

HISTOLOGY PRACTICAL LECTURE - 8 -

NERVOUS TISSUE

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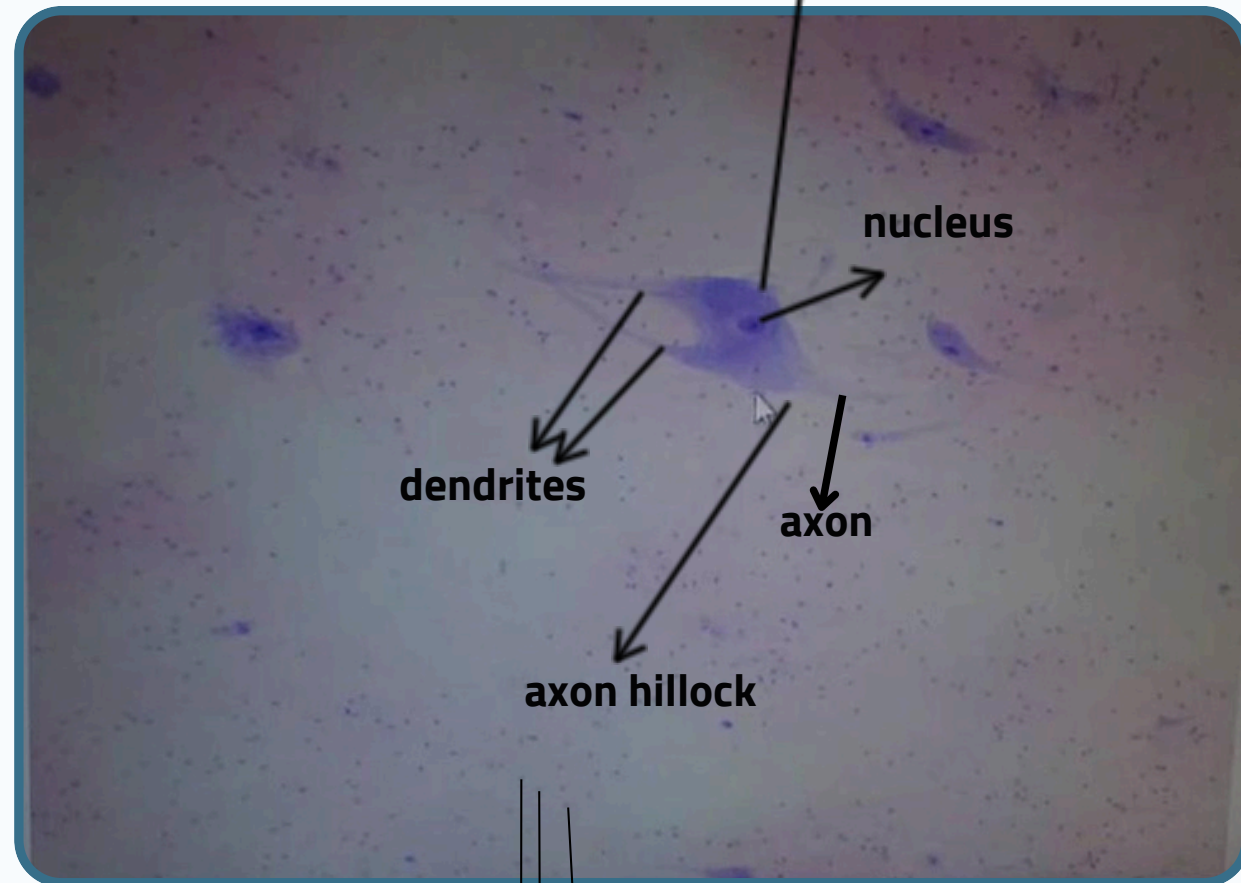
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NERVOUS TISSUE



Multipolar **neuron**
 Soma (pericarion) -
 trophic (synthetic part)
 Large nucleus with
 prominent nucleolus

OX Spinal Cord



Nissle Stain

glial cells

the small dots

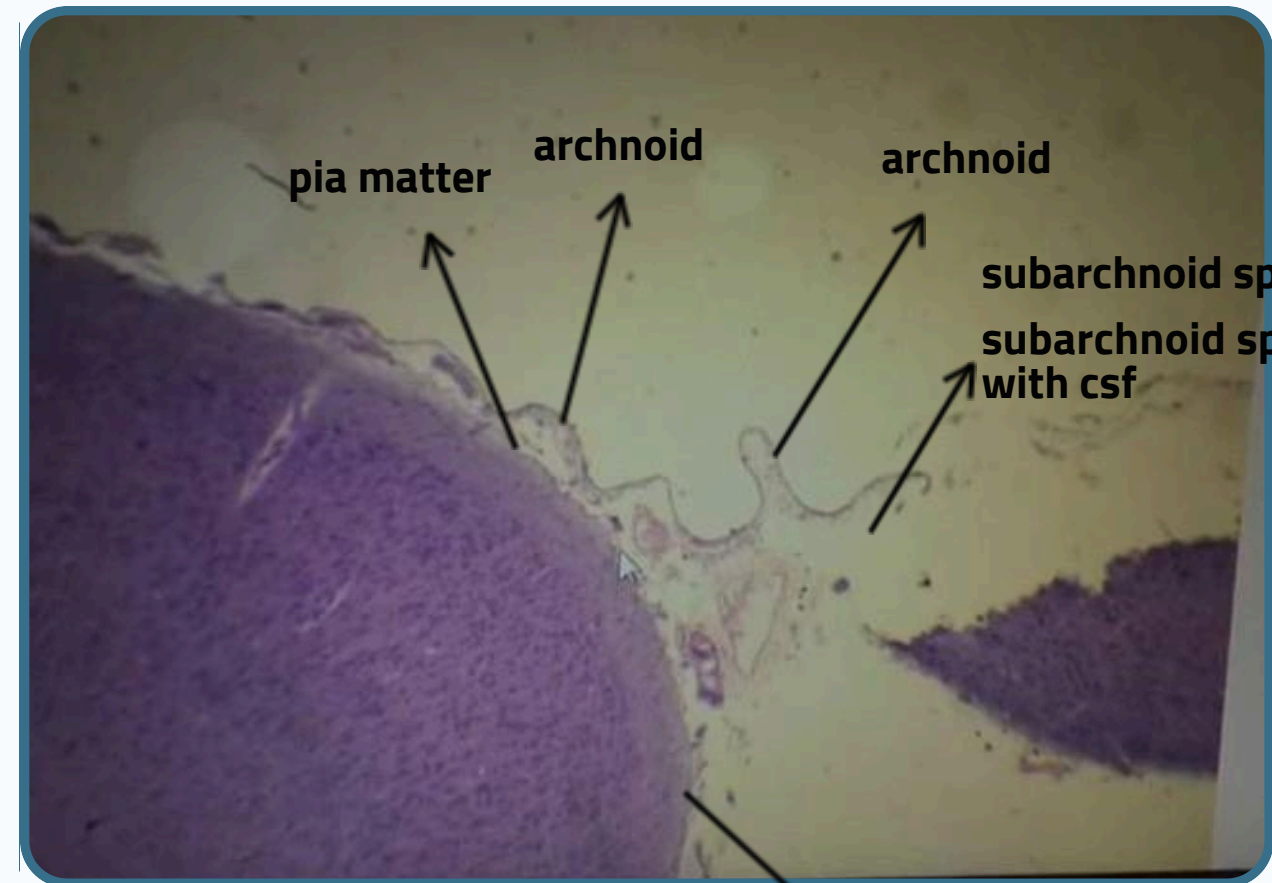
Axon hillock (no granules)

Axolima (membrane of axon)

Axoplasm (content of axon)

Basophilic granules (polyribosoms highly developed RER)
 called nissle body or nissle granules

Cerebra Cortex



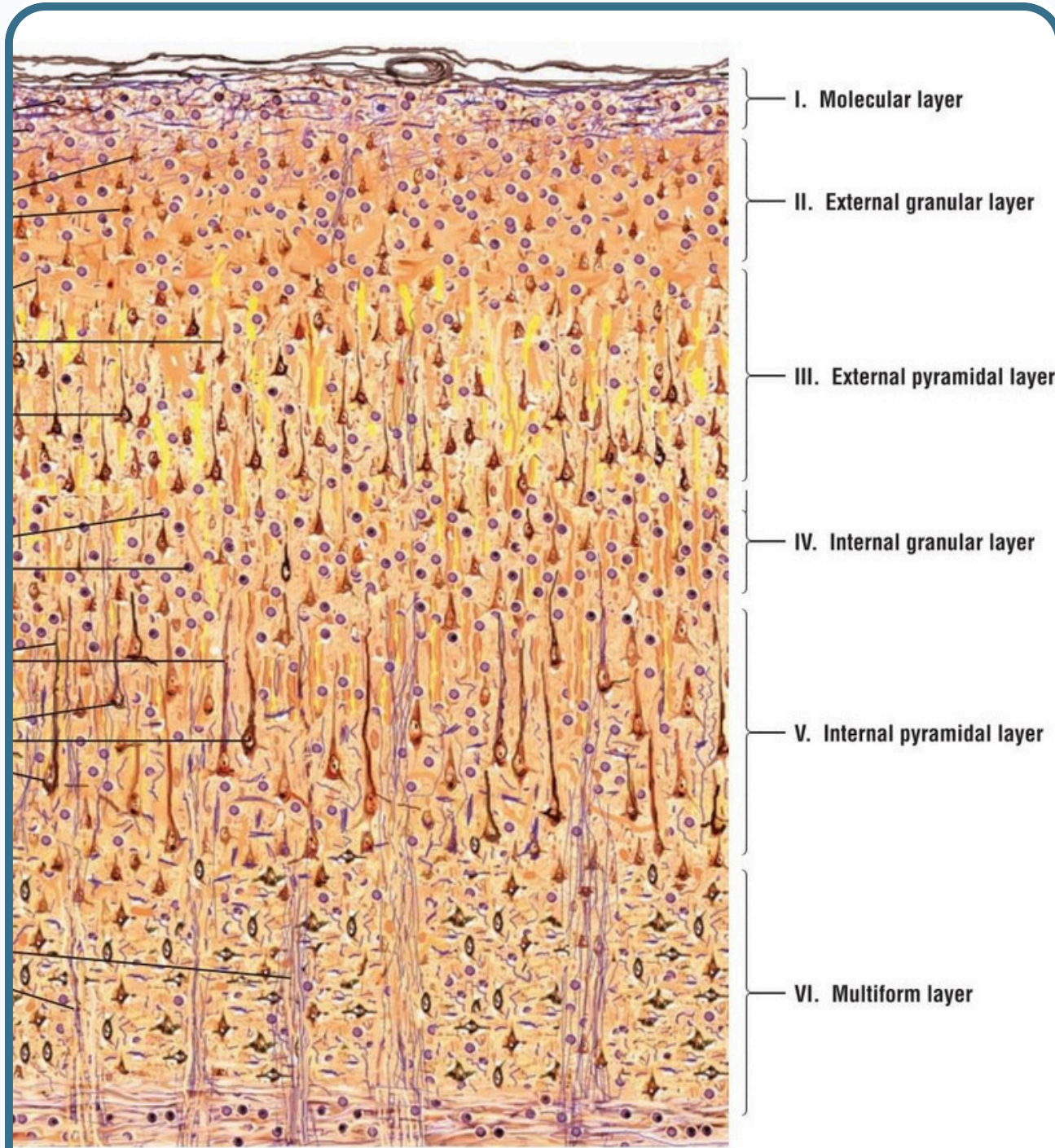
Hematoxylin and Eosin

pia matter

Pia matter (flattened
 mesenchymal cells directly
 adherent to nervous tissue)



Gray Matter Has 6 Layers

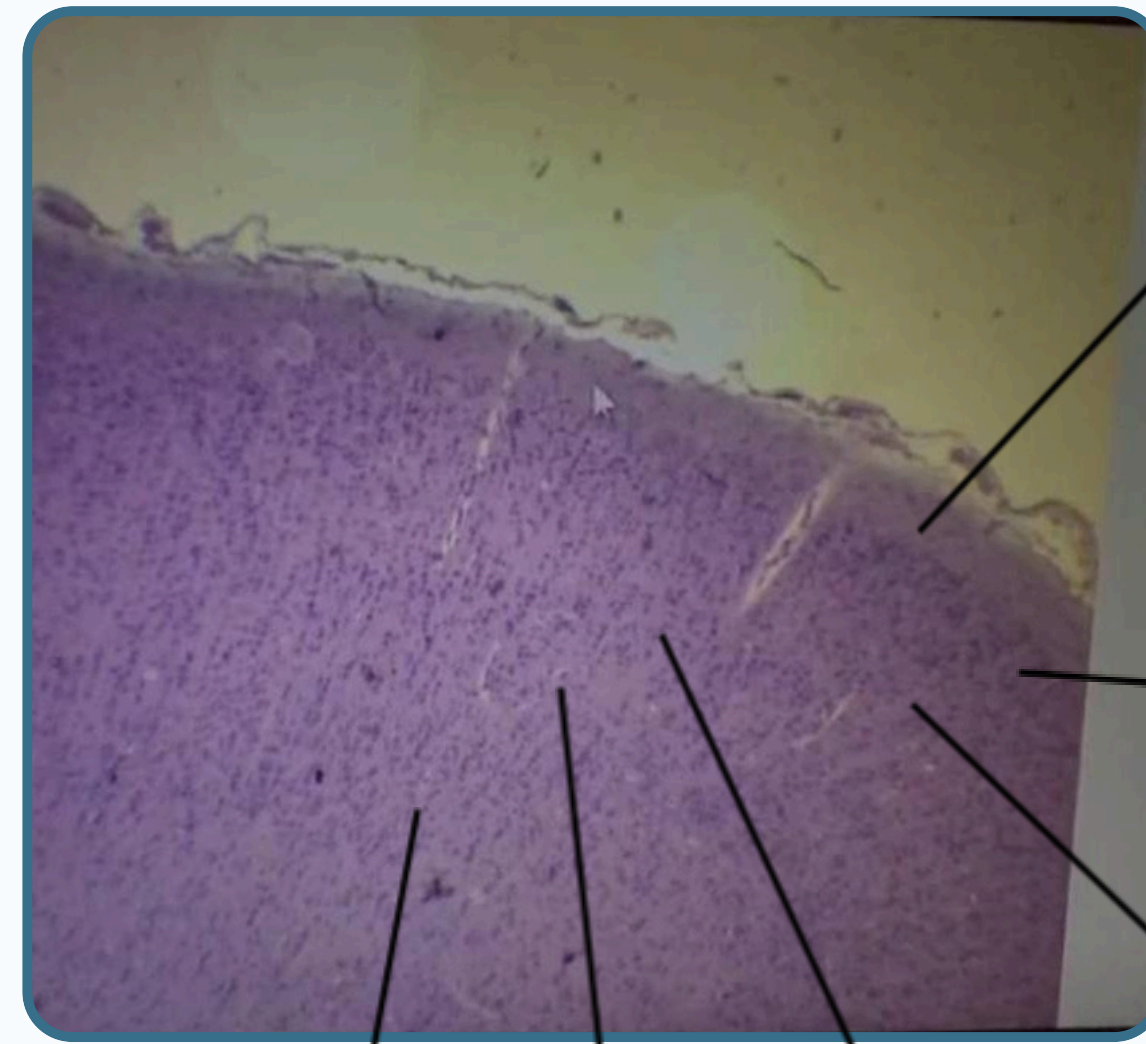


- I. Molecular layer
- II. External granular layer
- III. External pyramidal layer
- IV. Internal granular layer
- V. Internal pyramidal layer
- VI. Multiform layer

cortex: gray matter: Stain: silver impregnation (Cajal's method). Low magnification.

Gray Matter

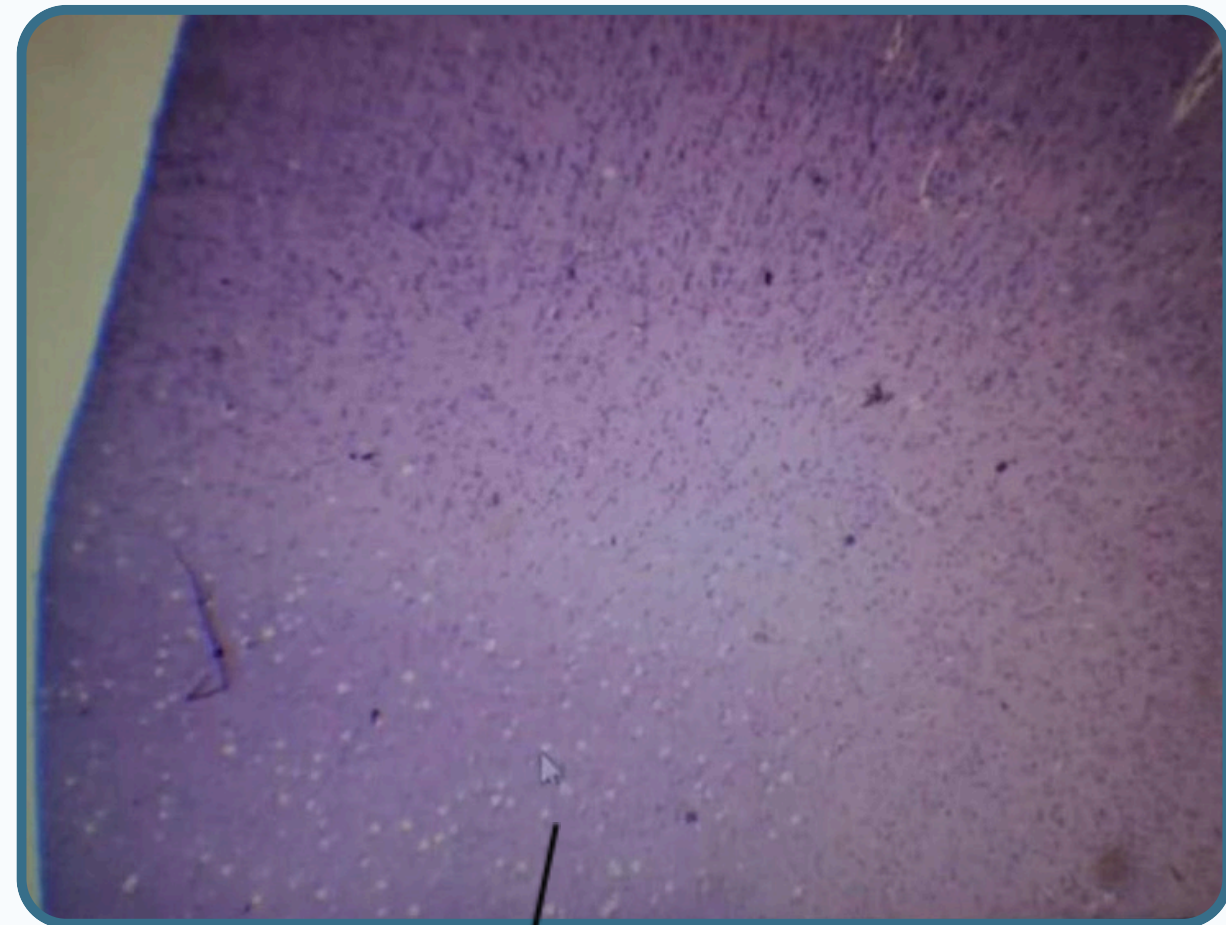
Hematoxylin and Eosin



- 1- molecular layer (scattered neurons with cytoplasmic process and glial cells)
- 2- external granular layer
- 3- external pyramidal layer
- 4- Internal granular layer
- 5- Internal pyramidal layer
- 6- Multiform layer



White Matter

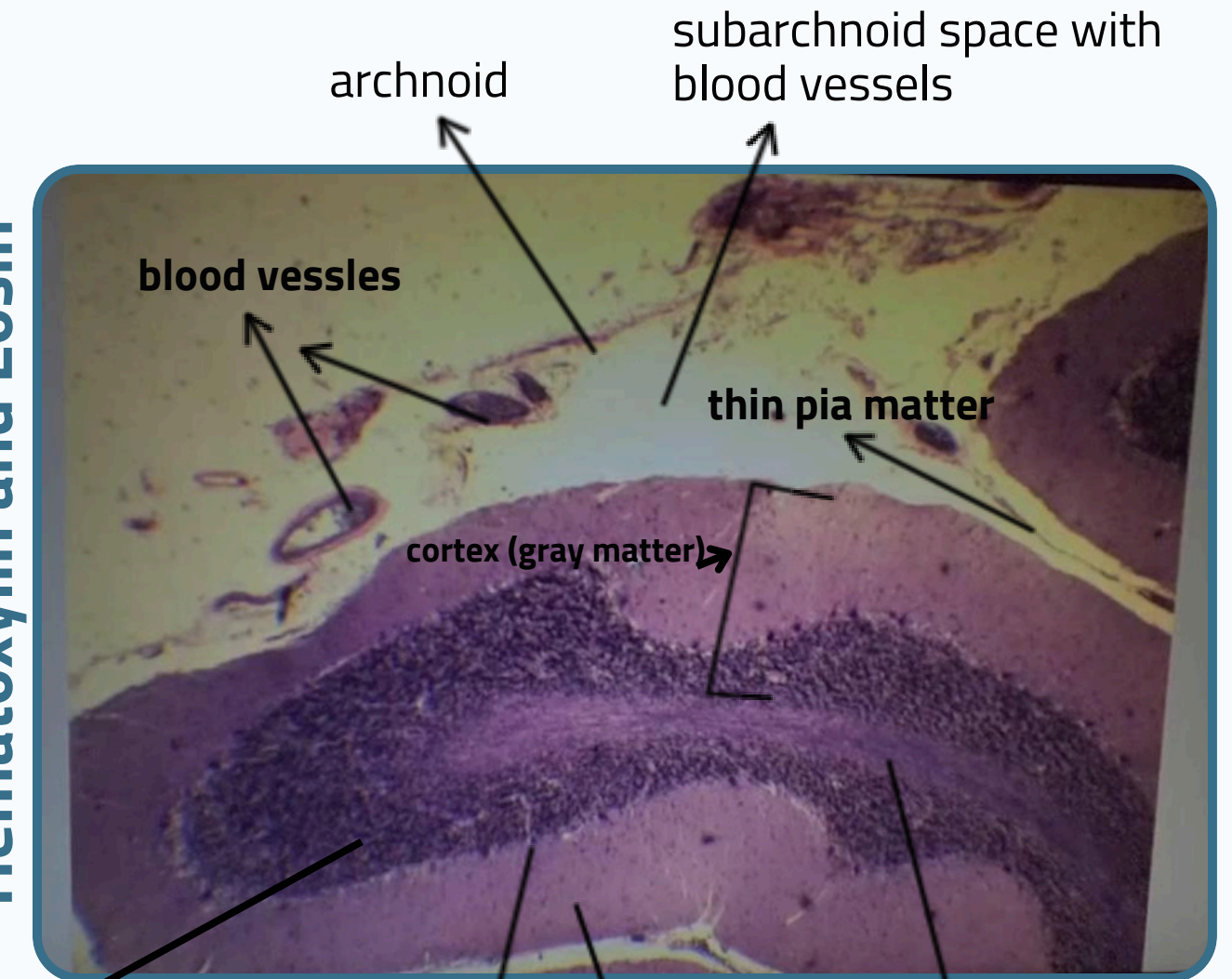


Hematoxylin and Eosin

white matter

myelinated axons with **oligodendrocytes** appear as **Vacuoles** (**myelin** complex lipid is dissolved during preparing)

Cerebellum



Hematoxylin and Eosin

archnoid

subarchnoid space with blood vessels

blood vessels

thin pia matter

cortex (gray matter)

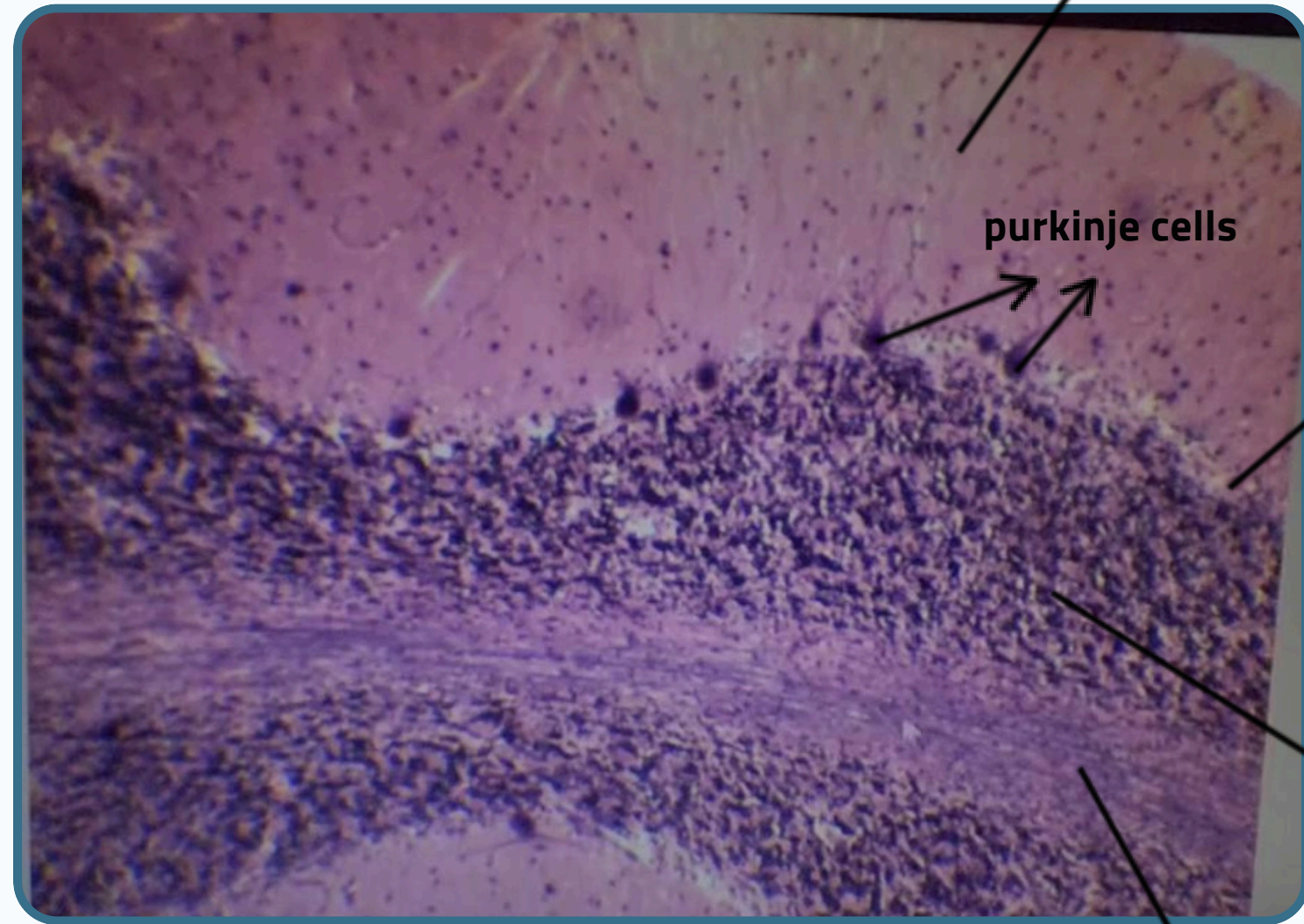
3-thick granular layer (very small neurons called granular cells)

2-thin middle (very large neurons called purkinje cells)

1-thick molecular layer

White Matter
Myelinated axons with oligodendrites

NERVOUS TISSUE



Hematoxylin and Eosin

1-thick molecular layer

purkinje cells

2-thin middle

3-thick granular layer

White matter



1-thick molecular layer

2-thin middle

Silver Stain

purkinje cells

White matter

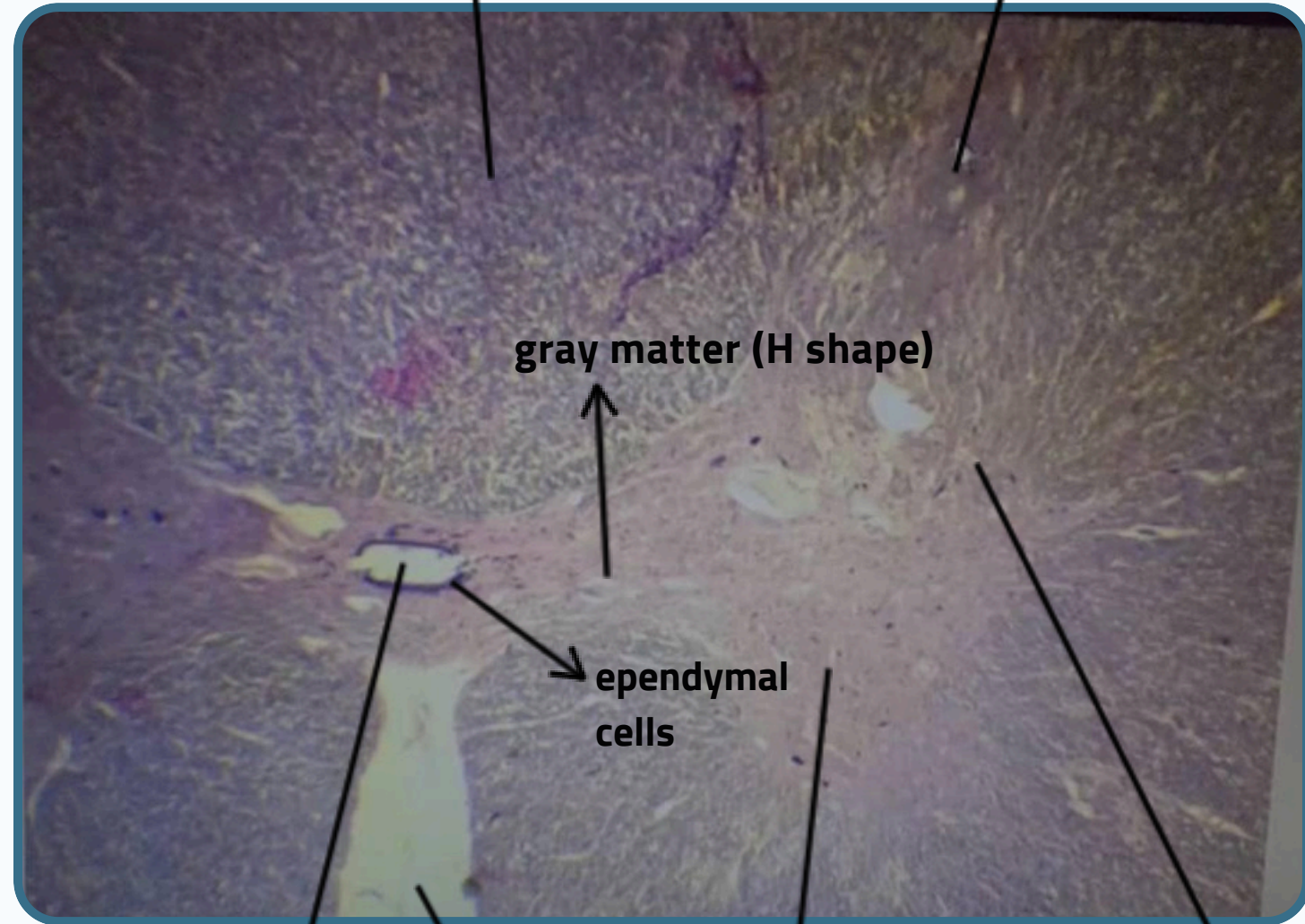
3-thick granular layer

NERVOUS TISSUE



white matter

dorsal horn



gray matter (H shape)

ependymal cells

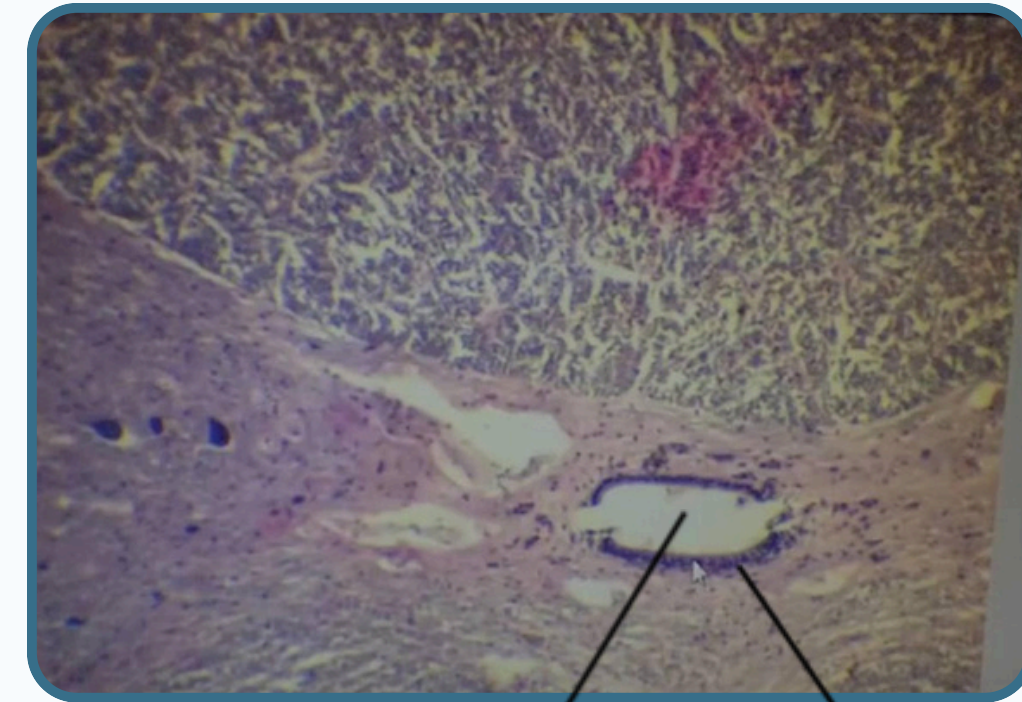
Hematoxylin and Eosin

central canal filled with csf lined by ventral Ependymal cells

Ventral median fissure

Ventral horn

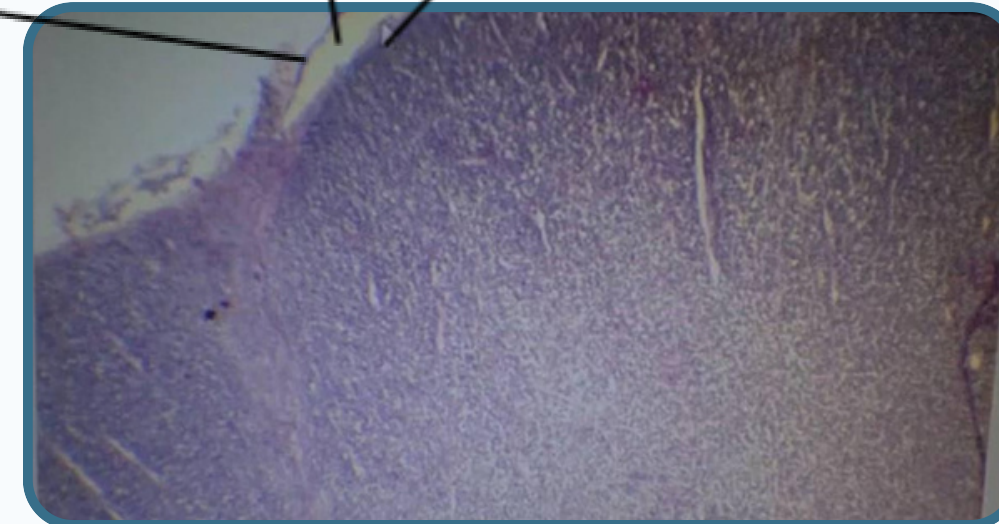
intermediate or lateral horn



central canal filled with csf lined by Ependymal cells

ependymal cells are cuboidal or columnar with microvili on apical surface

sub arachnoid space
pia mater
arachnoid



Hematoxylin and Eosin



NERVOUS TISSUE

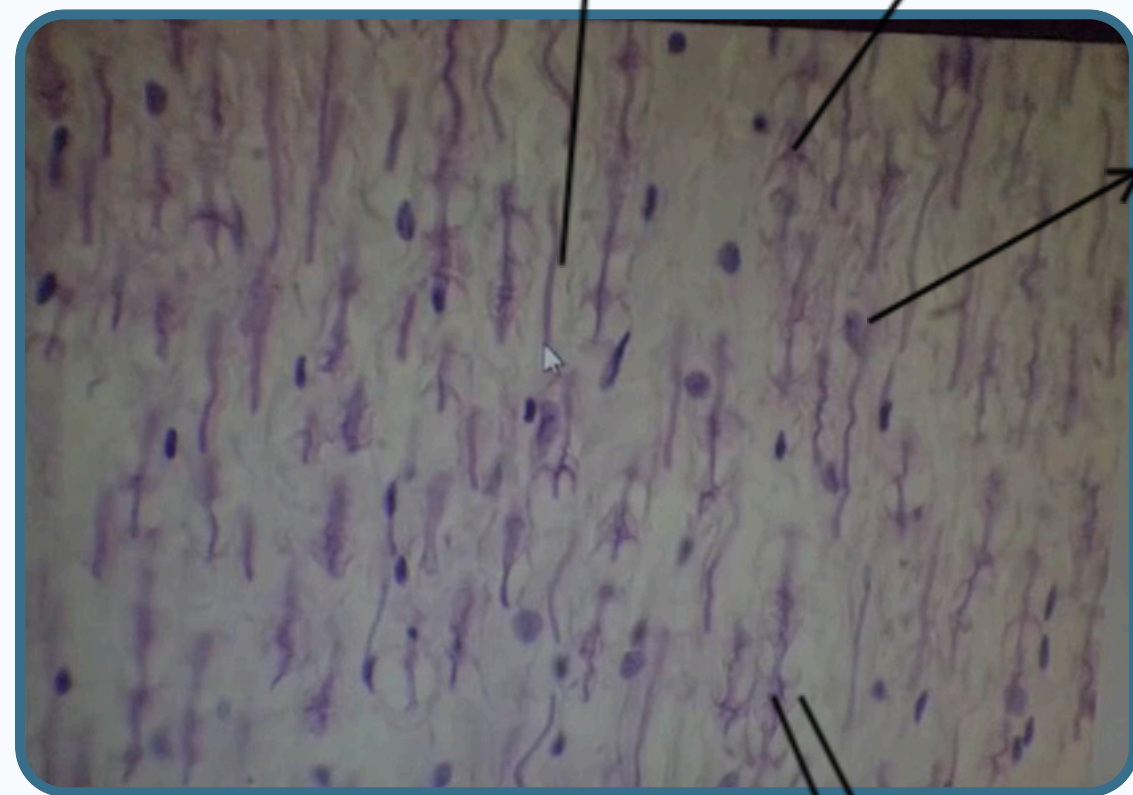


Peripheral Nervous System

Nerve Longitudinal Section

unmyelinated

myelinated



Nucleus of glial cells (schwann cells)

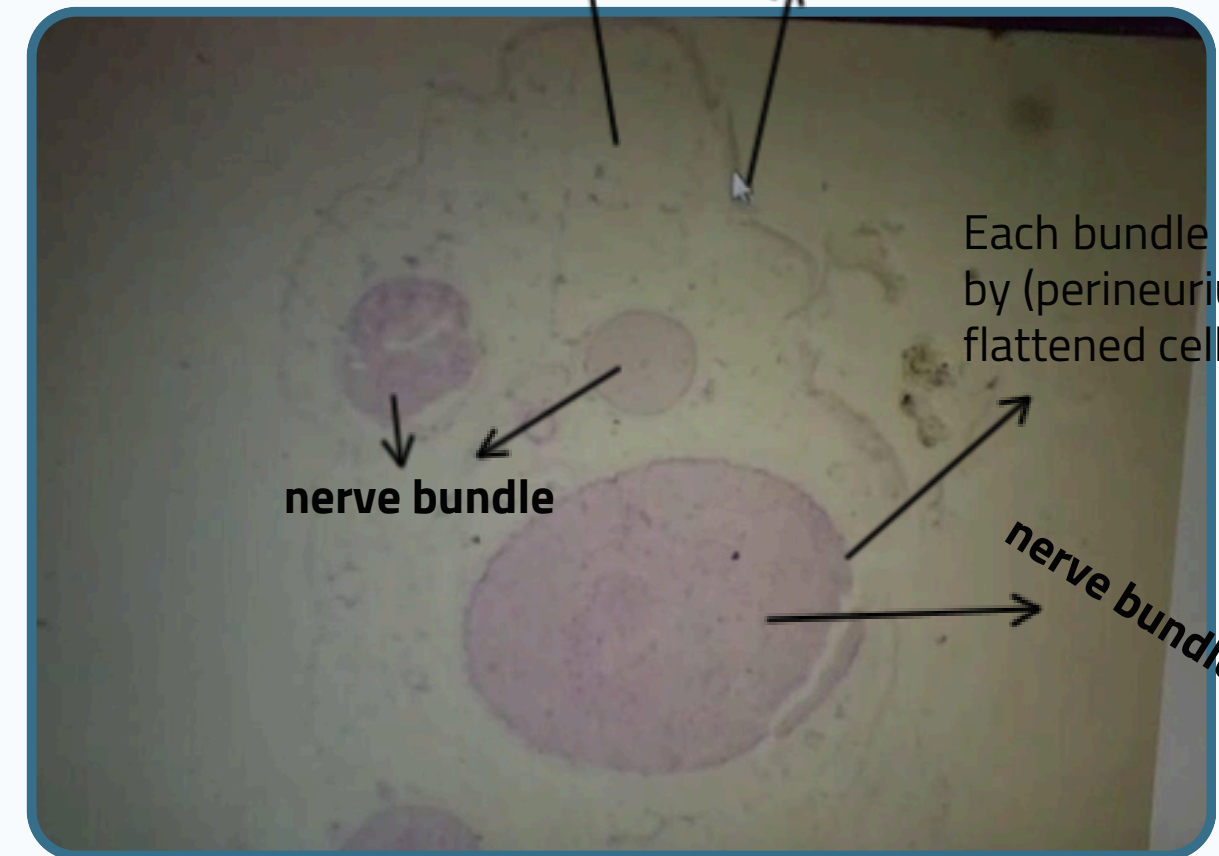
Hematoxylin and Eosin

Neurokeratin on both sides of myelinated axons

Cross Section

-**epineurium** (irregular epineurium fibrous coat) surrounding the fiber and fill spaces between bundles

epineurium



Each bundle is surrounded by (perineurium) consist of flattened cells

nerve bundle

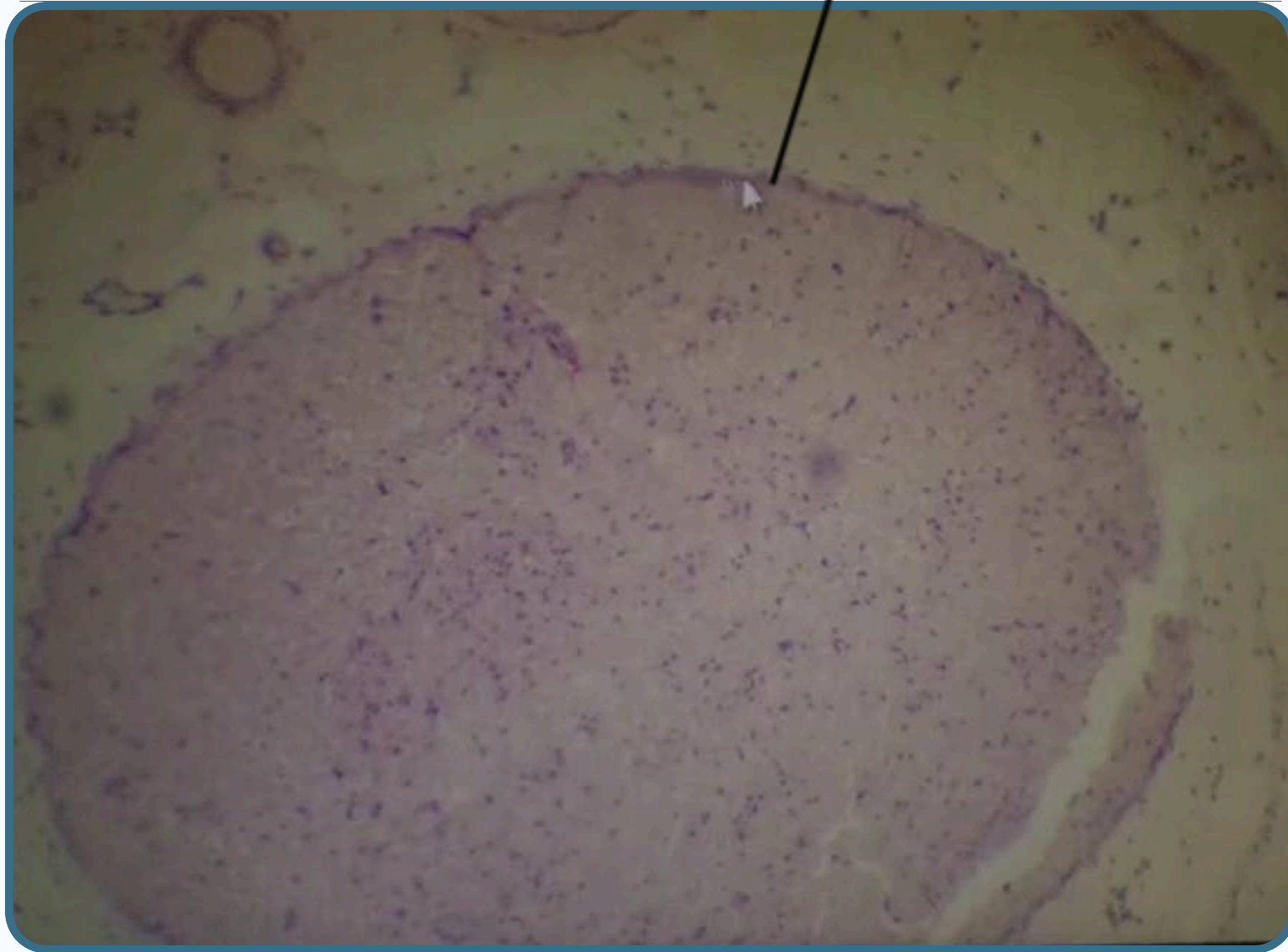
nerve bundle

Hematoxylin and Eosin

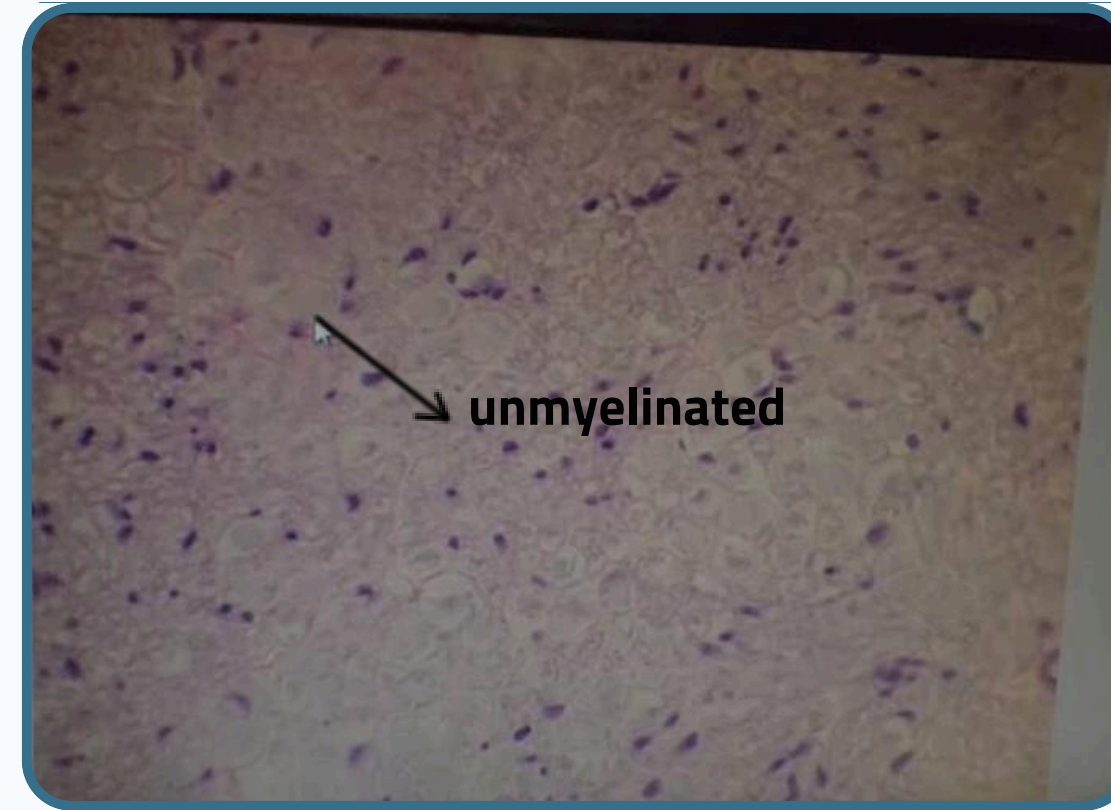
NERVOUS TISSUE



perineurium



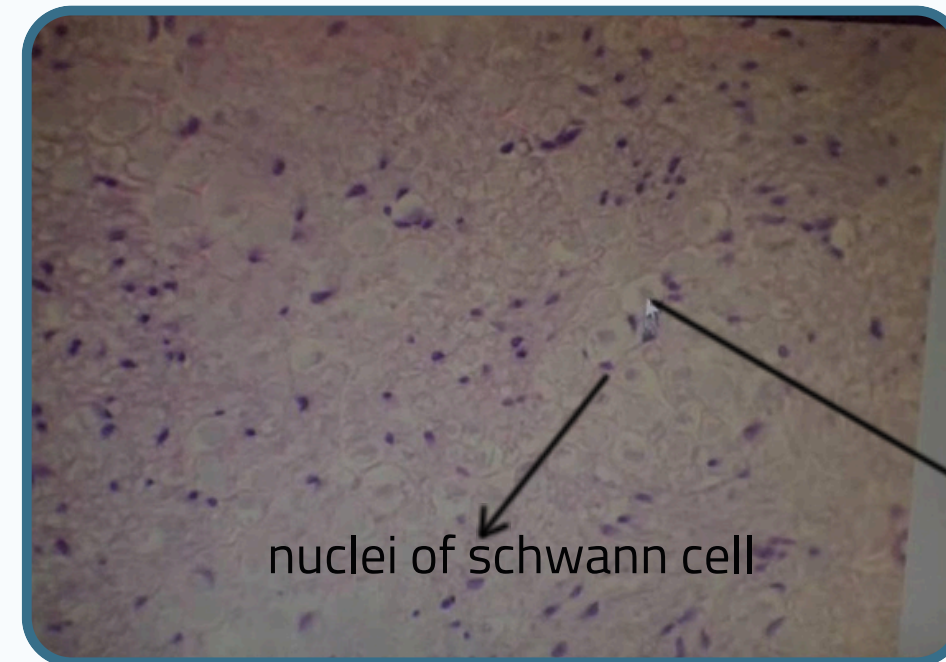
unmyelinated



Each **axon** is surrounded by **endoneurium** consist of **reticular fibers** and **scatterd fibroblast**

nuclei of schwann cell

myelinated





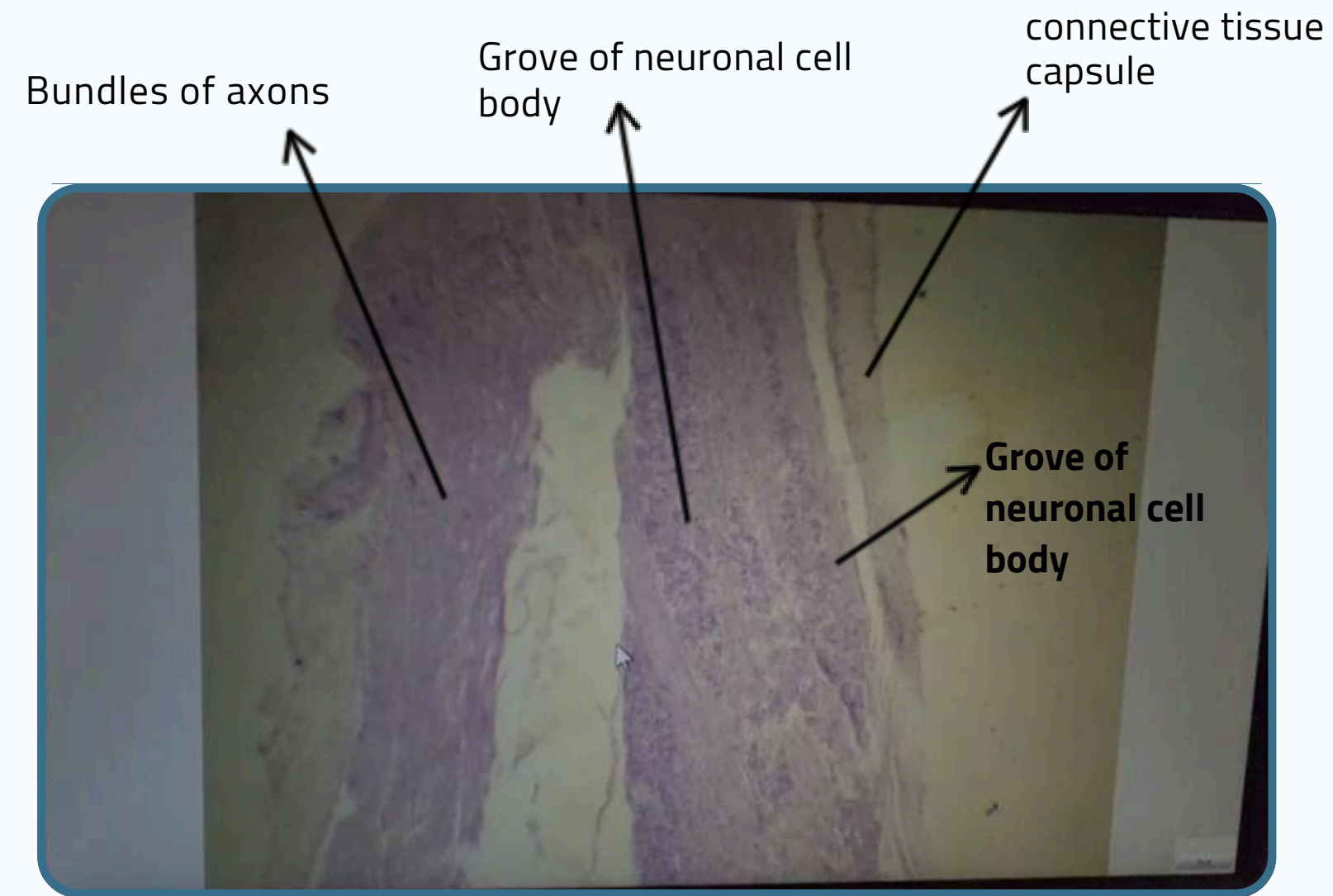
Myelinated (Medullated Axon)



Silver Stain

Node of ranvier

Spinal Ganglia



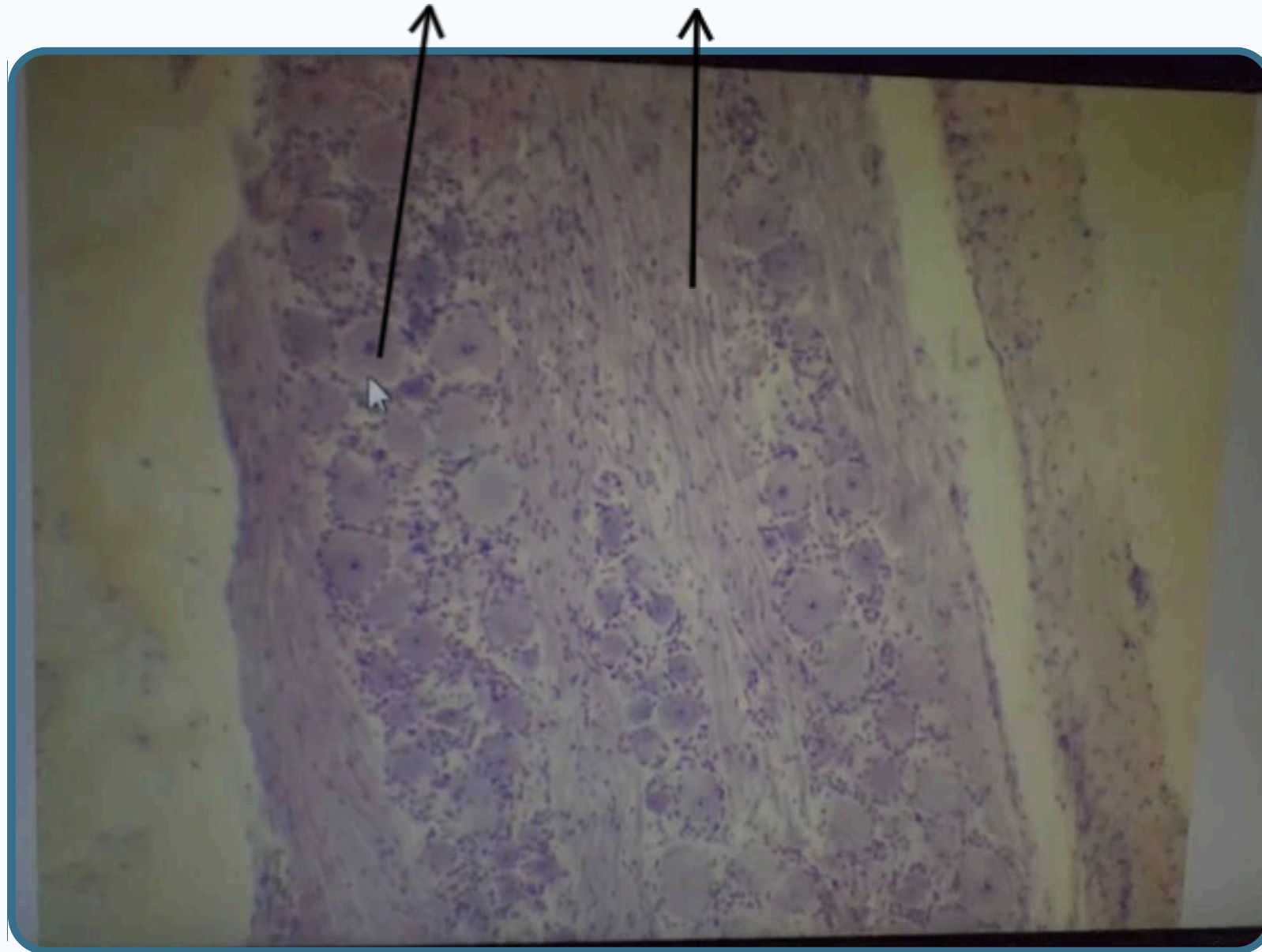
Hematoxylin and Eosin



Spinal Ganglia

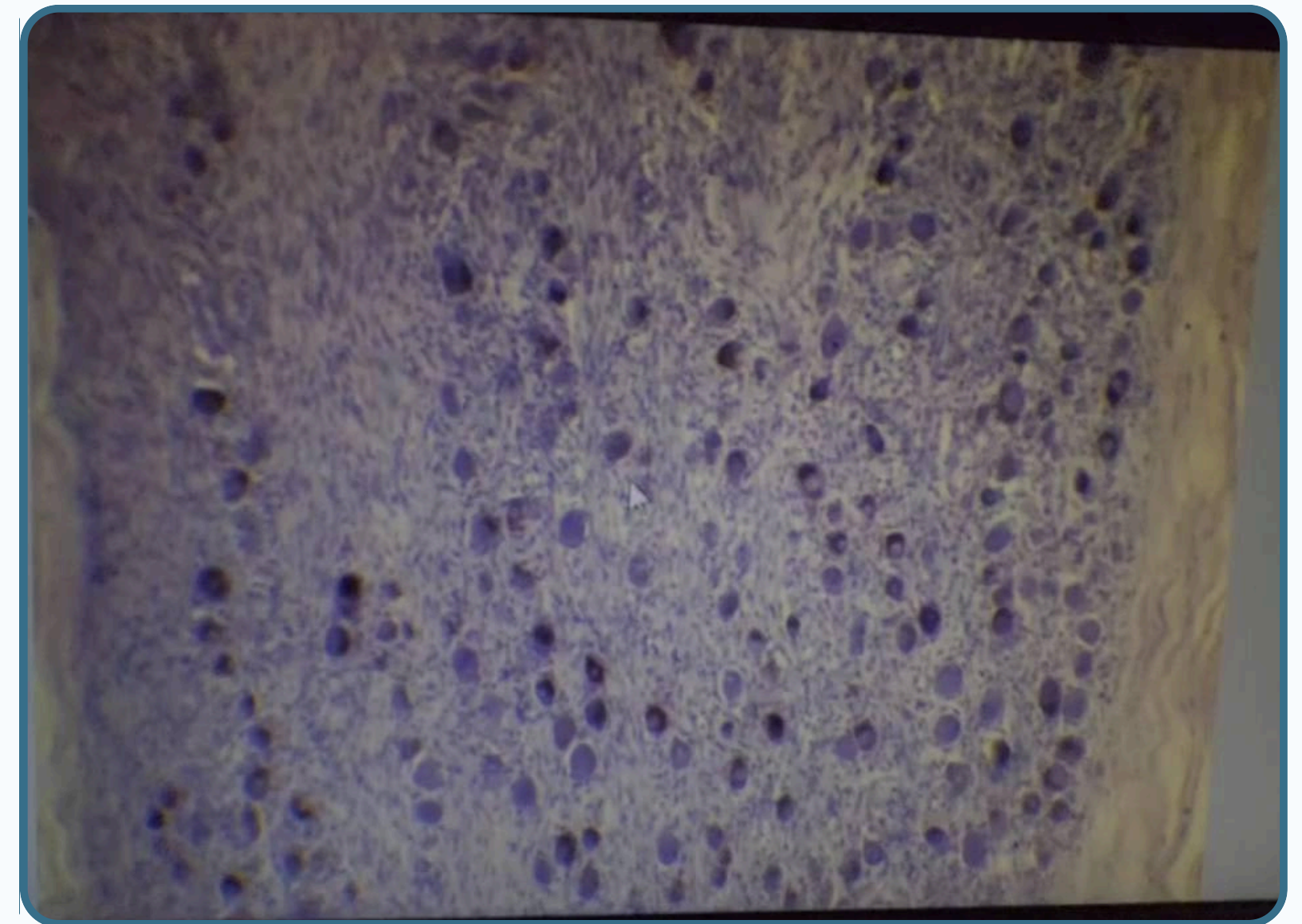
Pseudounipolar neurons (**central nuclei**) Surrounded by **glial cells (satellite)**

Bundles of axons



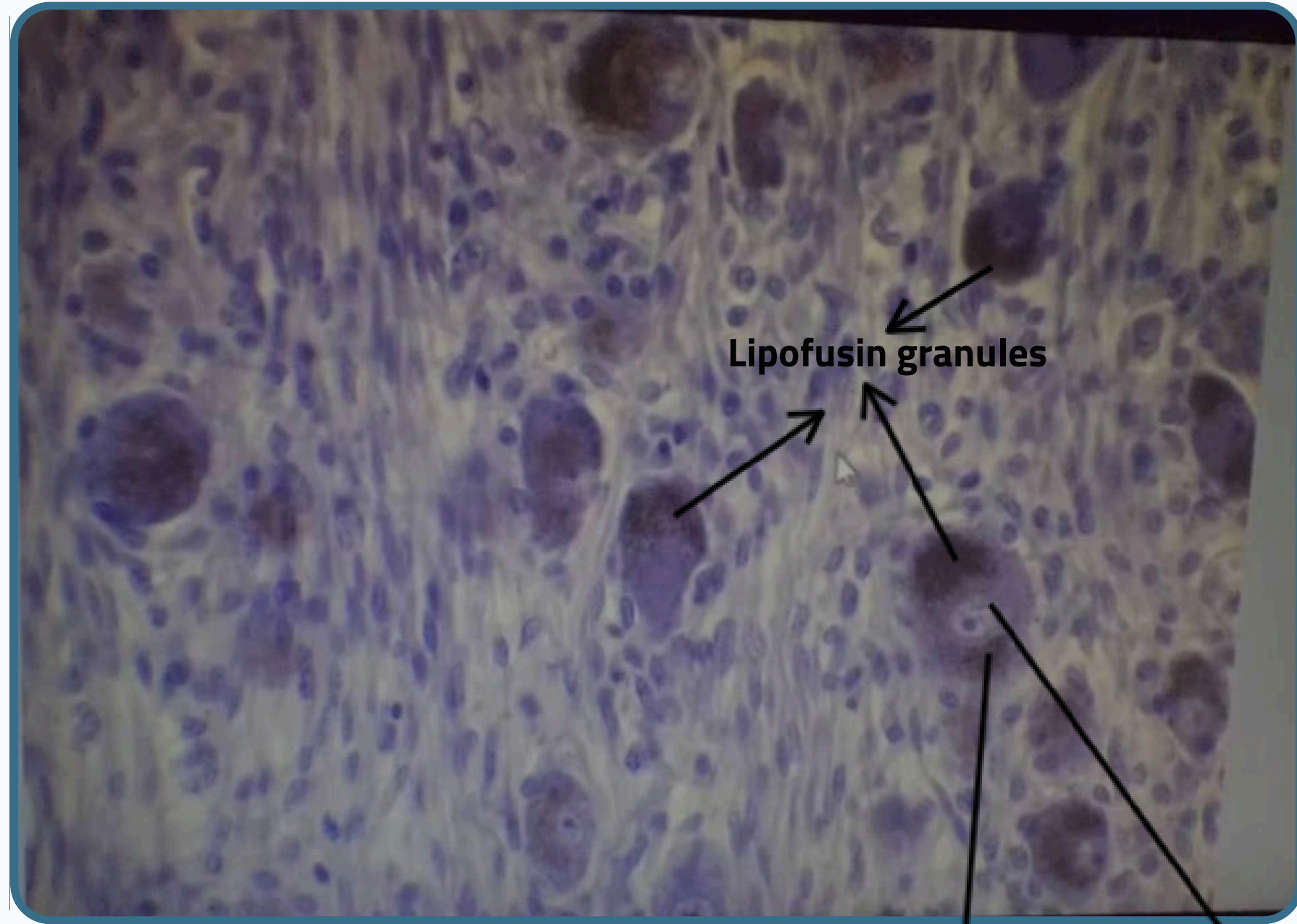
Autonomic Ganglia

Surrounded by **CT** tissue of the organ in which they are found in **Neuronal** body mixed with **axons (Multipolar Neuron)**



Hematoxylin and Eosin

NERVOUS TISSUE



Lipofusin granules

Nucleus (eccentric)

Lipofusin Granules

THANK YOU

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