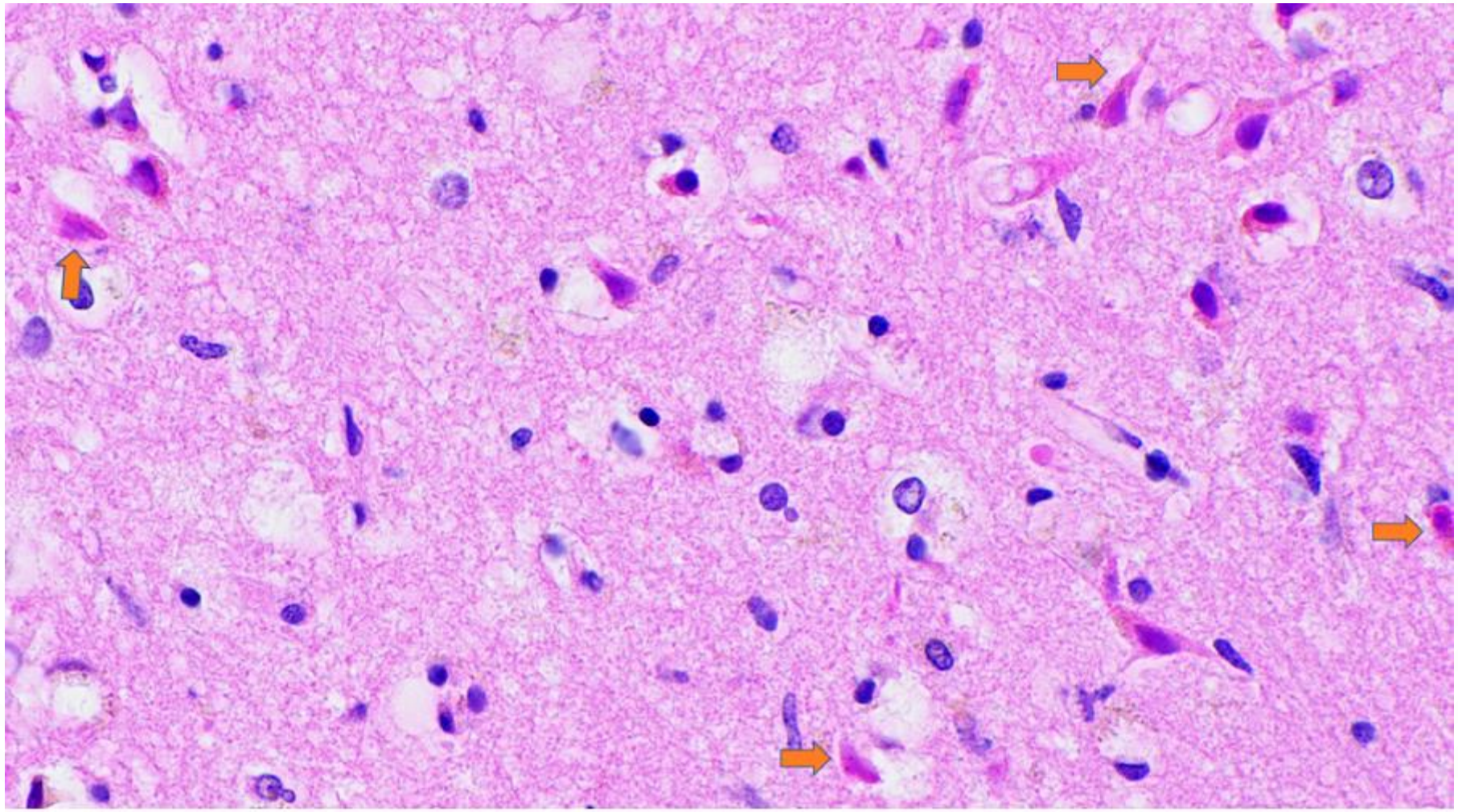
NEUROSCIENCE PATHOLOGY-II

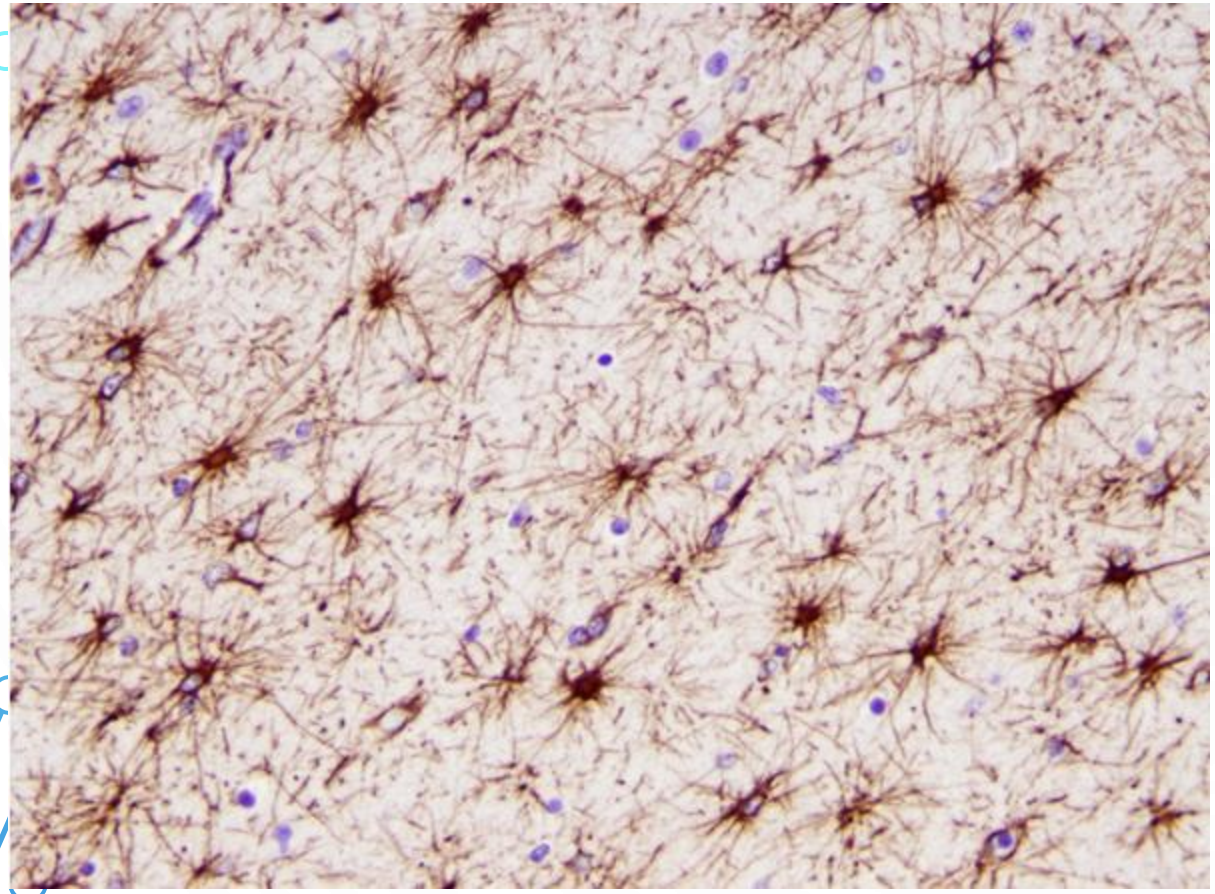
LAB

DR.EMAN KREISHAN, M.D.

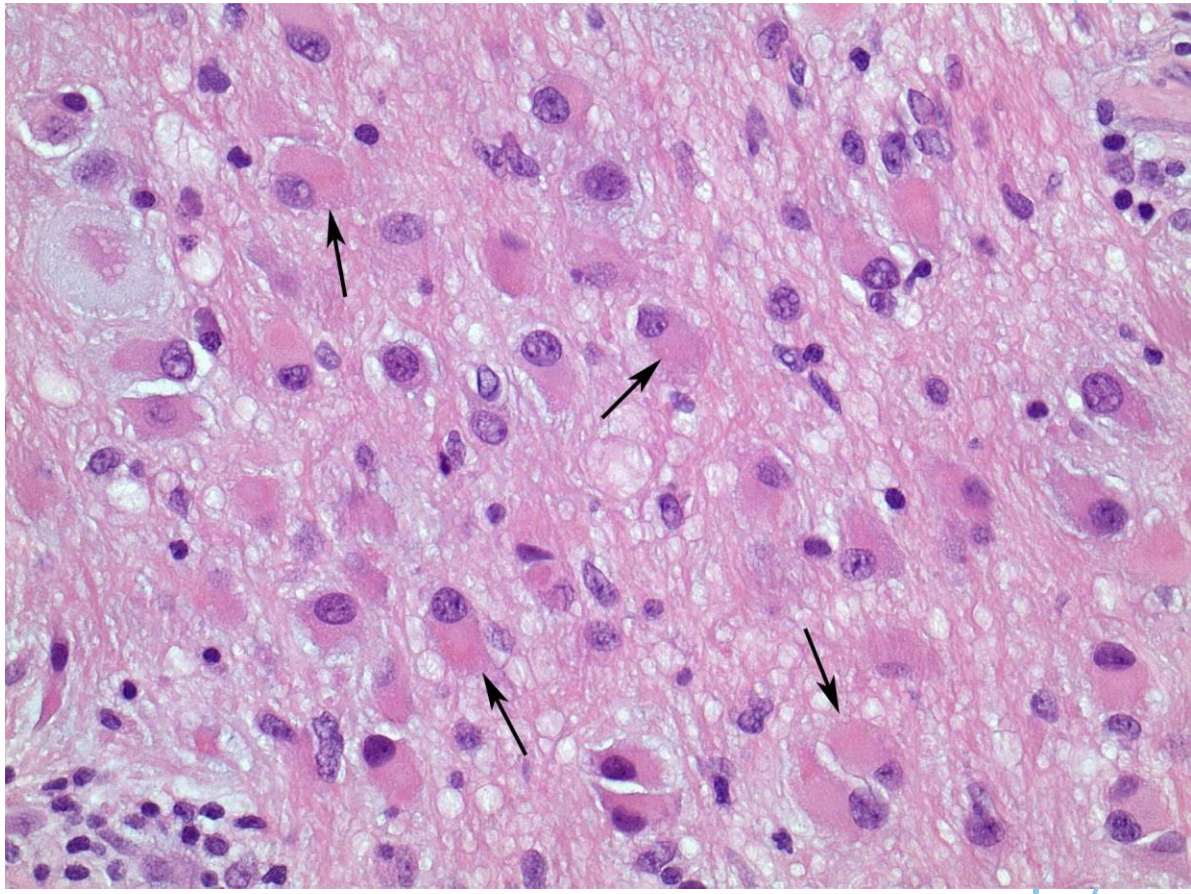
ACUTE NEURONAL INJURY



Astrocyte Injury

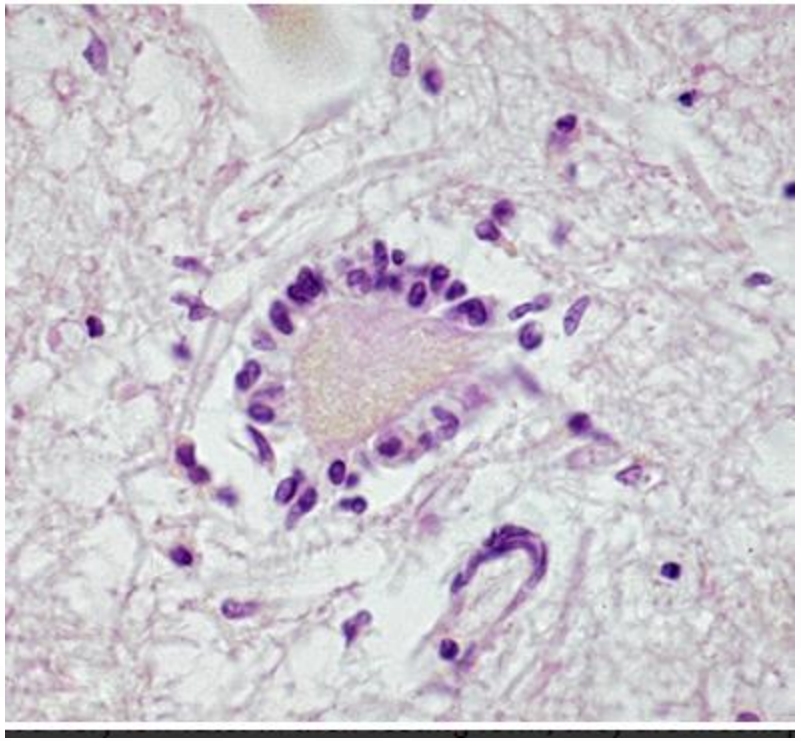


Normal astrocyte

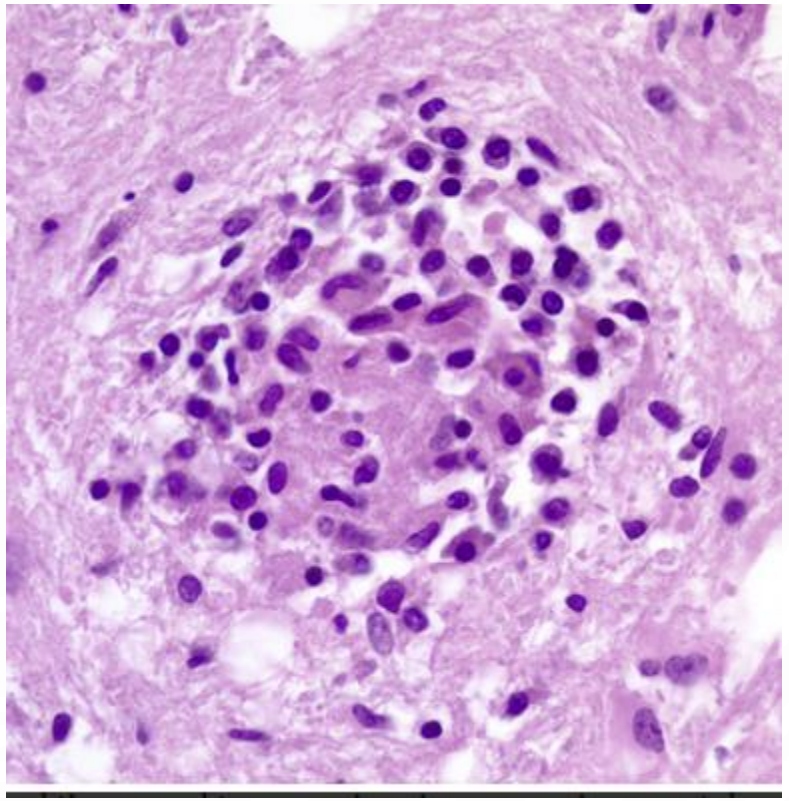


Gemistocytic astrocyte

MICROGLIAL ACTIVATION



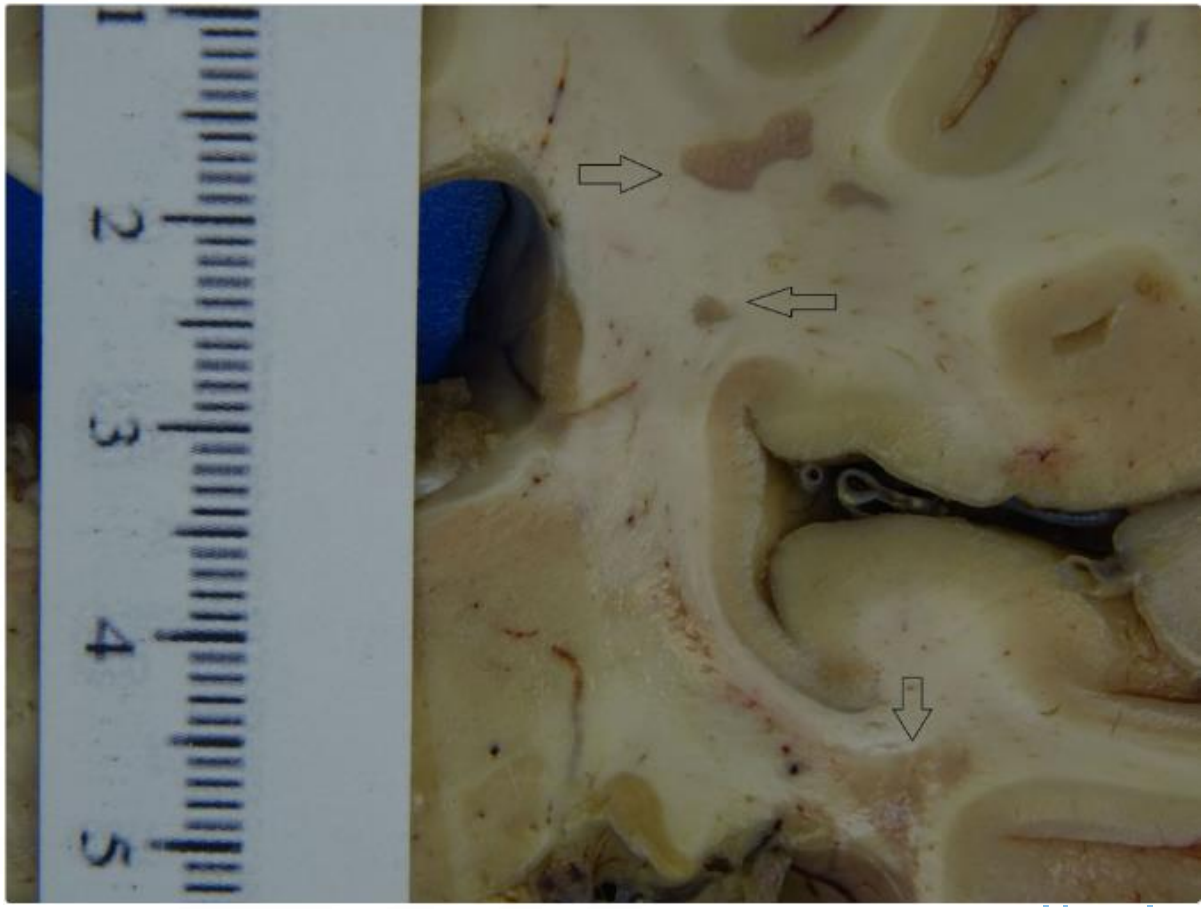
Neuronophagia



microglial nodules

GROSS APPEARANCE OF MS

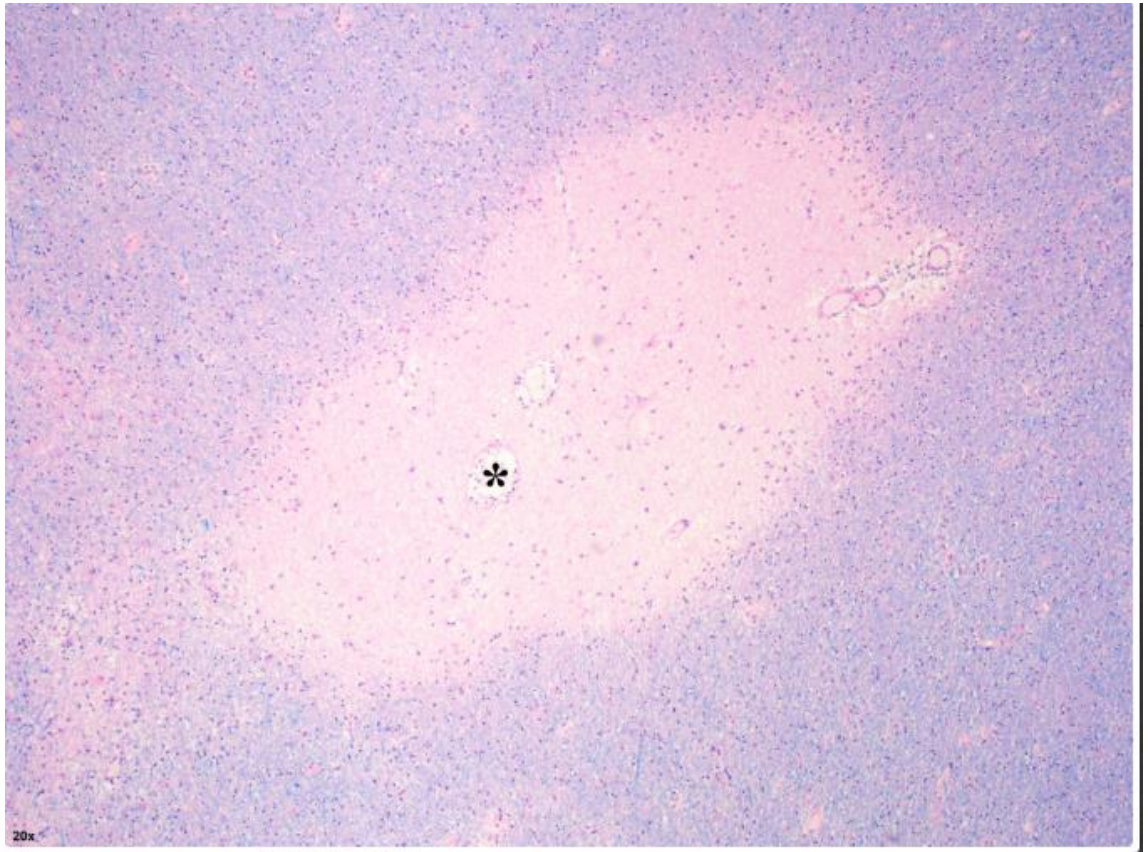
plaques tend to be rounded, tan-gray and variably sized with a sharp demarcation from the surrounding brain tissue



MICROSCOPIC FEATURES OF MS

*Active plaques (ongoing myelin breakdown): contain abundant macrophages with perivascular cuffs of Lymphocytes.

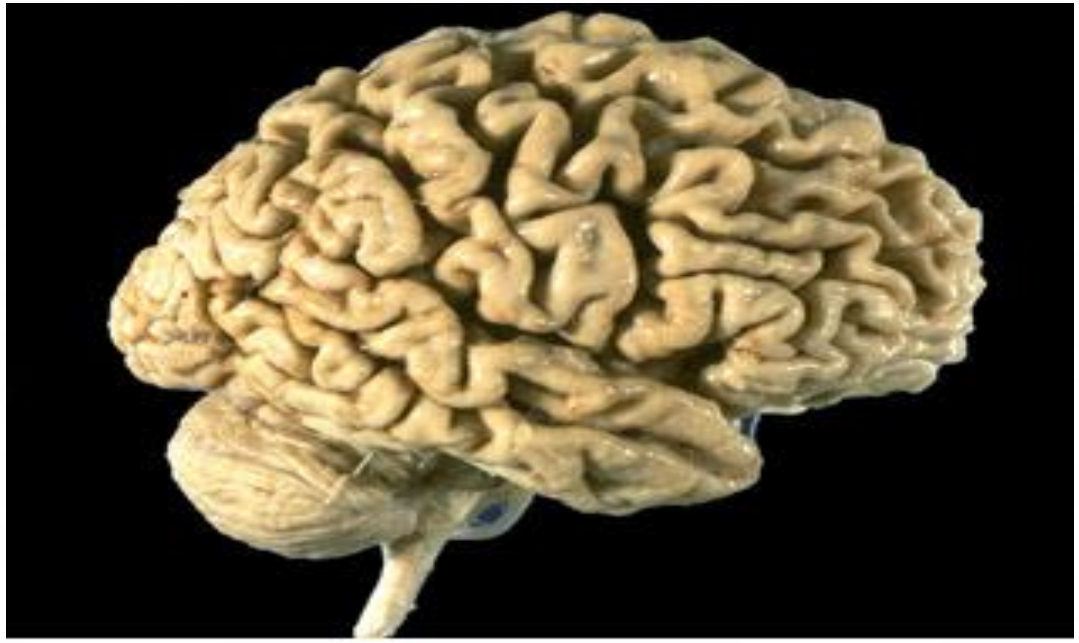
*Inactive plaques (quiescent): inflammation disappears, leaving little to no myelin, & gliosis.



H&E / LFB stained section with a well demarcated area of demyelination centered around a vein (*).

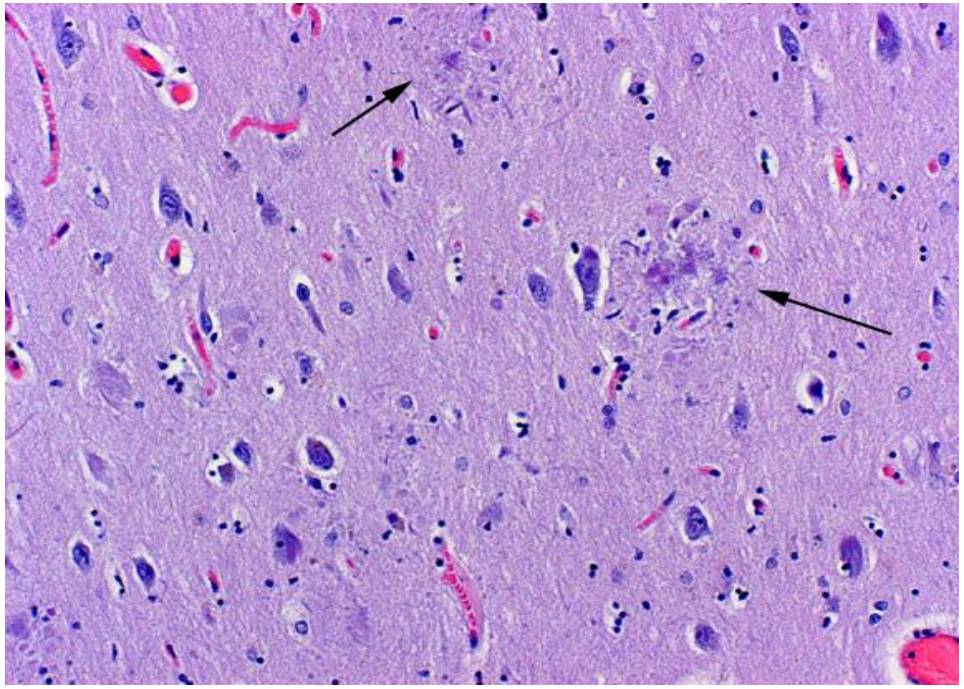
Gross features of AD

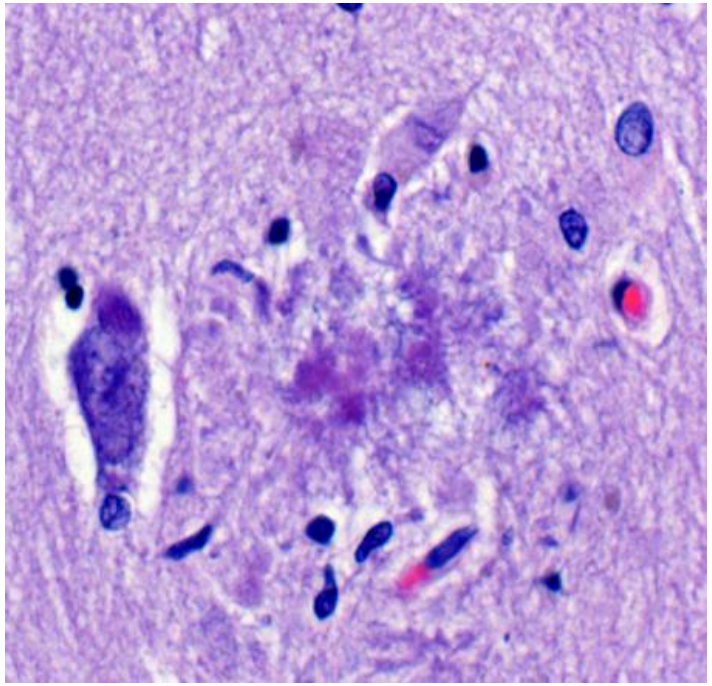
A variable degree of cortical atrophy, resulting in a widening of the cerebral sulci that is most pronounced in the frontal, temporal, and parietal lobes.



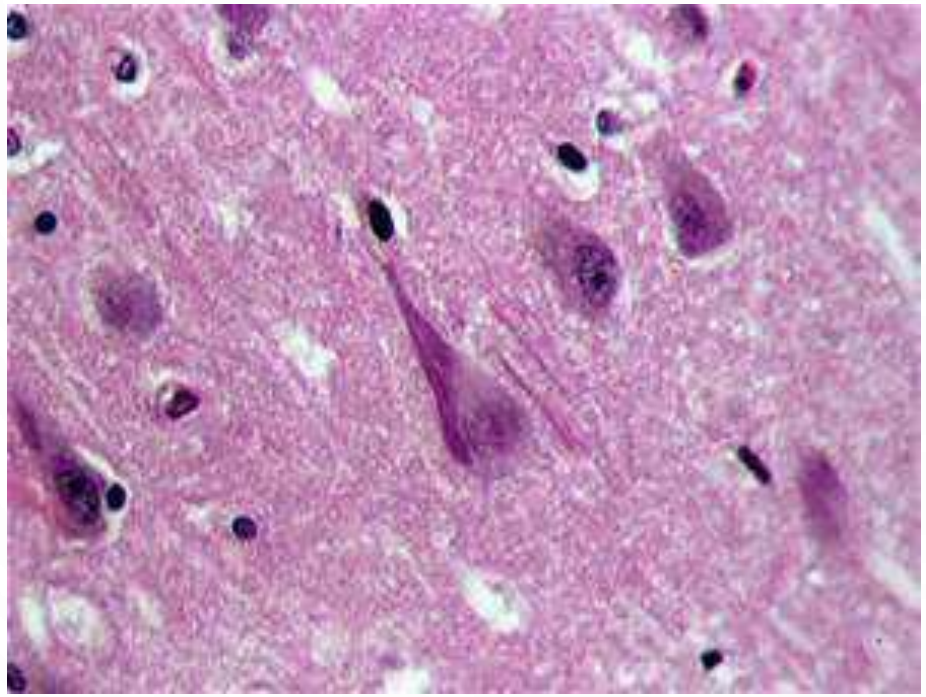
Microscopic features AD

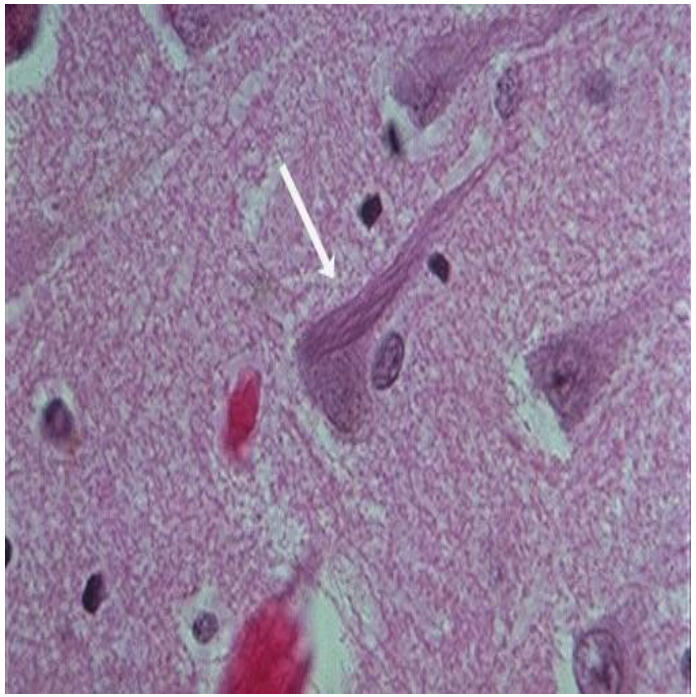
Neuritic plaques are focal, spherical collections of dilated, tortuous, processes of dystrophic neurites around a central amyloid (aβ) core





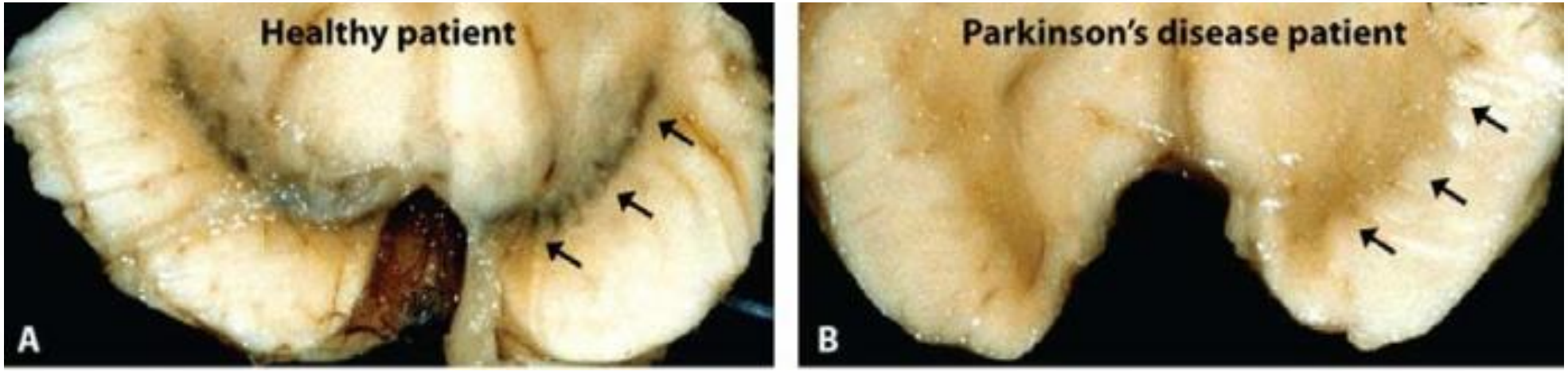
Neurofibrillary tangles: tau containing bundles of filaments in neurons cytoplasm :flame shapes.





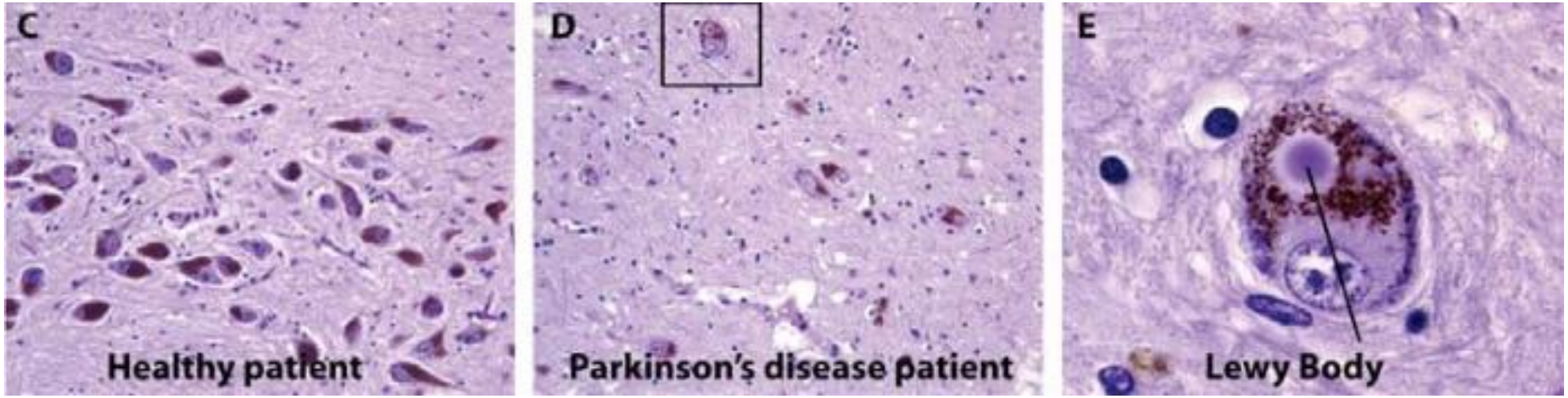
GROSS FEATURES OF PD

- Pathological examination of a healthy patient (A) reveals typical pigmented DA neurons in the SN .
- loss of SN neurons leads to pigment disappearance in the PD brain (B, arrows).



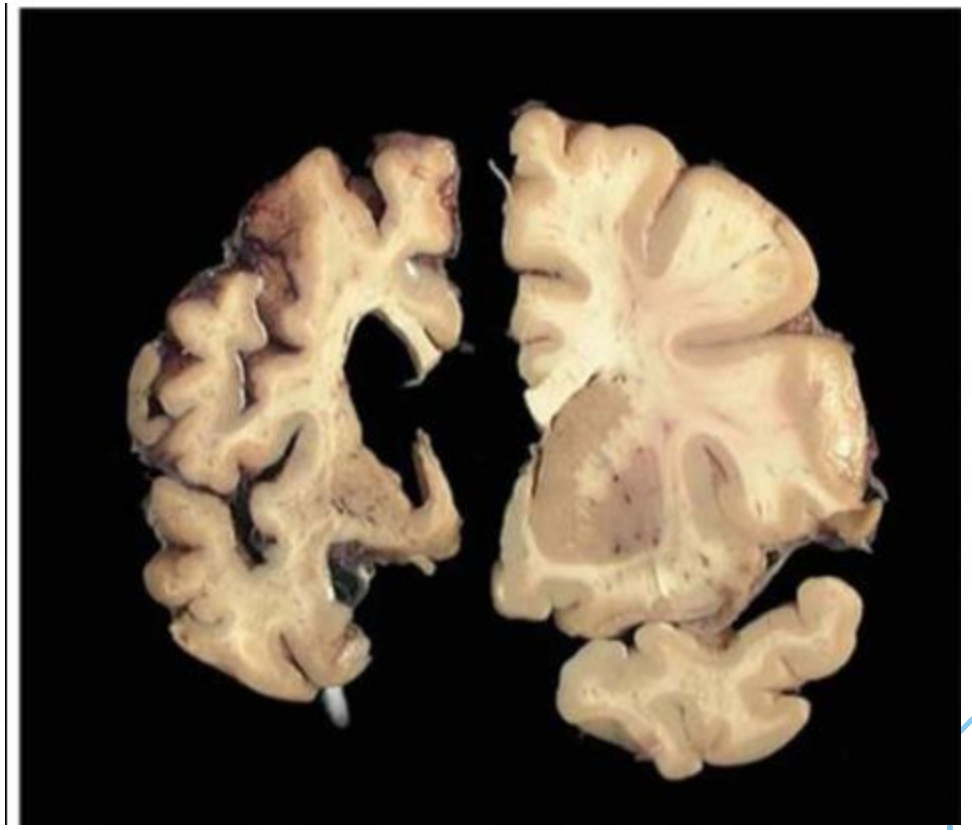
MICROSCOPIC FEATURES OF PD

- C: SN area reveals a dense network of melanin-pigmented SN neurons in the healthy brain.
- D: most of SN neurons are lost in PD .
- E: Some of the remaining neurons in PD contain insoluble cytoplasmic protein aggregates (Lewy Bodies).



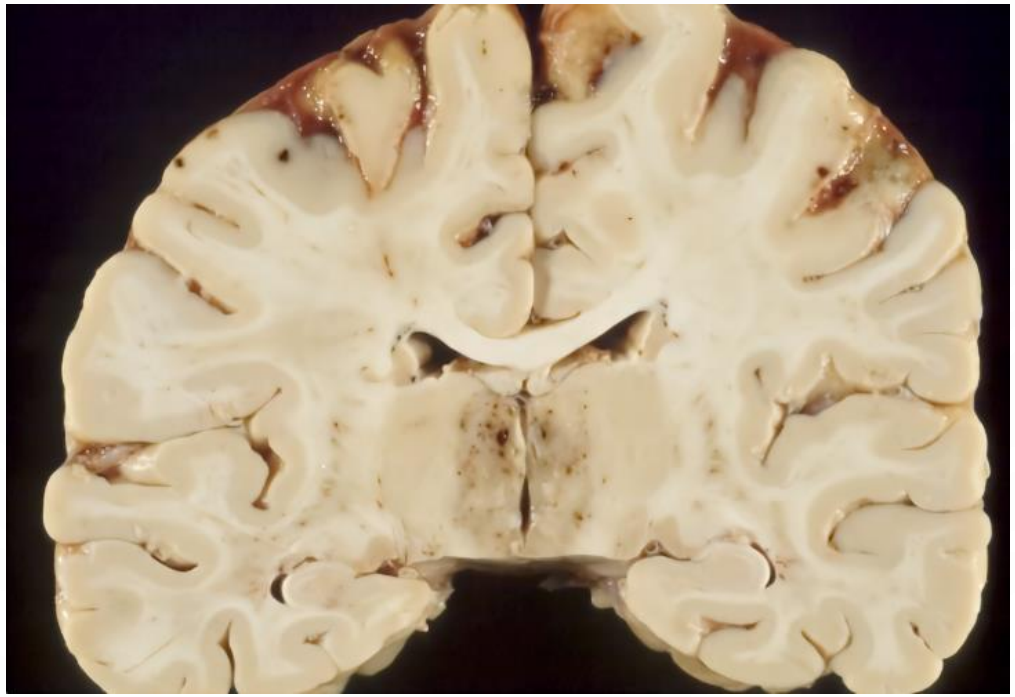
GROSS FEATURES HUNTINGTON DISEASE (HD)

coronal slices though human brain showing a normal brain on the right and an advanced HD brain on the left. Note the profound shrinkage of cortex and caudate



GROSS FEATURES OF WERNICKE ENCEPHALOPATHY

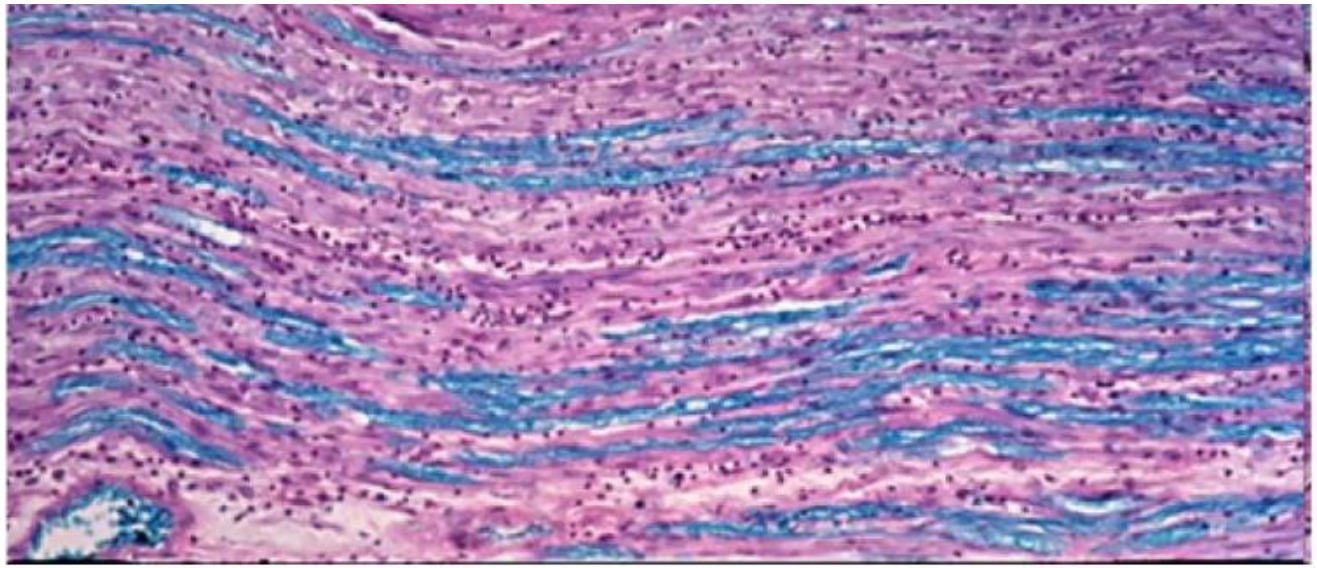
- Petechial hemorrhages involving mammillary bodies and bilateral subcortical regions of periventricular (third and fourth) areas.



- Mononeuritis multiplex:
  - The damage randomly affects individual nerves, resulting (for example) in a right radial nerve palsy and wrist drop and, at a separate point in time, a left foot drop.
  - Mononeuritis multiplex is often caused by vasculitis.

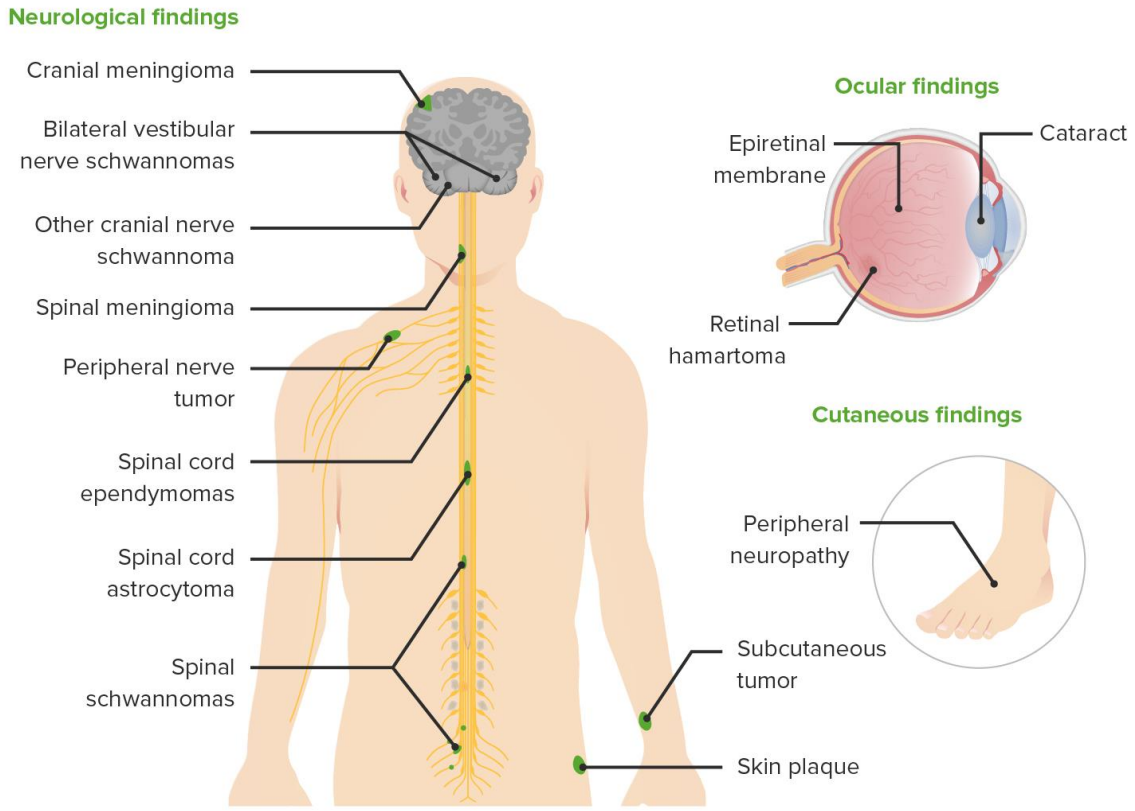
MICROSCOPIC FEATURES OF GBS

- Histological findings include Segmental demyelination & inflammation of peripheral nerves, (perivenular and endoneurial mononuclear cell infiltrates rich in macrophages).



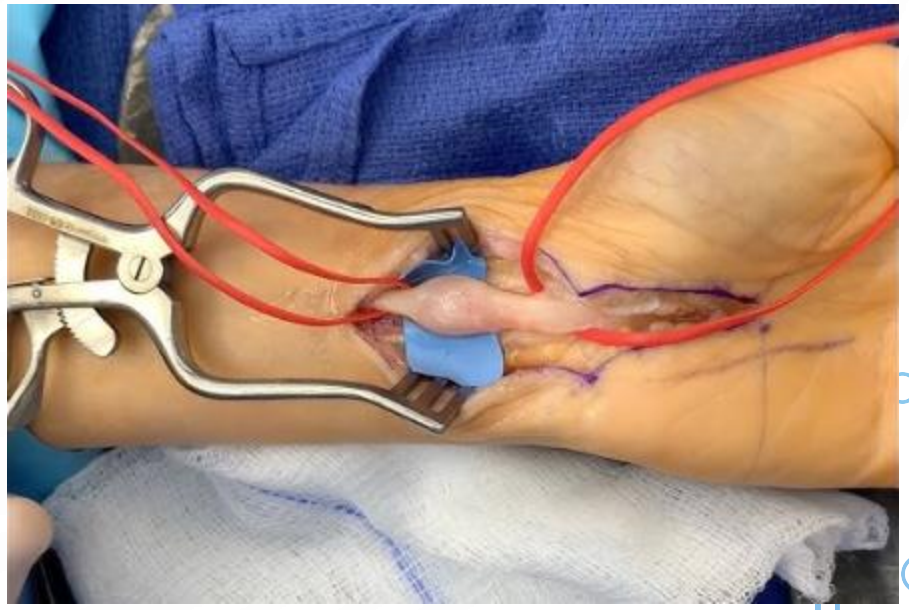
This is a mid-power image of a nerve which has been stained with a different myelin stain, which stains the myelin blue. There is patchy myelin loss within the nerve. You an also see some small round lymphocyte nuclei.

- May occur spontaneously , and can occur in familial tumor syndromes, such as **neurofibromatosis type 2 (NF2)????**



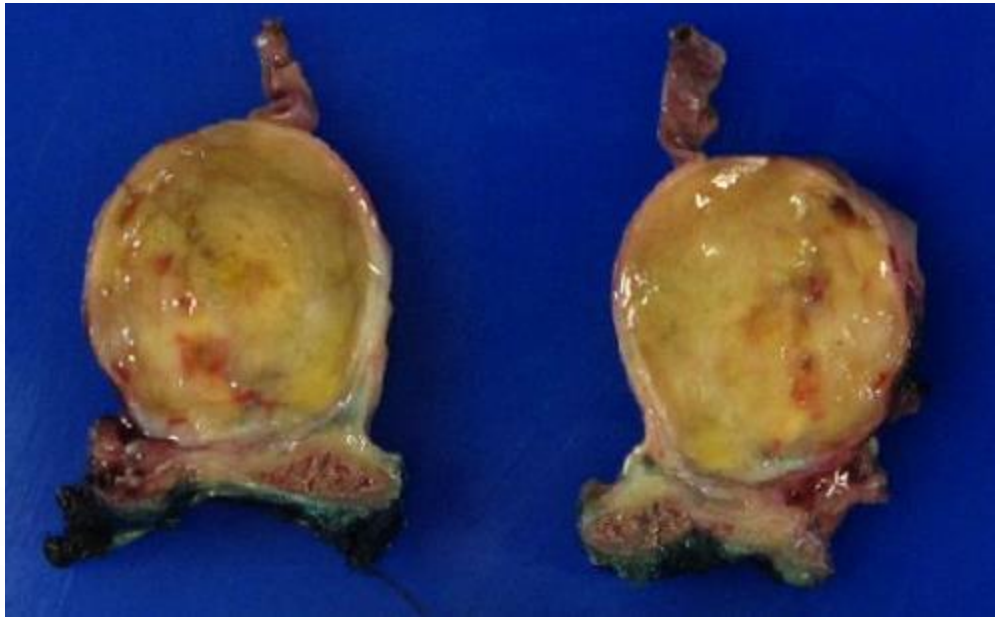
CLINICAL FEATURES OF SCHWANNOMAS

- Pain and neurological symptoms are uncommon unless the tumor is large.
- Surgical excision is the treatment of choice, Local recurrence is uncommon
- Most cases have an indolent course



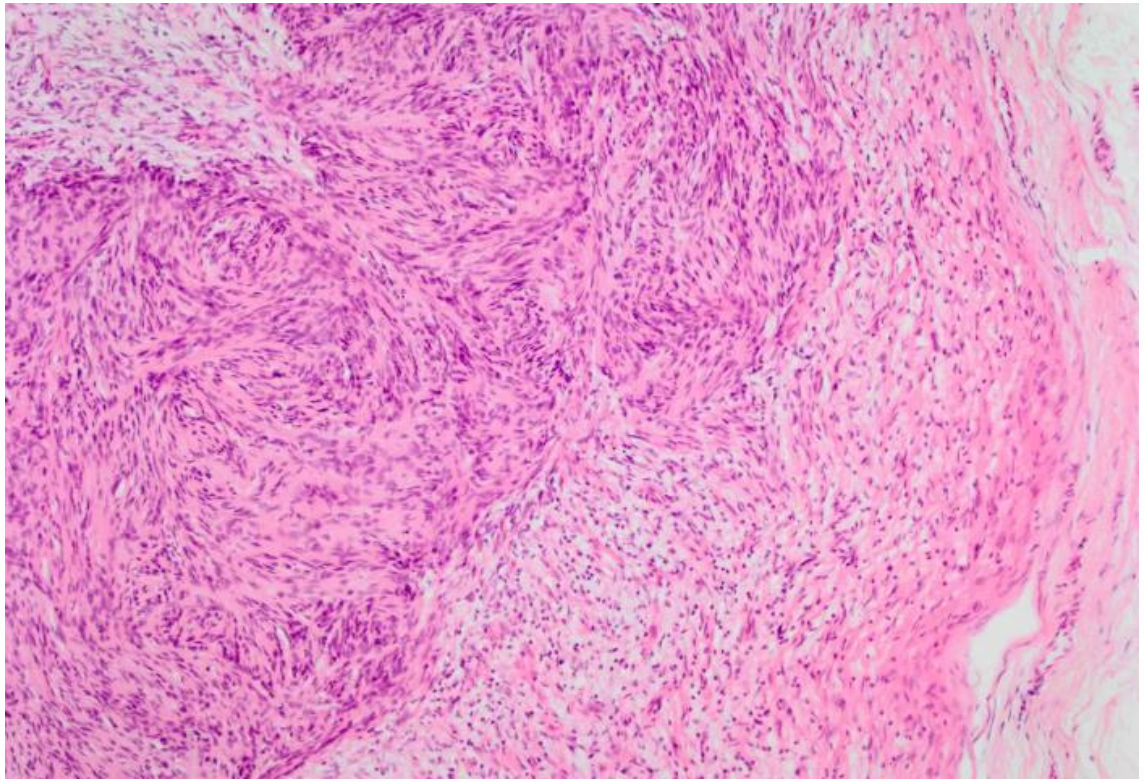
GROSS DESCRIPTION OF SCHWANNOMAS

- Usually solitary and completely encapsulated.



HISTOLOGICAL FEATURES OF SCHWANNOMAS

- Spindle cell proliferation, arranged in hypo/hypercellular pattern.



- Localized neurofibromas are superficial and evenly disturbed over the body surface.
- Diffuse neurofibromas are usually in the head and neck region.
- Presented as Painless, slowly growing, solitary, skin colored, soft mass.

Histological features of NEUROFIBROMAS

- proliferation of all elements of peripheral nerves including schwann cells with wire-like collagen fibrils and fibroblasts