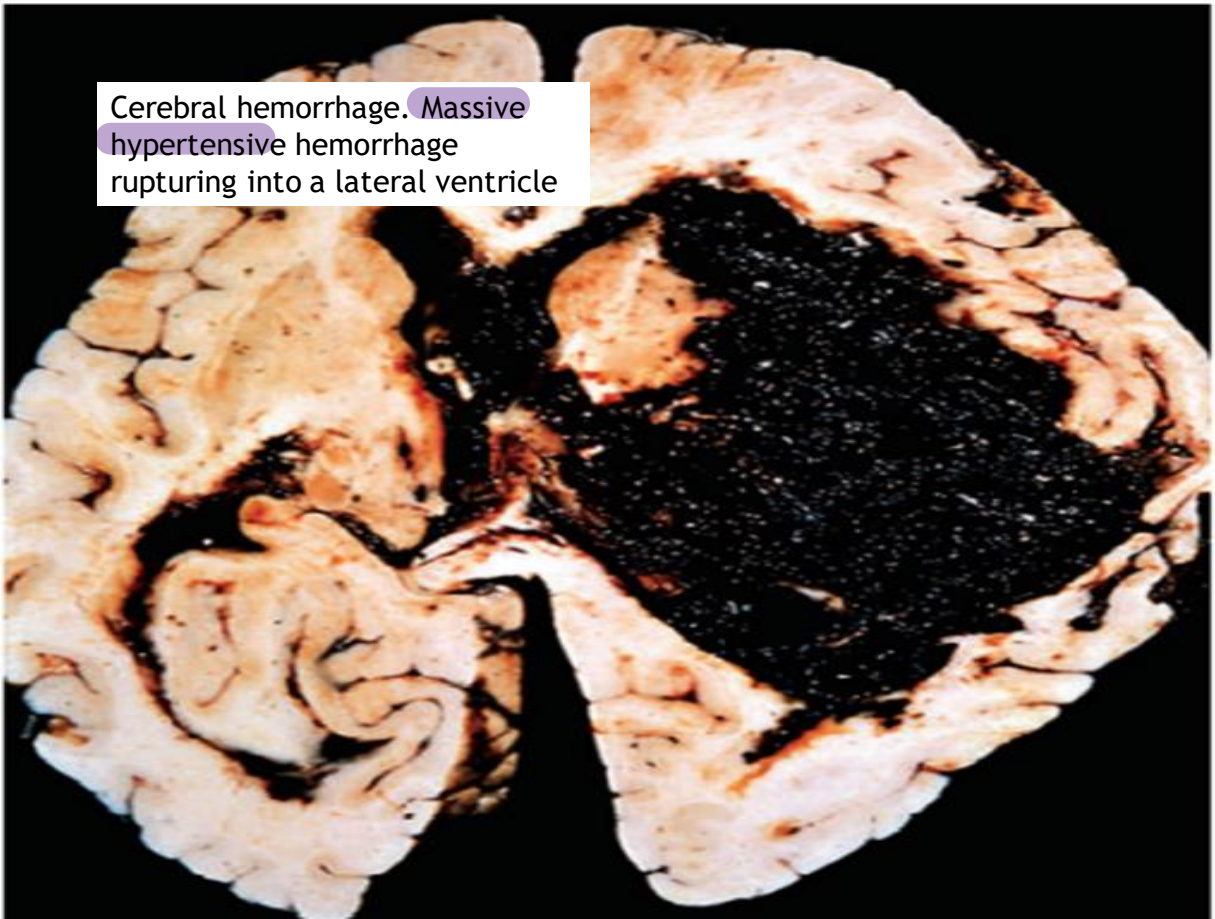
Subacute changes, occurring at
24 hours to 2 weeks, include
necrosis of tissue, influx of
macrophages, **vascular**
proliferation, and reactive
gliosis).



area of
fibrosis

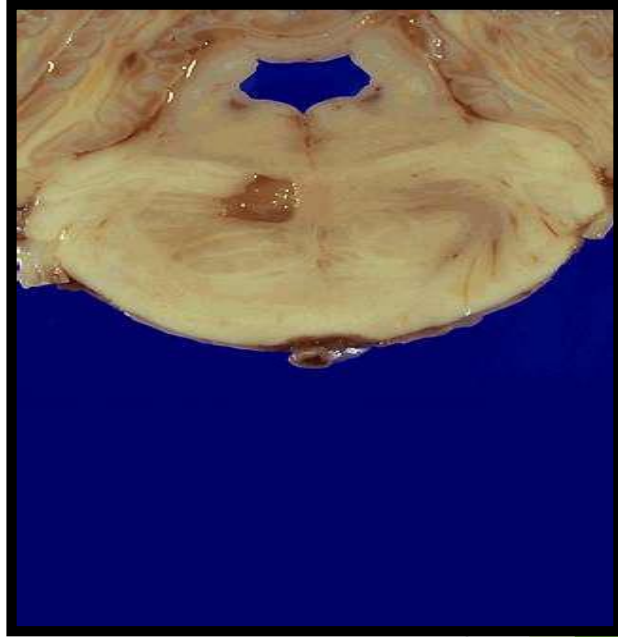
- ▶ **Repair**, seen after **2 weeks**, is characterized by removal of necrotic tissue and gliosis

Cerebral hemorrhage. Massive hypertensive hemorrhage rupturing into a lateral ventricle

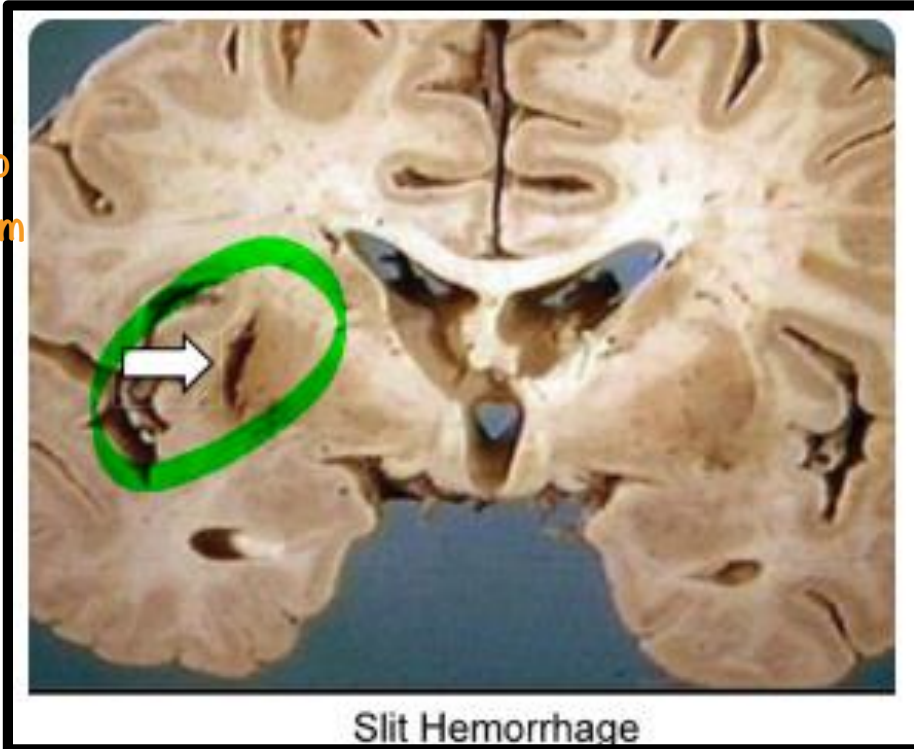


hypertension --> aneurysm in
BV (macroaneurysm)

Lacunar
infarct in the
Pons



slit hemorrhage
by HTN --> also
causes aneurysm
calles charcot
bouchad
aneurysm NOT
BERRY
ANEURYSMS

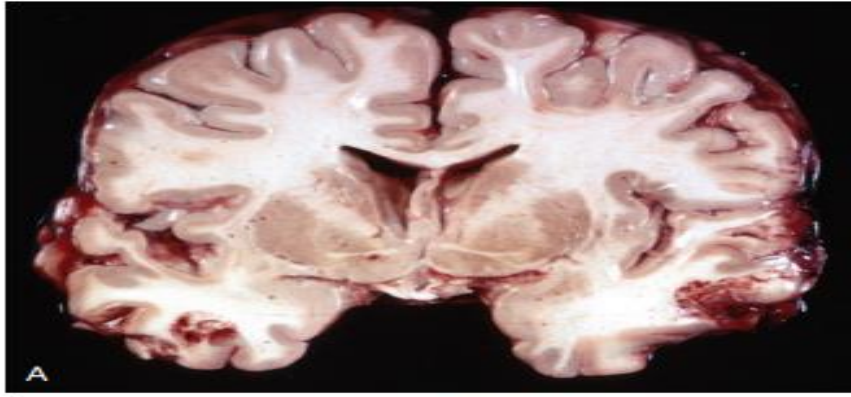


Early contusions at orbital gyri of frontal lobes

bone not intact



A - fresh blood



B old tissue

Color —> yellow
to brown



Fig. 23.12 Cerebral trauma. (A) Acute contusions are present in both temporal lobes, with areas of hemorrhage and tissue disruption. (B) Remote contusions, seen as discolored yellow areas, are present on the inferior frontal surface of this brain.

A saccular berry aneurysm

B using angiogram

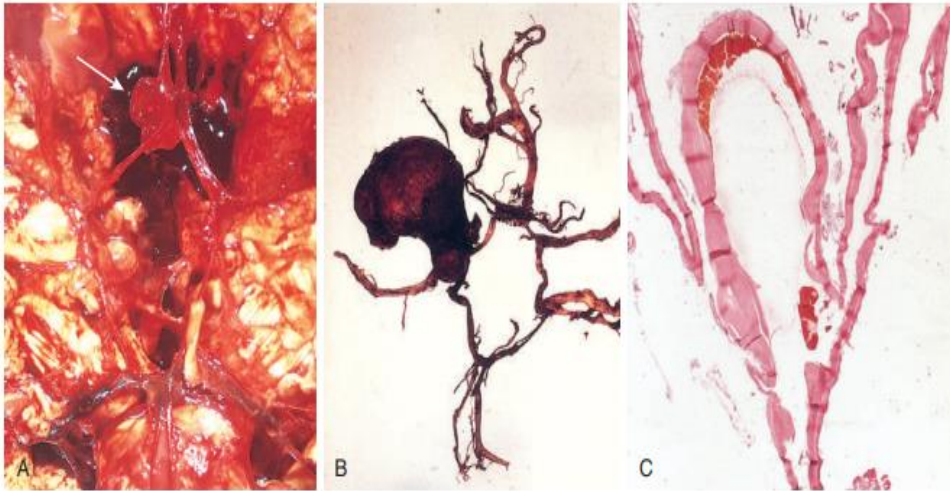


Fig. 23.10 Saccular aneurysms. (A) View of the base of the brain, dissected to show the circle of Willis with an aneurysm of the anterior cerebral artery (arrow). (B) The circle of Willis is dissected to show a large aneurysm. (C) Section through a saccular aneurysm showing the hyalinized fibrous vessel wall. Hematoxylin-eosin stain.

most common site of saccular aneurysm is anterior cerebral artery.

epidural hematoma -> commonly a consequence of middle meningeal art tear
subdural hematoma from tearing of bridging veins

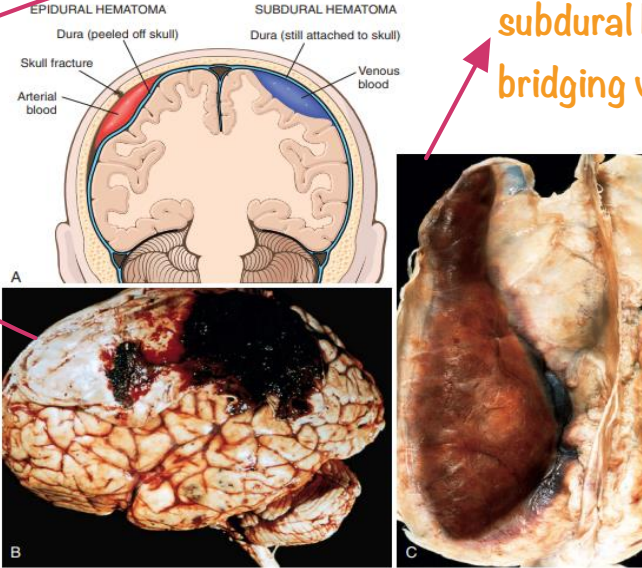
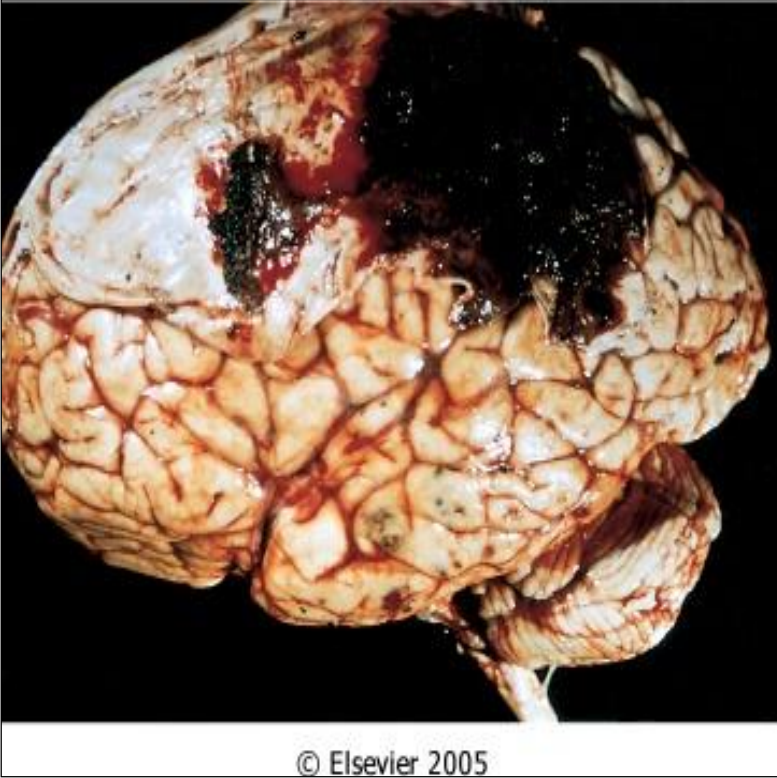


Fig. 23.13 Traumatic intracranial hemorrhages. (A) Epidural hematoma (left) in which rupture of a meningeal artery, usually associated with a skull fracture, has led to accumulation of arterial blood between the dura and the skull. In a subdural hematoma (right), damage to bridging veins between the brain and the superior sagittal sinus has led to the accumulation of blood between the two layers of dura. (B) Epidural hematoma covering a portion of the dura. (C) Large organizing subdural hematoma attached to the dura. (B, Courtesy of the late Dr. Raymond D. Adams, Massachusetts General Hospital, Boston, Massachusetts.)

can not be
differentiated from
other types of cerebral
hemorrhage
depending on morpho
only, imaging, clinical
history are important
for diagnosis

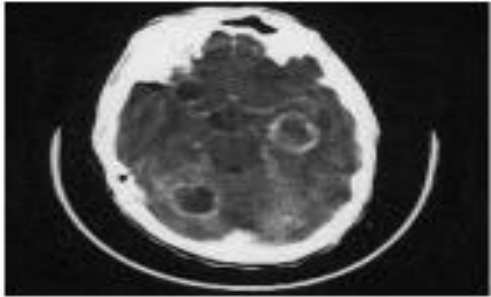


**Epidural hematoma covering a portion of the dura.
Multiple small contusions are seen in the temporal lobe.**

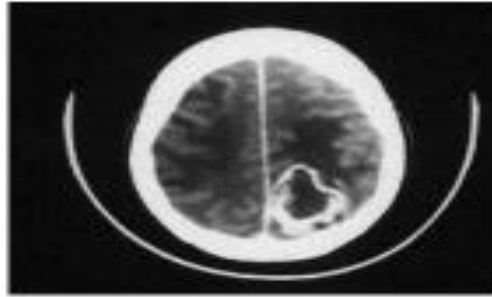
bridging veins



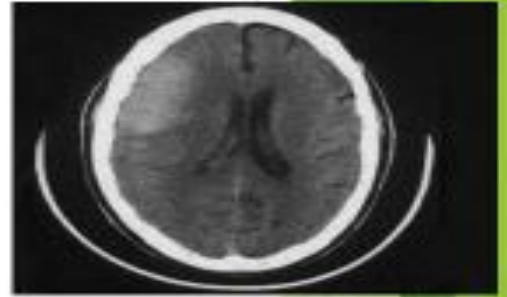
multiple ring enhancement
lesions in high grade
malignancy

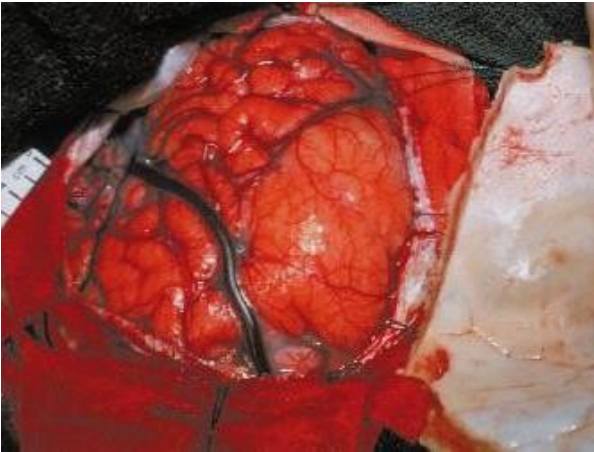
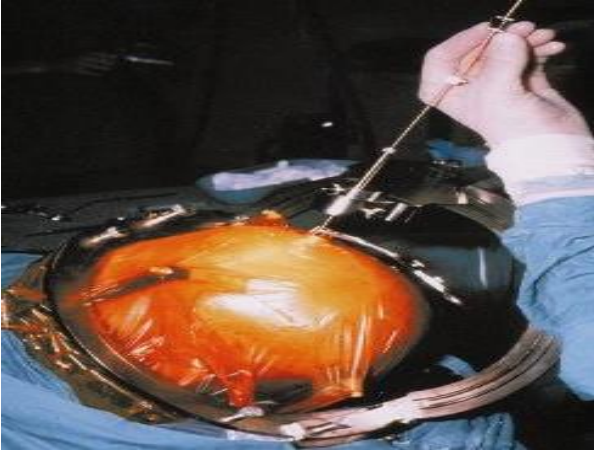


single glioblastoma in
adult
and medulloblastoma in
children



low grade



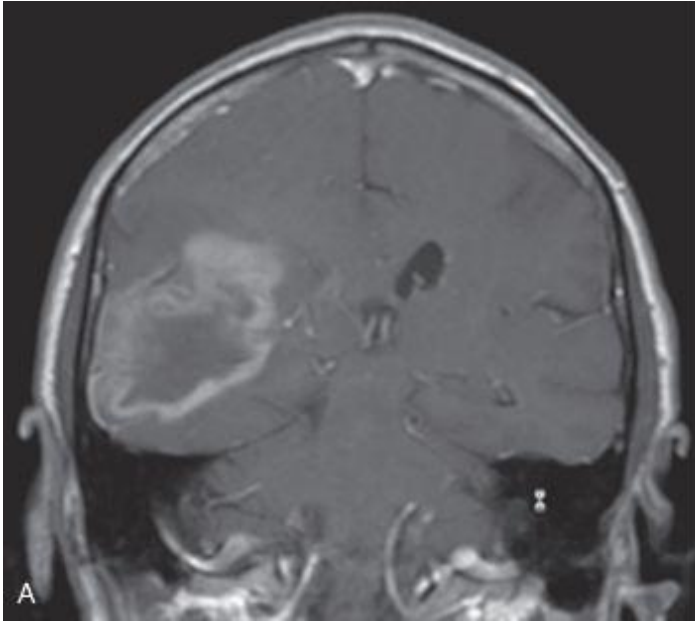


- **Stereotactic Biopsy**

in diagnosis
diagnostic
+ therapeutic

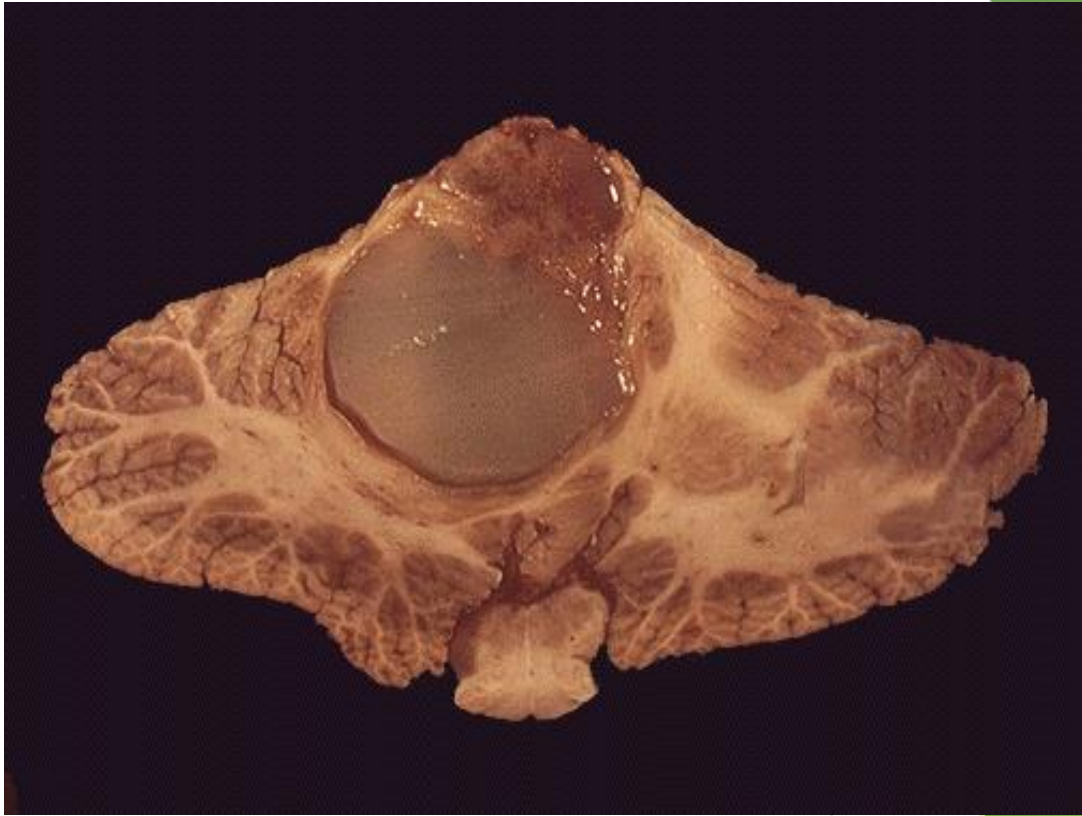
- **Craniotomy**

ring enhancement lesion



A, Post-contrast T1-weighted coronal MRI shows a large mass in the right parietal lobe with "ring" enhancement.
B, Glioblastoma appearing as a necrotic, hemorrhagic, infiltrating mass.

most
common in
metastatic in
cerebellum in
children

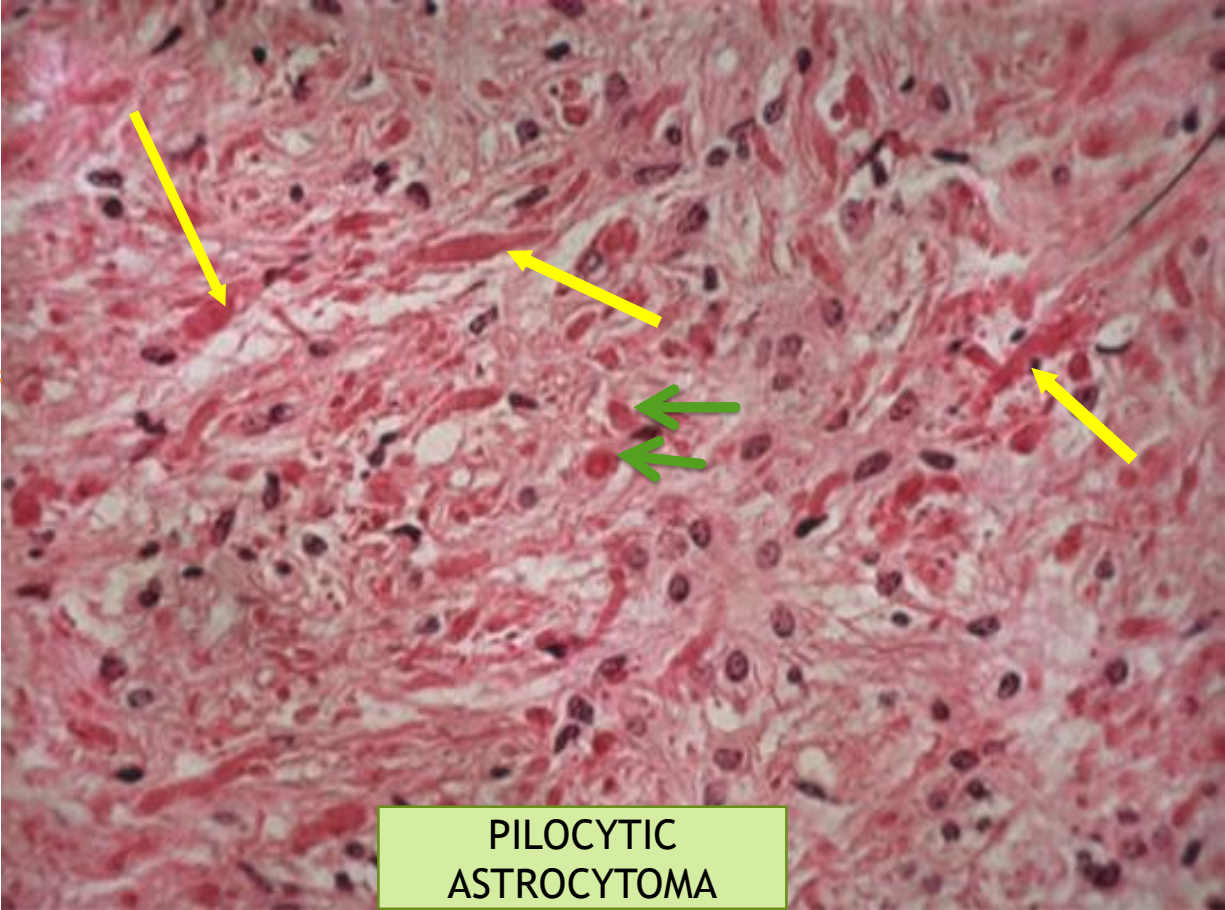


Pilocytic astrocytoma - A relatively well-defined cystic tumor

- ▶ Bipolar cells with:
- ▶ Long, thin processes.

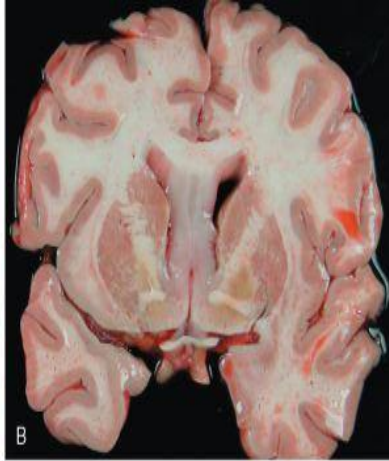


histological
features =
yellow
arrows
rosenthal
fibers +
green arrows
eosinophilic
granular
bodies



PILOCYTIC
ASTROCYTOMA

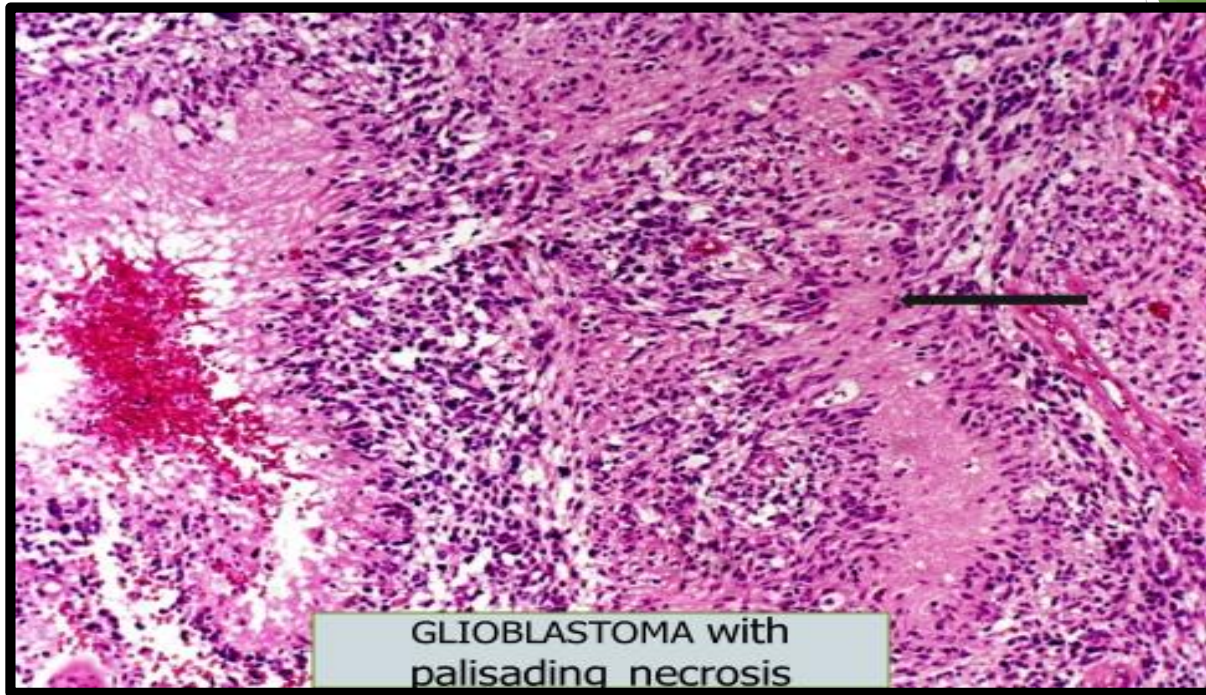
low grade in brain infiltrative no chance of complete surgical resection



- Diffuse astrocytoma.

A, The right frontal tumor has expanded gyri, which led to flattening (arrows).

B, There is bilateral expansion of the septum pellucidum by gray, glassy tumor.



GBM is fetal with no cure

palisading necro and microvascular proliferation grade 4

fried egg
appearance +
calcification
grade 2 + 3

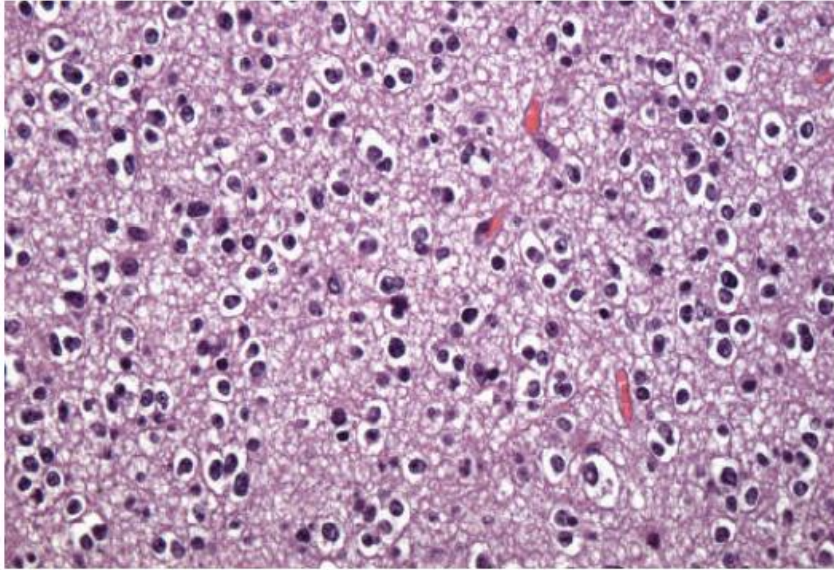


Fig. 23.30 In **oligodendroglioma**, tumor cells have round nuclei, often with a clear cytoplasmic halo. Blood vessels in the background are thin and can form an interlacing pattern.

pseudorosette and true rosette w/ fibrillary core (not BV)

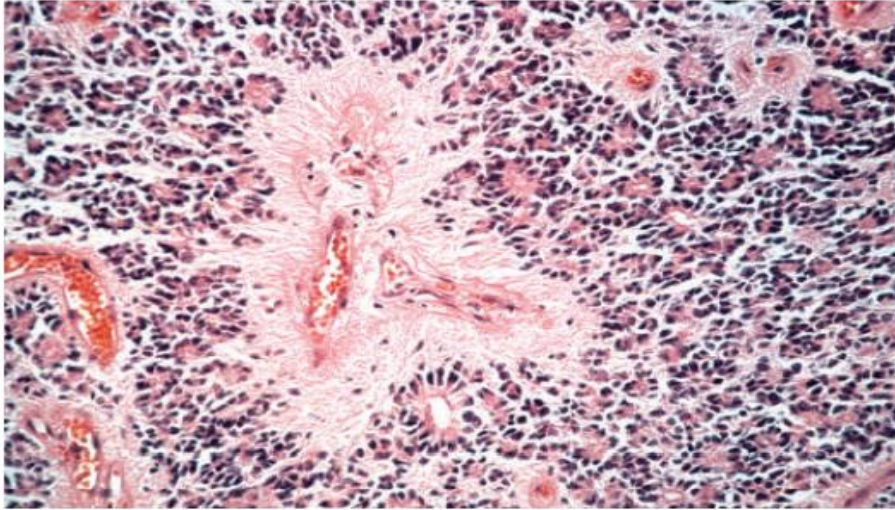
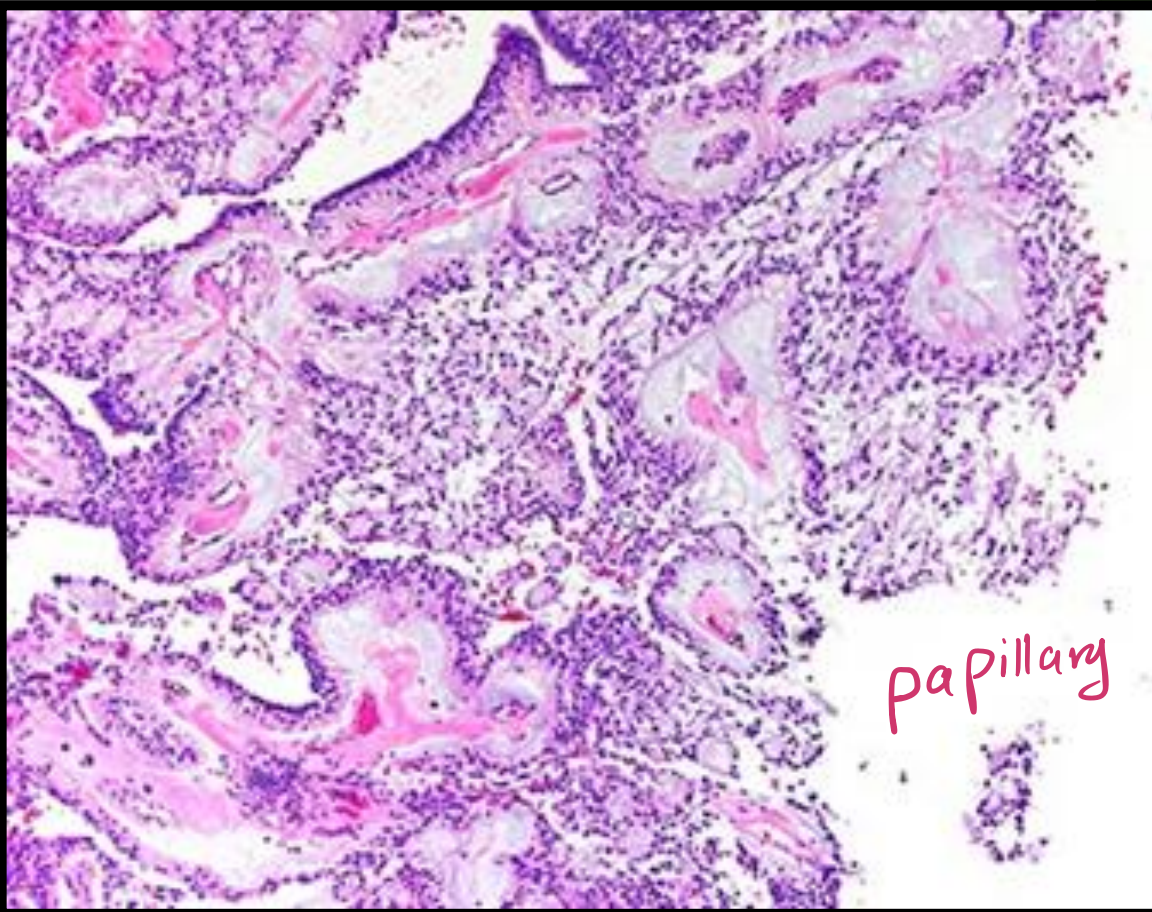
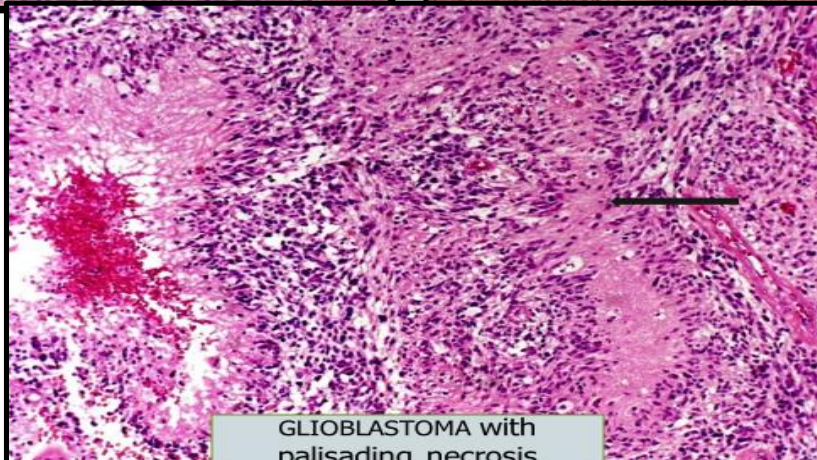
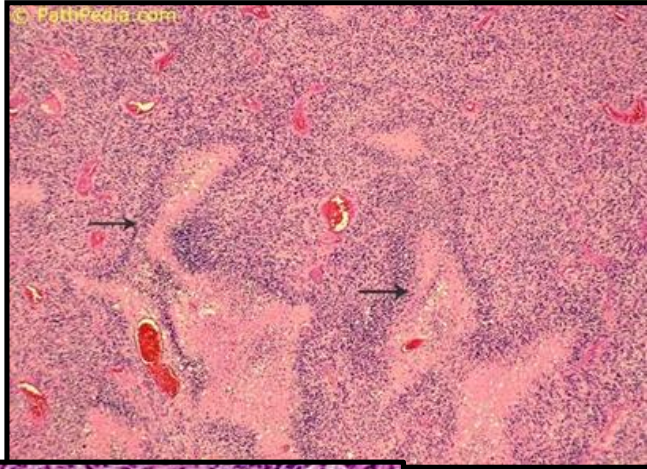
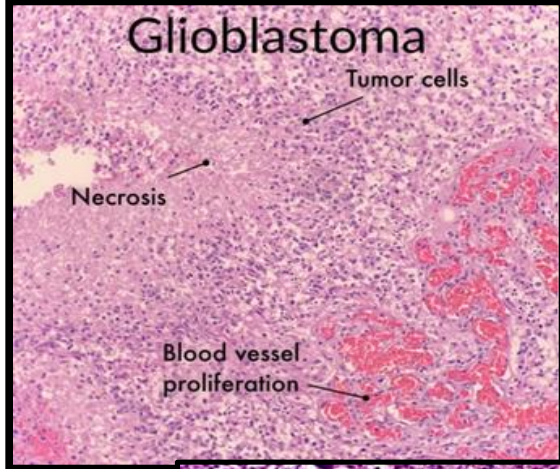


Fig. 23.31 Microscopic appearance of ependymoma.



papillary



high mitosis and necro and have a certain immunostain

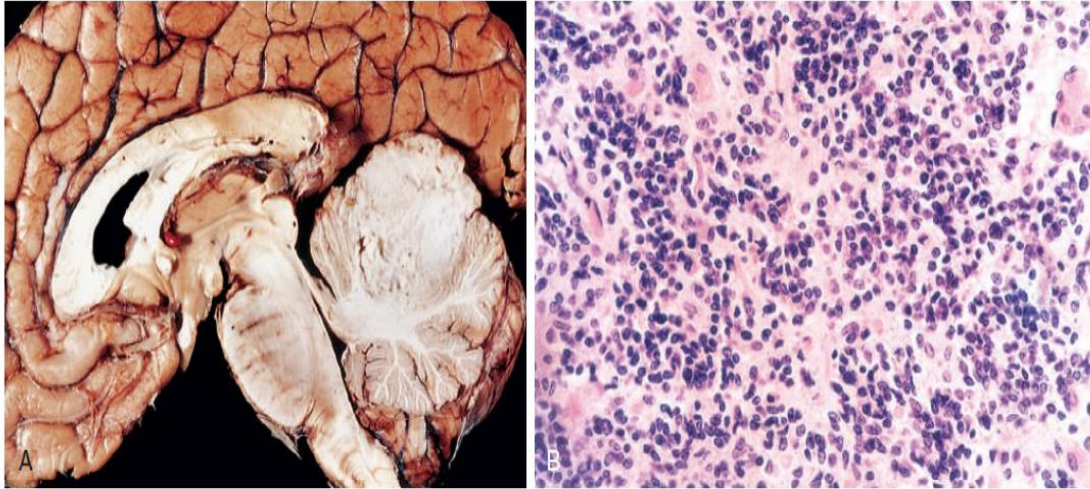
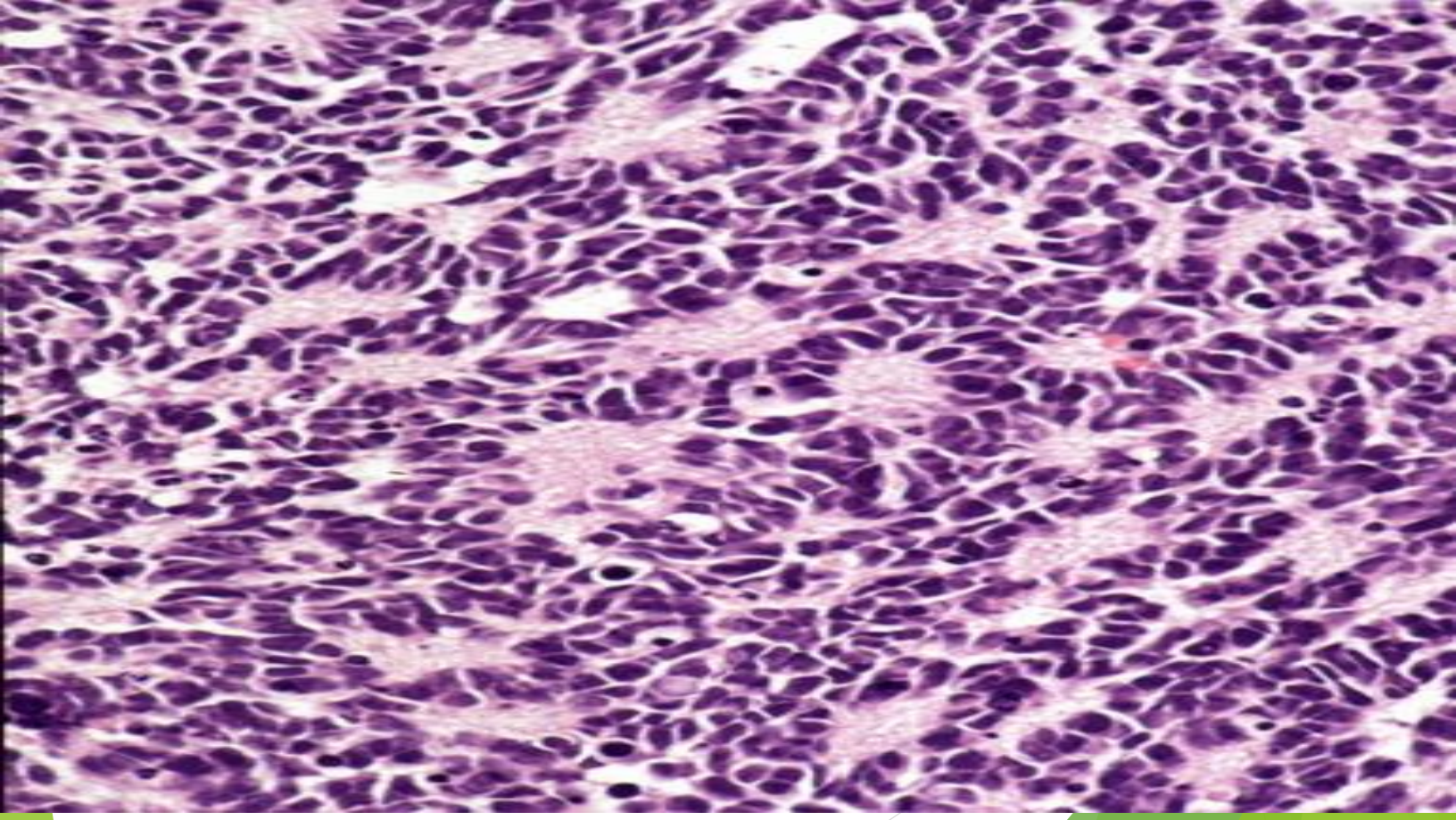
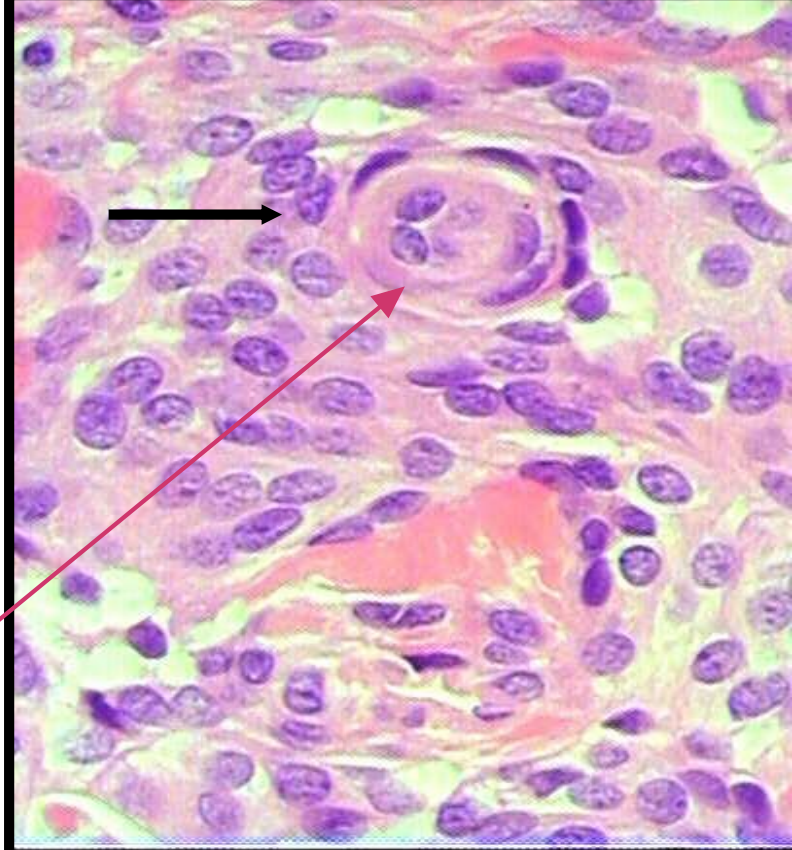
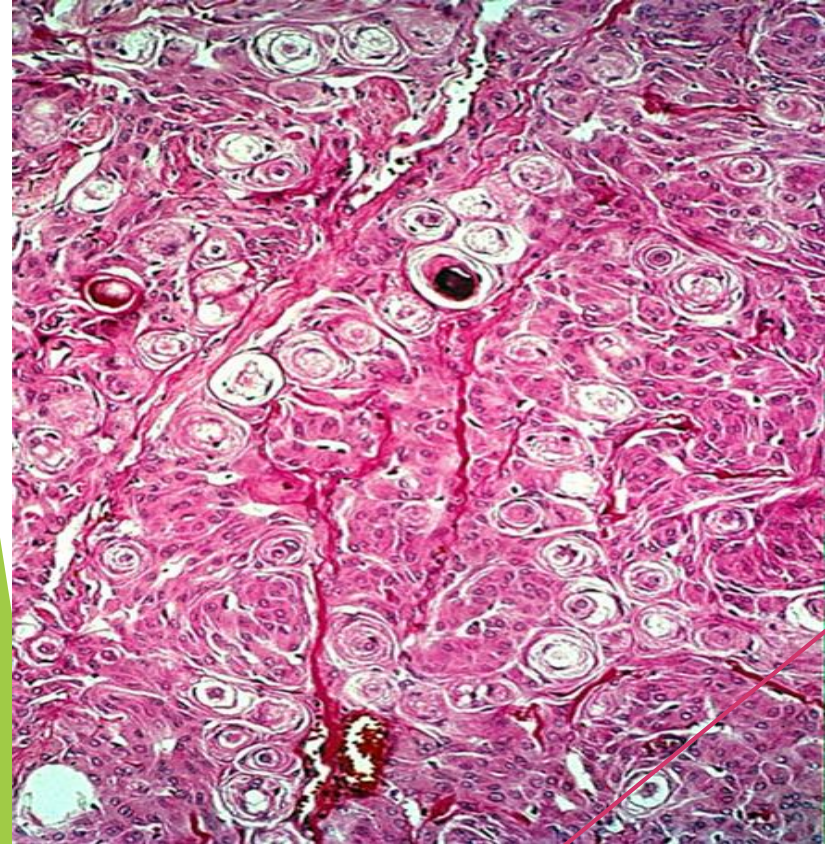


Fig. 23.32 Medulloblastoma. (A) Sagittal section of a brain showing medulloblastoma involving the superior vermis of the cerebellum. (B) Microscopic appearance of medulloblastoma, showing mostly small, blue, primitive-appearing tumor cells.

A) primitive neoplasm

diagnosis only done after immunostaining to differentiate from ewing sarcoma, rhabdomyosarcoma, lymphoma





Psammoma bodies are diagnostic of meningiomas in brain tumors

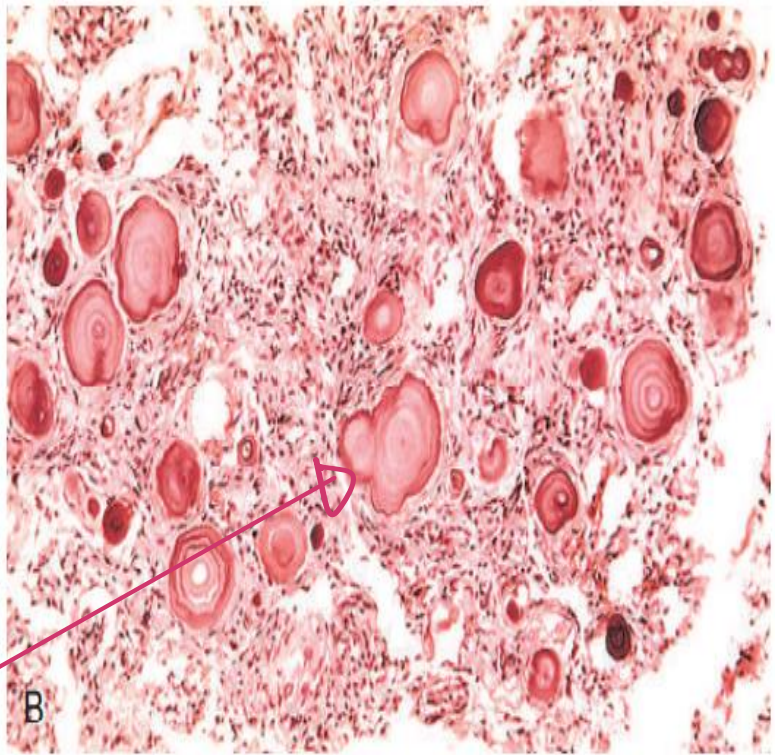
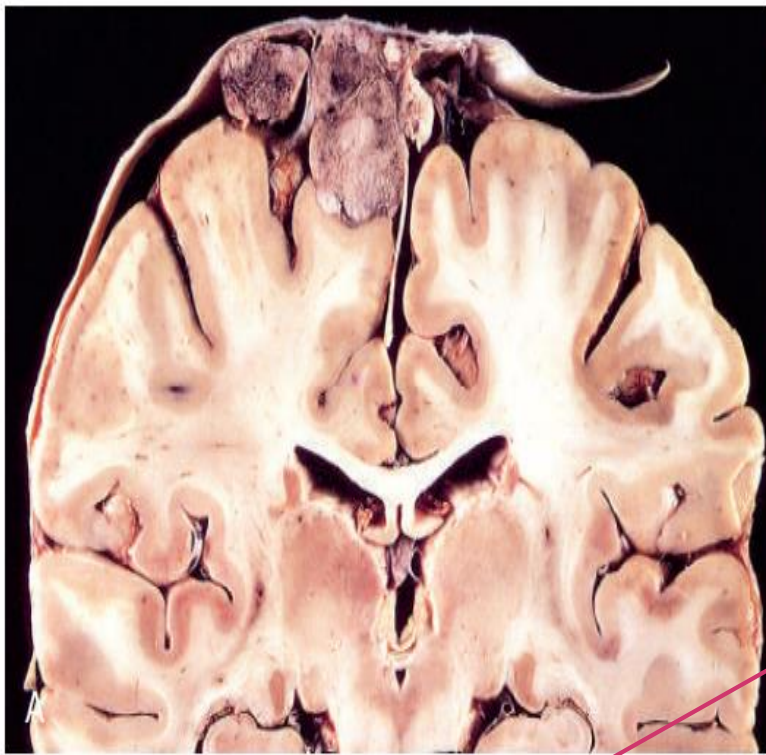


Fig. 23.33 Meningioma. (A) Parasagittal multilobular meningioma attached to the dura with compression of underlying brain. (B) Meningioma with a whorled pattern of cell growth and psammoma bodies.

ثُمَّ السَّبِيلَ يَسَّرَهُ ﴿٢٠﴾

[ثُمَّ السَّبِيلَ يَسَّرَهُ]

"الأصل في الحياة البُسْر، مهما صَعَبَتْ، والعُسْر والشَّدَّةُ عَارِضَةٌ، القلبُ المُنكسرُ المَتَأَلِّمُ سيَجْبُرُهُ الجَبَّارُ، الطَّرِيقُ المسدودُ سيفتَحُهُ الفَتَّاحُ، أُمُورُكَ المَعْوِجَةُ ستَسْتَقِيمُ، أوجاعُكَ ستُشْفَى، أَنْتَ مُلِكٌ لِه، فليطمئن قلبك. ♥"

