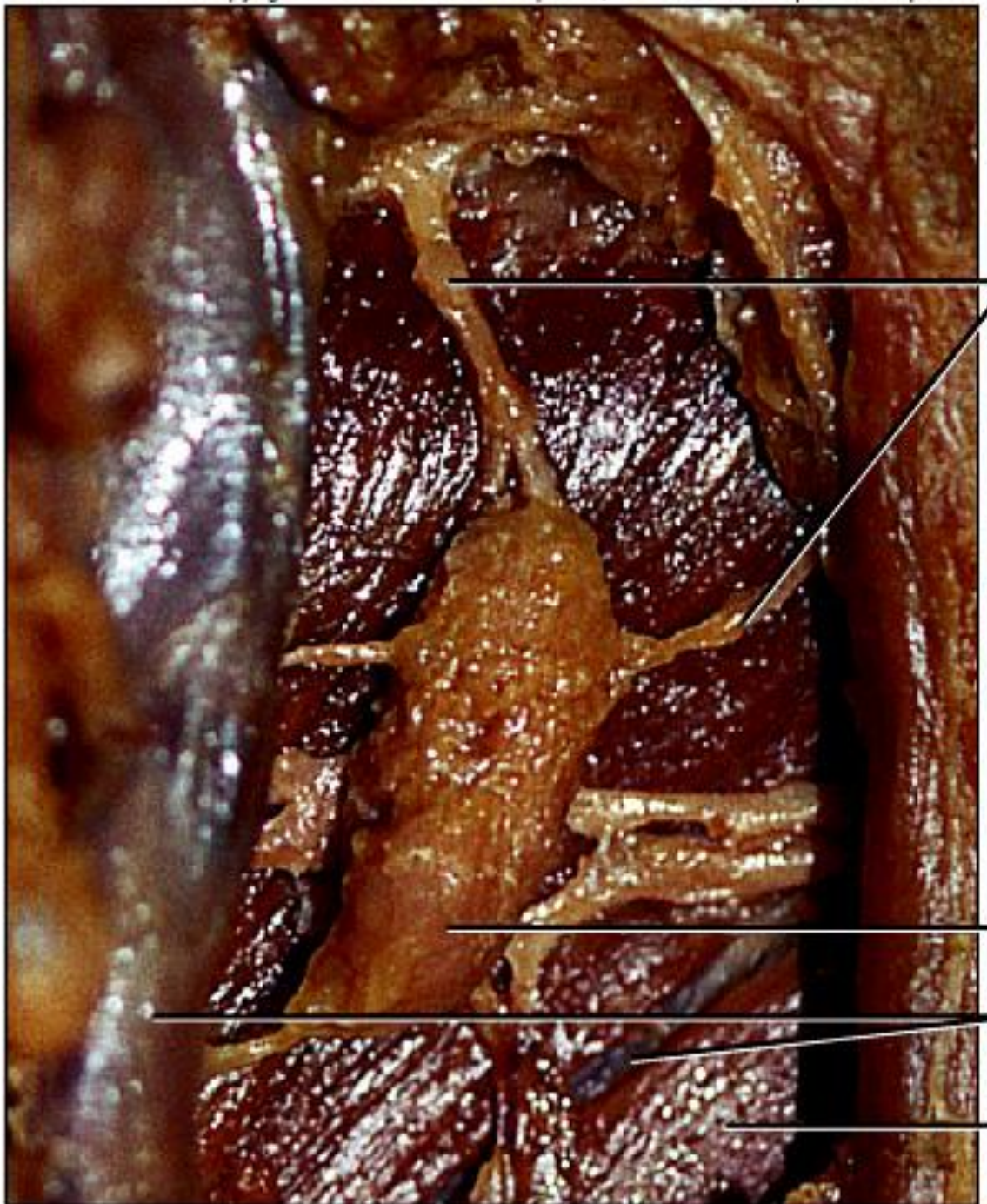
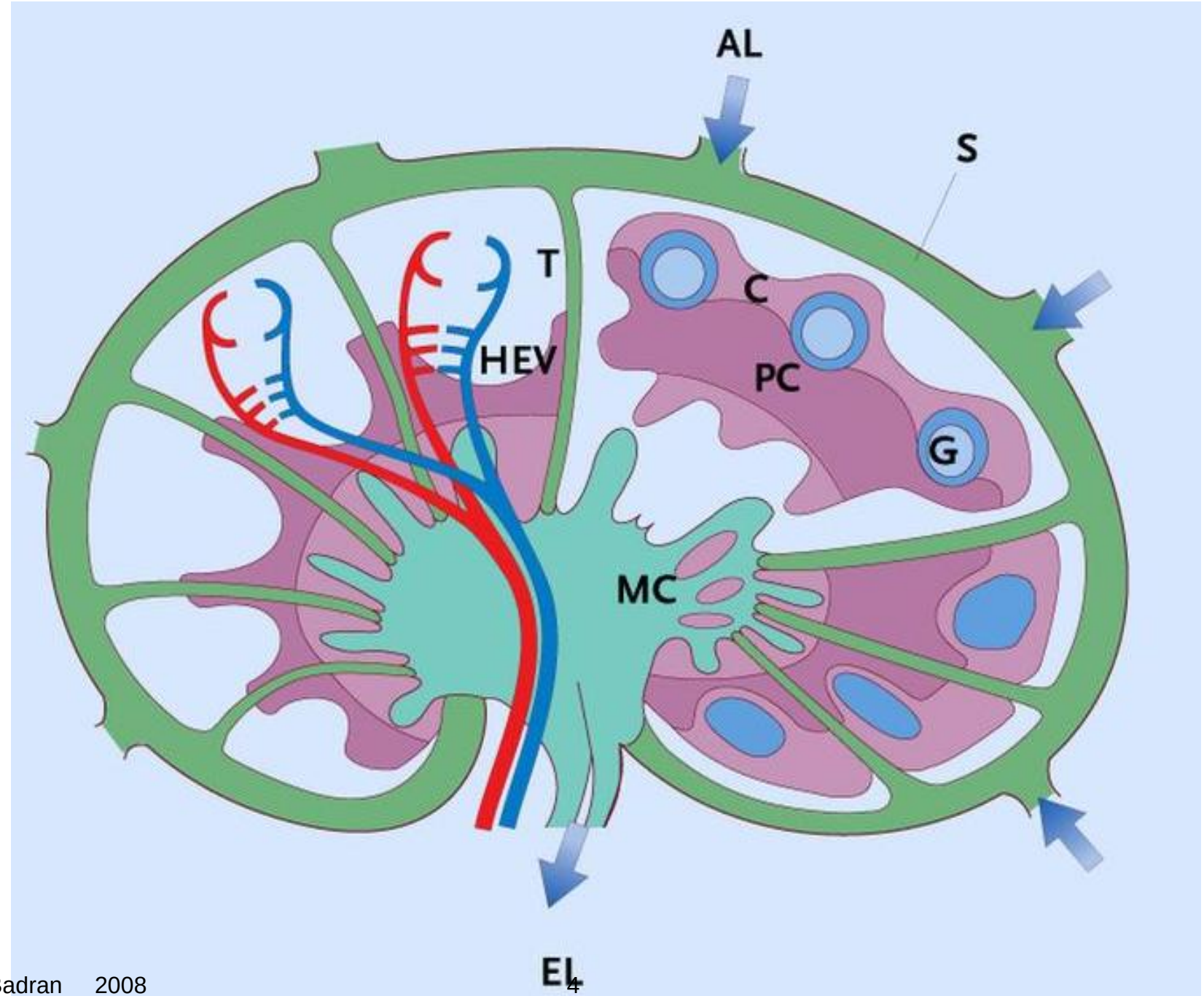
# Lymph nodes and Tonsils

# Lymph Nodes



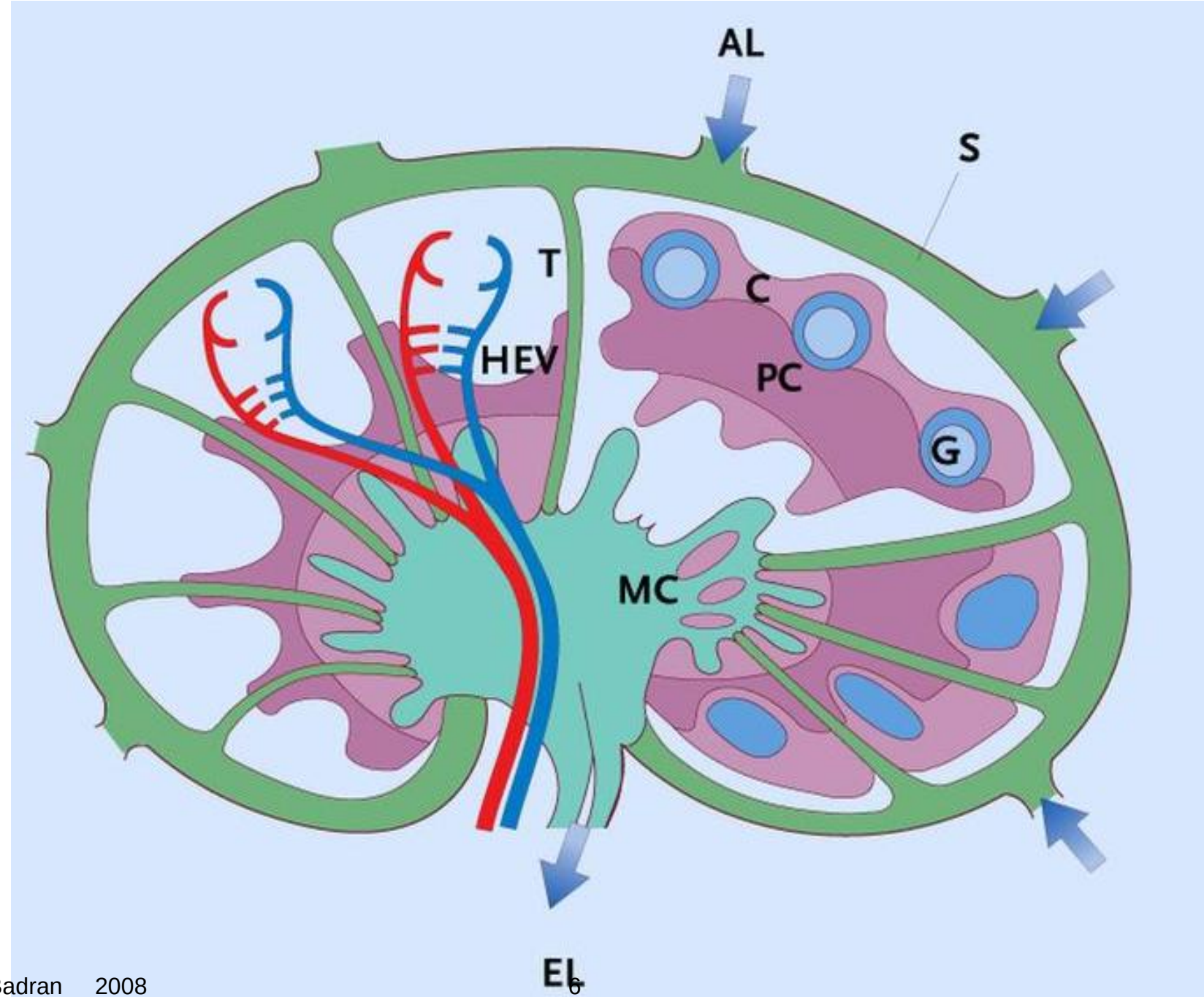

AL
S
T
C
HEV
PC
G
MC
EL

Distributed all over the body.

Each node is small, soft and surrounded by connective tissue capsule

Parenchyma is composed of T and B lymphocytes, APC's and macrophages.

Divided into cortex and medulla.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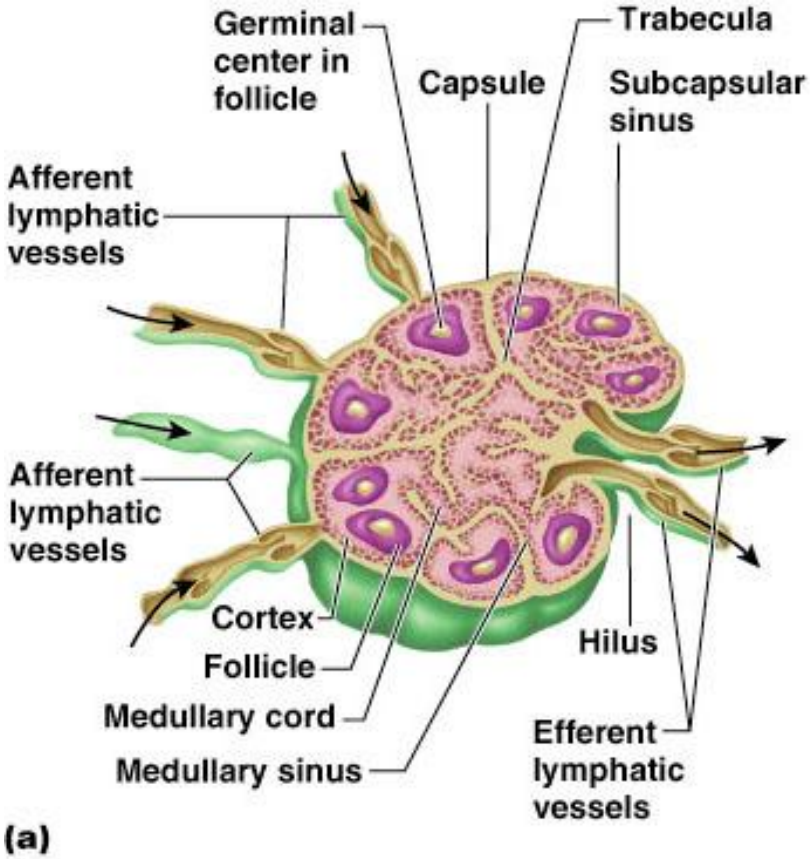
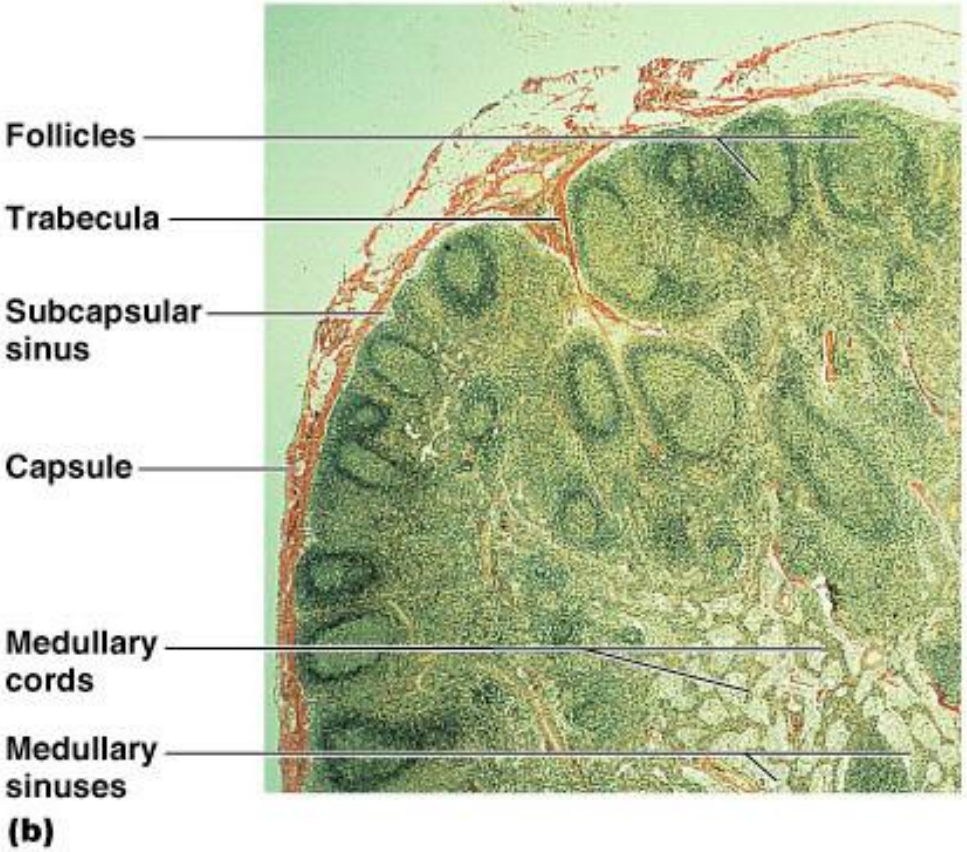
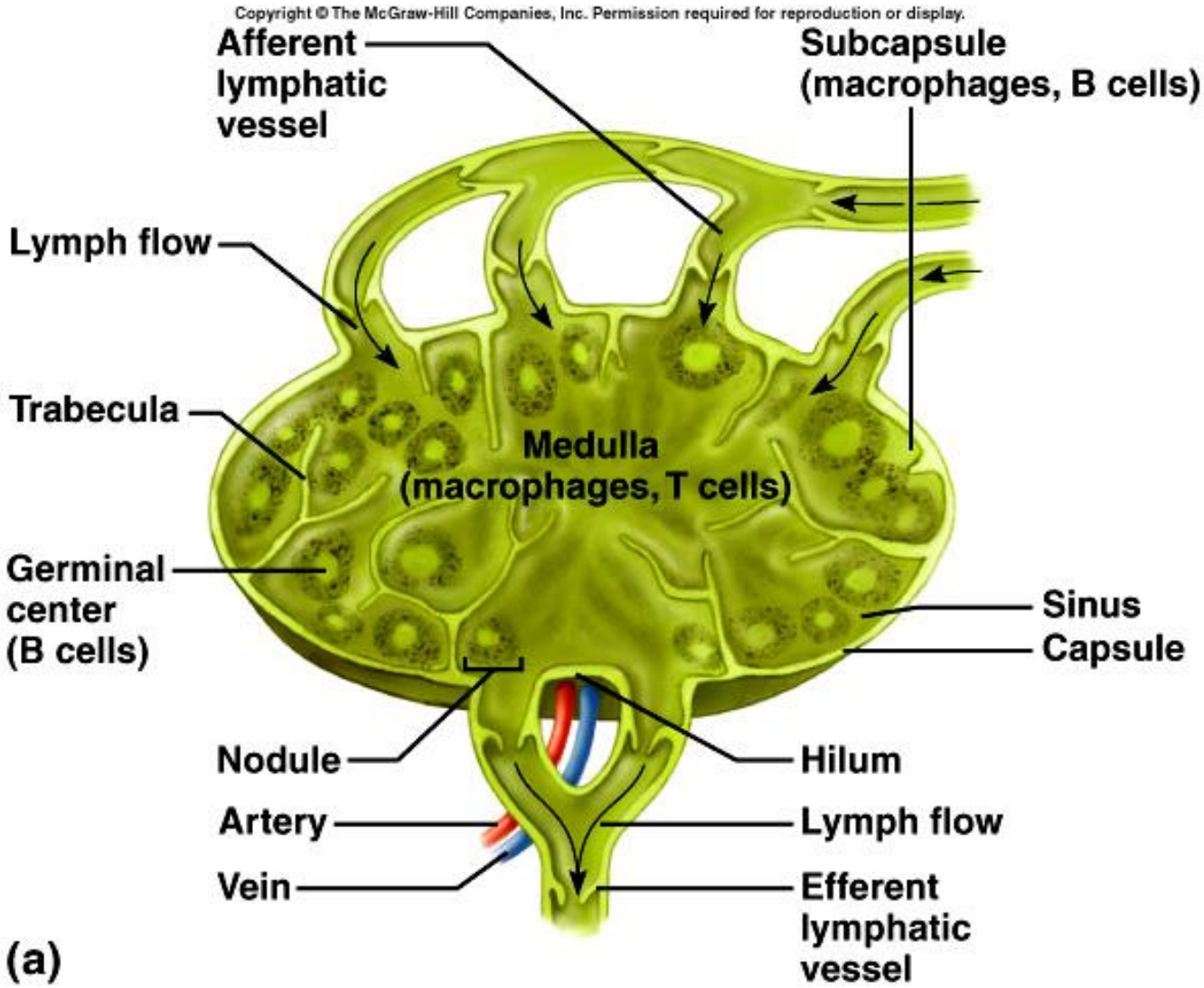

Germinal center in follicle
Capsule
Trabecula
Subcapsular sinus
Afferent lymphatic vessels
Afferent lymphatic vessels
Cortex
Follicle
Medullary cord
Medullary sinus
Hilus
Efferent lymphatic vessels
(a)

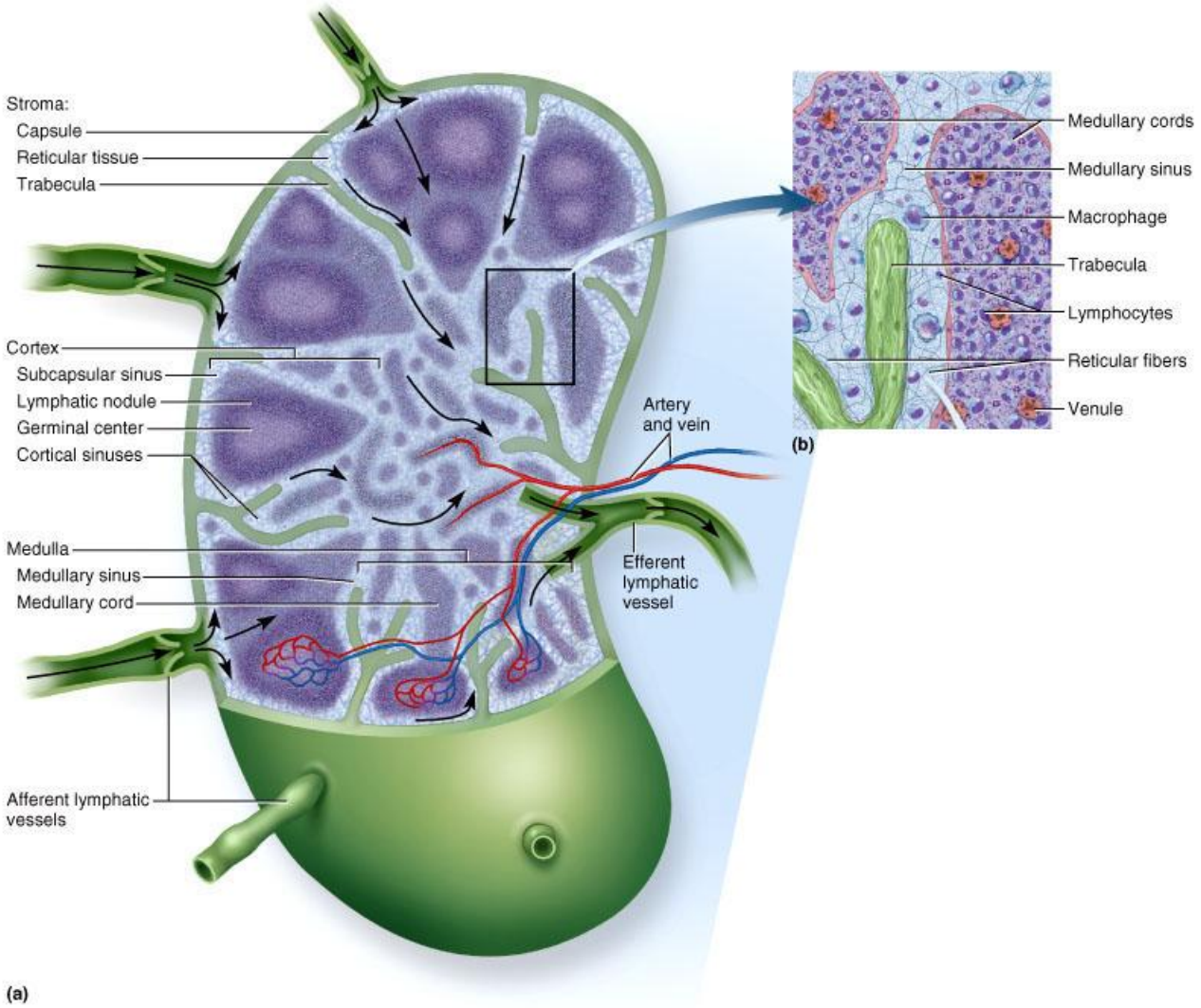

Follicles
Trabecula
Subcapsular sinus
Capsule
Medullary cords
Medullary sinuses
(b)

# Structure of Lymph Node



# Lymph Node





# Lymph Node Cortex ..1

Surrounded by dense irregular C.T capsule.

The capsule sends trabecula into the cortex dividing it incompletely into compartments.

The capsule and trabeculae are surrounded by reticular fibres.

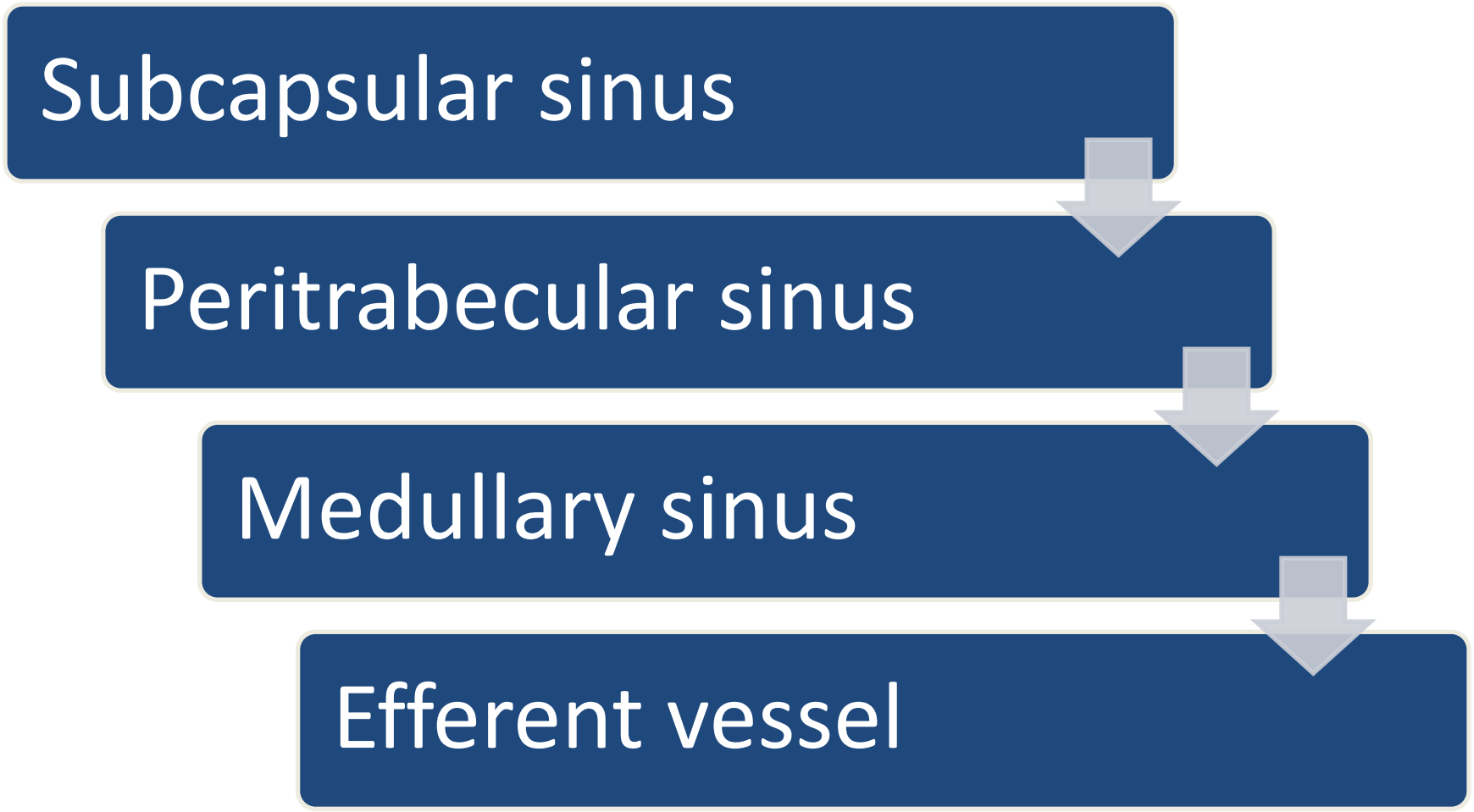
# Lymph Node Cortex ..2

Afferent vessels are seen on the convex side of the node.

Afferent vessels empty into subcapsular sinus.

The subcapsular sinus is continuous with the paratrabecular siunses. The paratrabecular sinuses empty into medullary sinuses.

Medullary sinuses empty into efferent vessels.


Subcapsular sinus
Peritrabecular sinus
Medullary sinus
Efferent vessel

# Lymph Node Cortex ..3

Lymph sinuses have reticular stellate cells.

Processes of stellate cells come in contact with endothelium and other similar cells.

Macrophages come in contact with stellate cells.

# Lymph Node Cortex ..4

**Lymphoid nodule**: present in the compartments and contain B lymphocytes.

Germinal centres are seen in the middle of the nodule that had been exposed to an antigen (secondary).

The peripheral part of the nodule is known as the corona.

# Paracortex

Lies between cortex and medulla.

Known as T dependant zone or juxtamedullary zone.

Rich in APC’s.

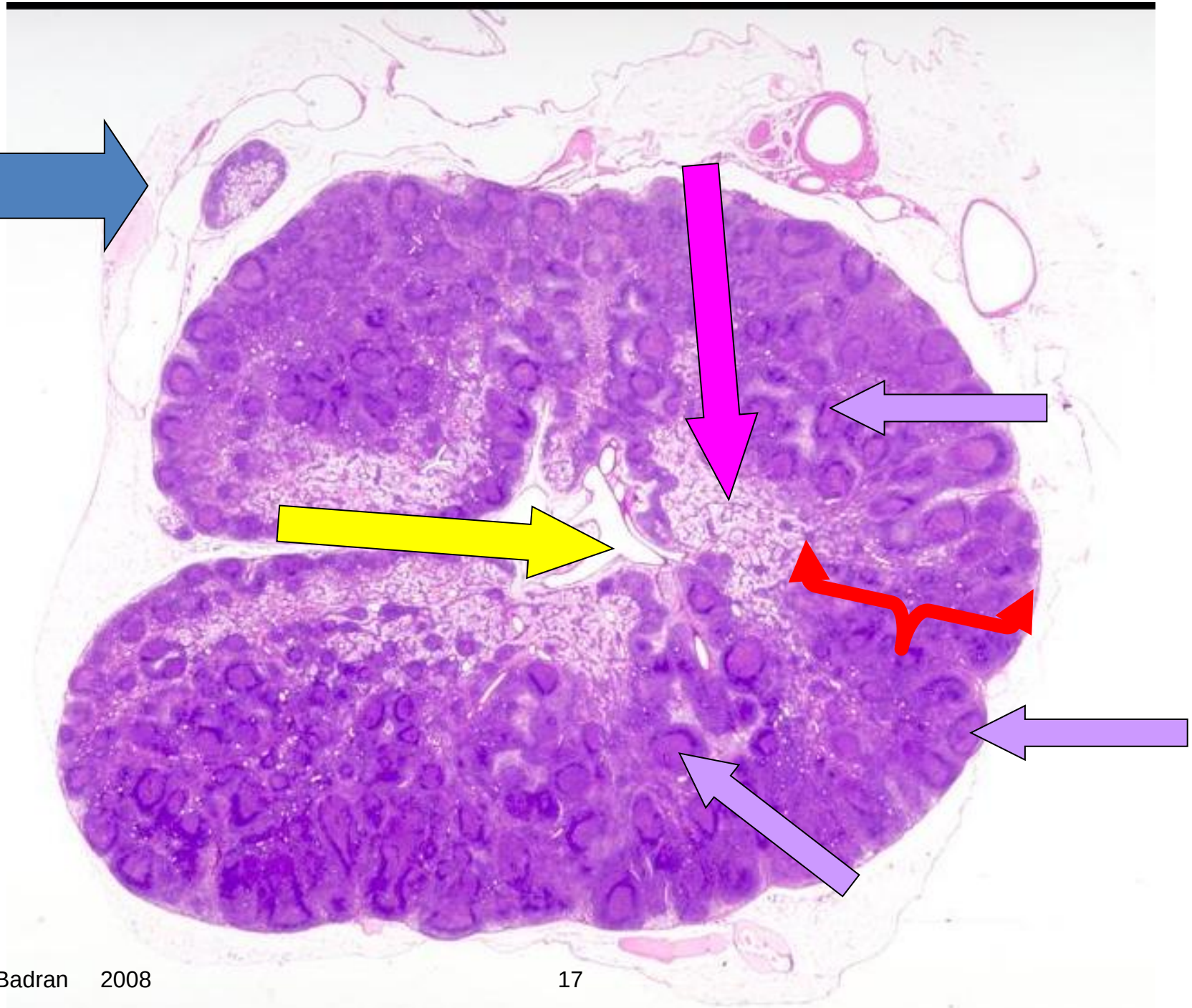
High endothelial venules are located in it.

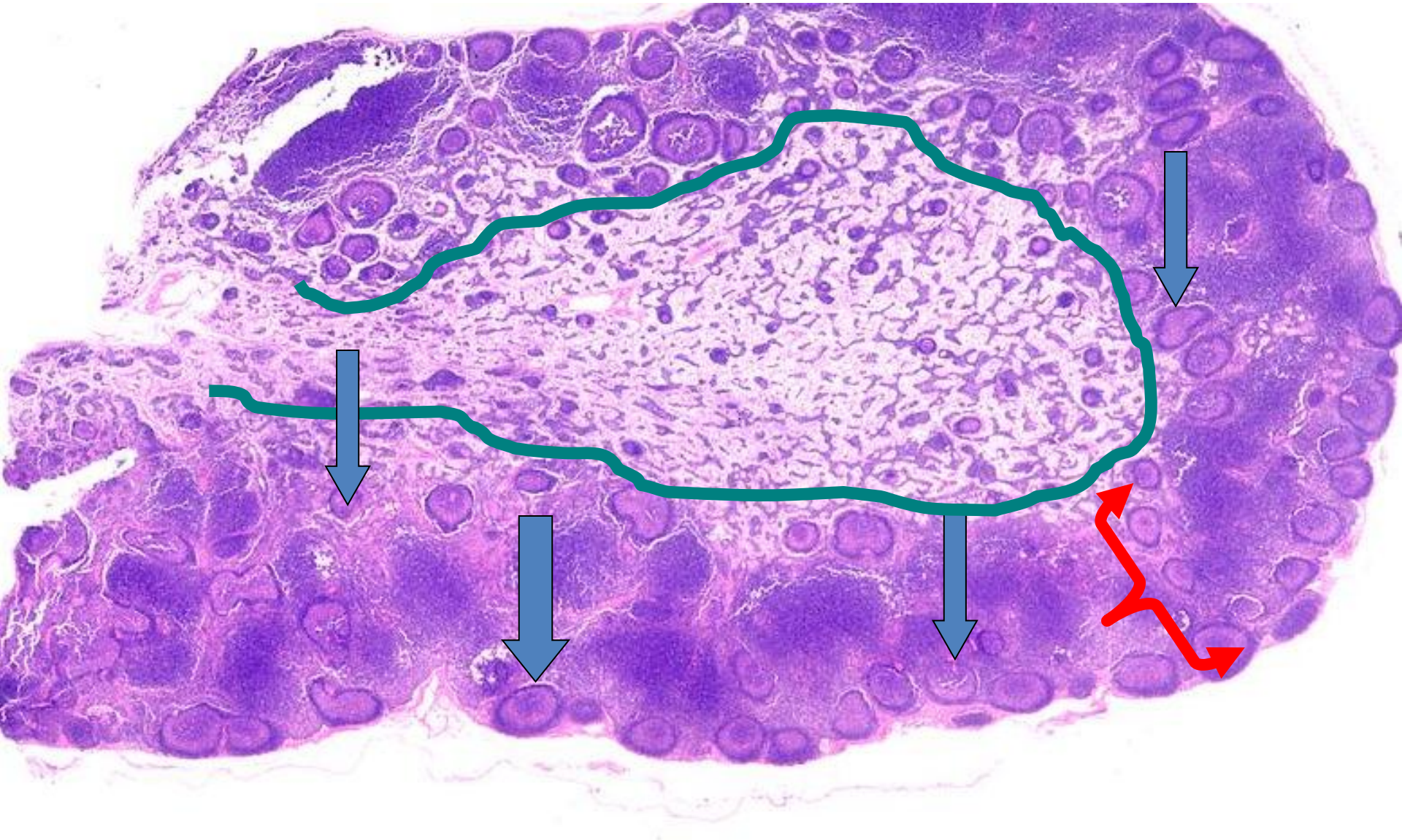
# Medulla

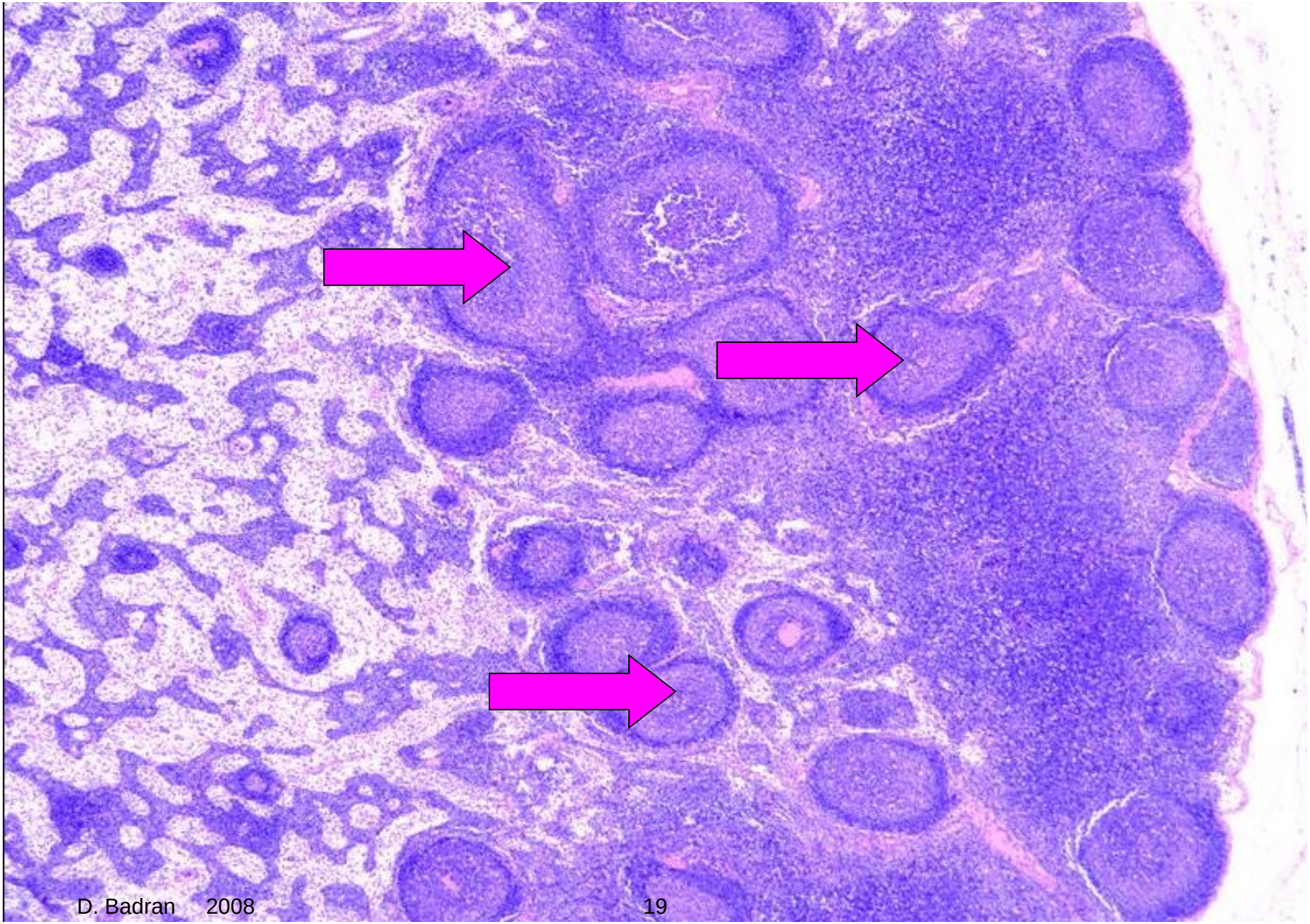
Contains large sinuses surrounded by lymphocytes, plasma cells and macrophages: ***medullary cords***.

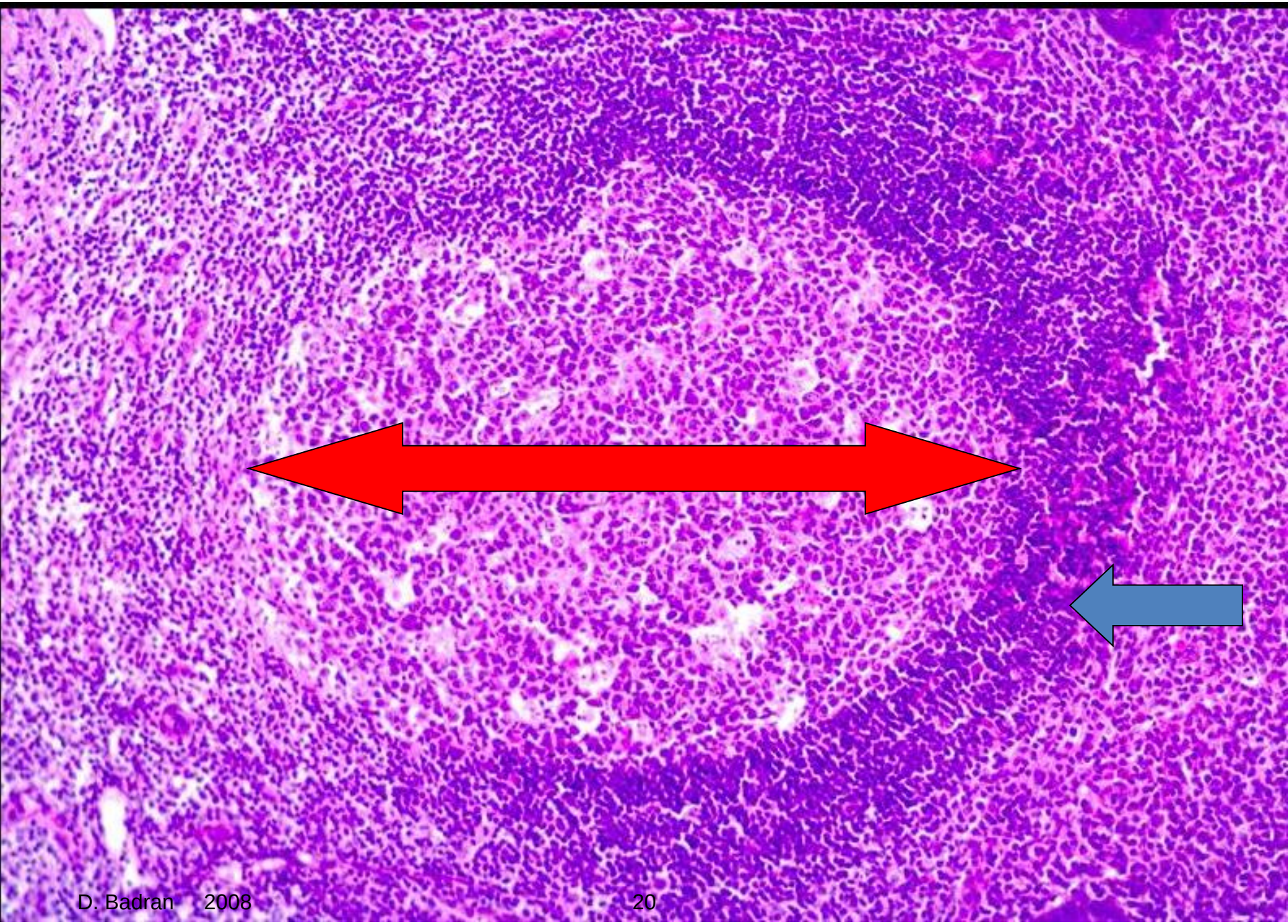
Lymphocytes migrate from the cortex to the medulla.

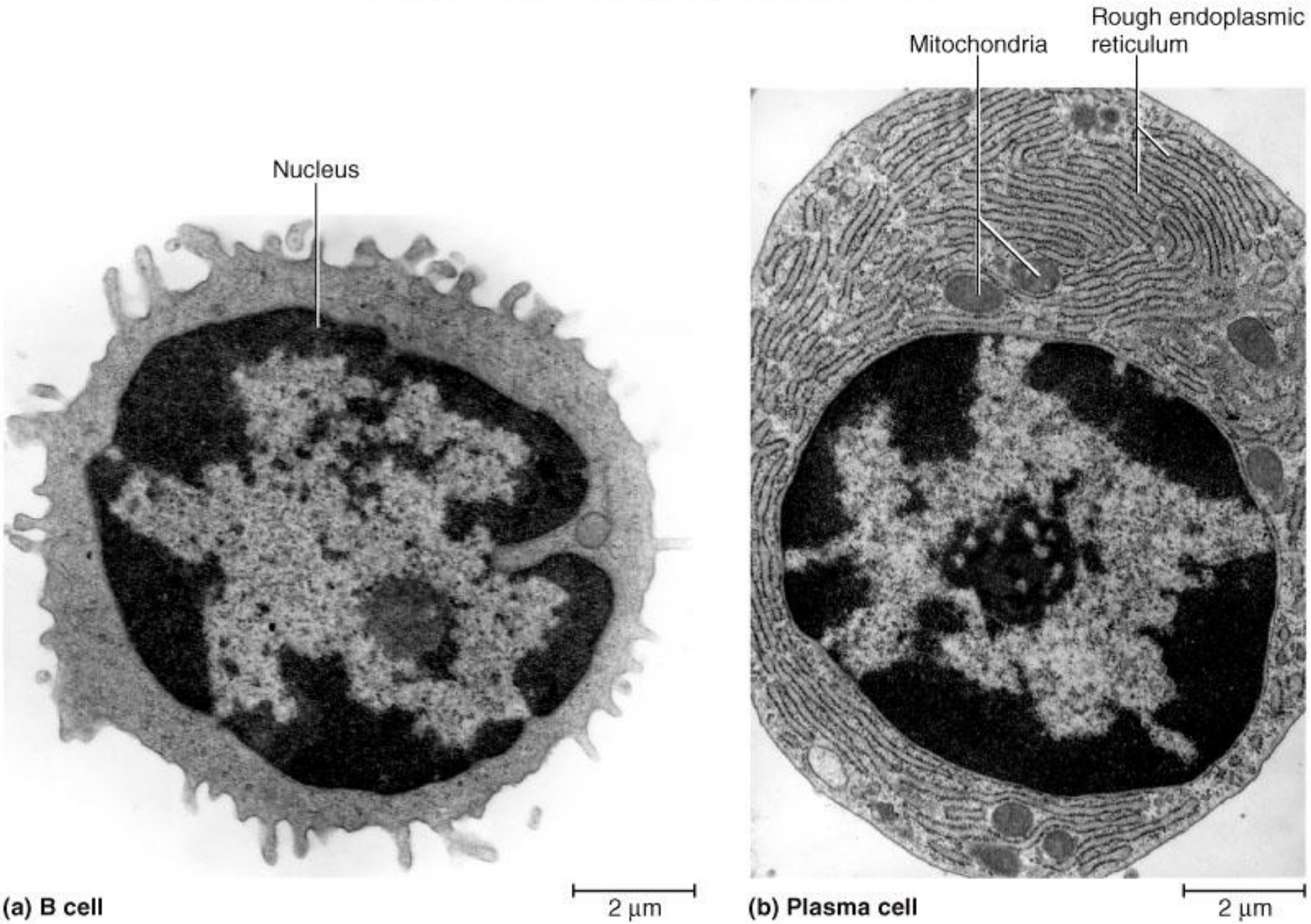
Blood vessels enter and leave through the hilum.



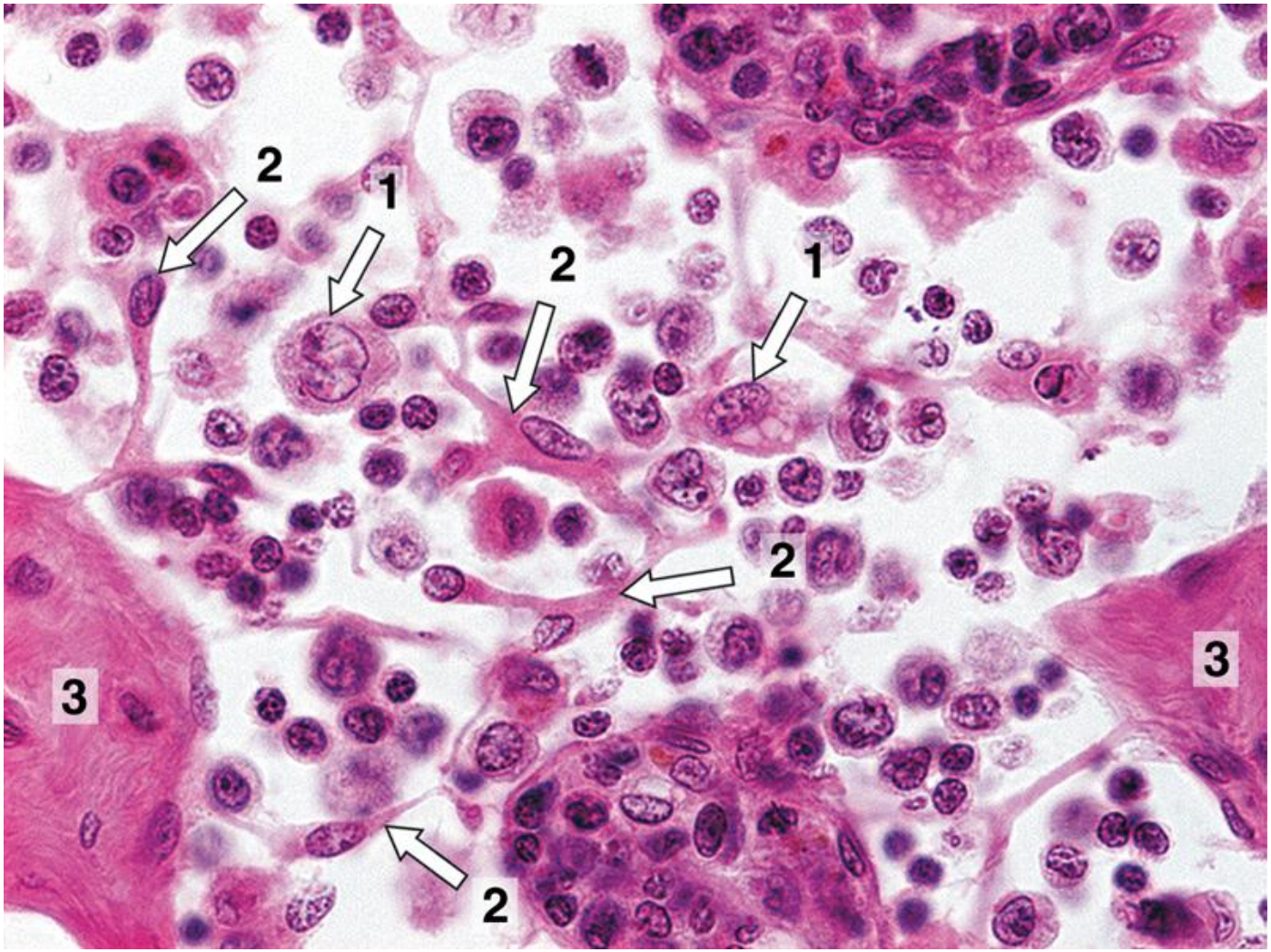




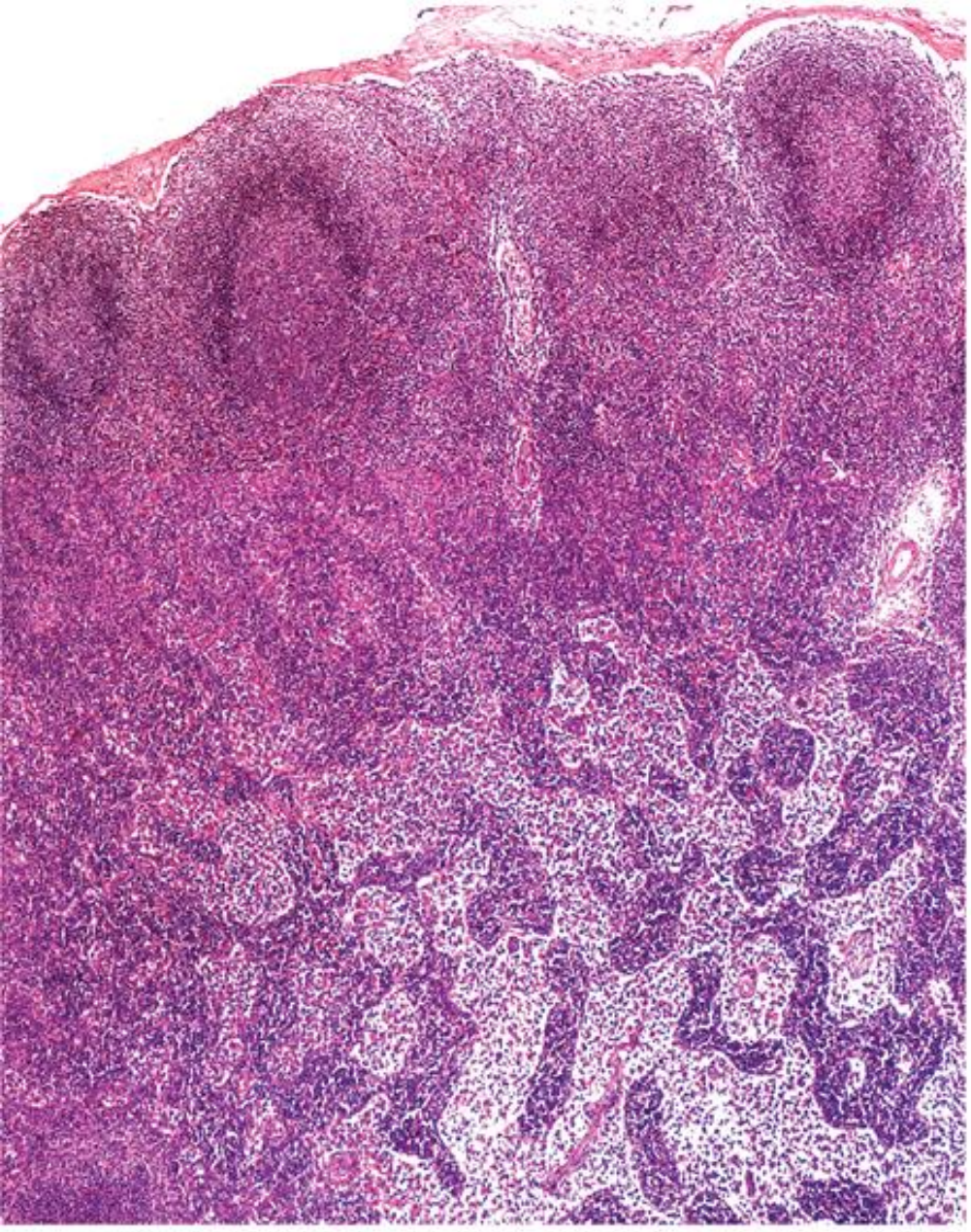




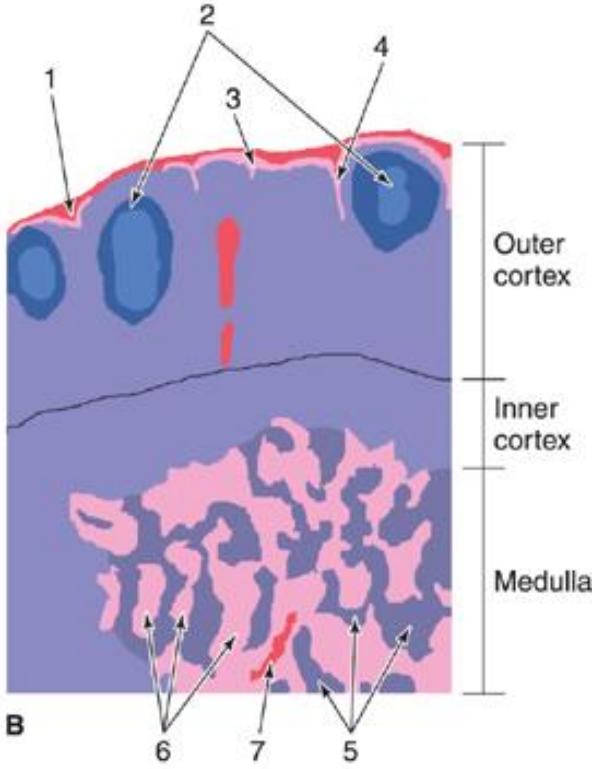

(b)




Medullary sinus of a lymph node containing reticular cells with long processes and elongated nuclei, macrophages, and many lymphocytes. (1) Macrophage; (2) reticular cell; (3) trabecula. H&E stain. High magnification. (Courtesy of PA Abrahamsohn.)



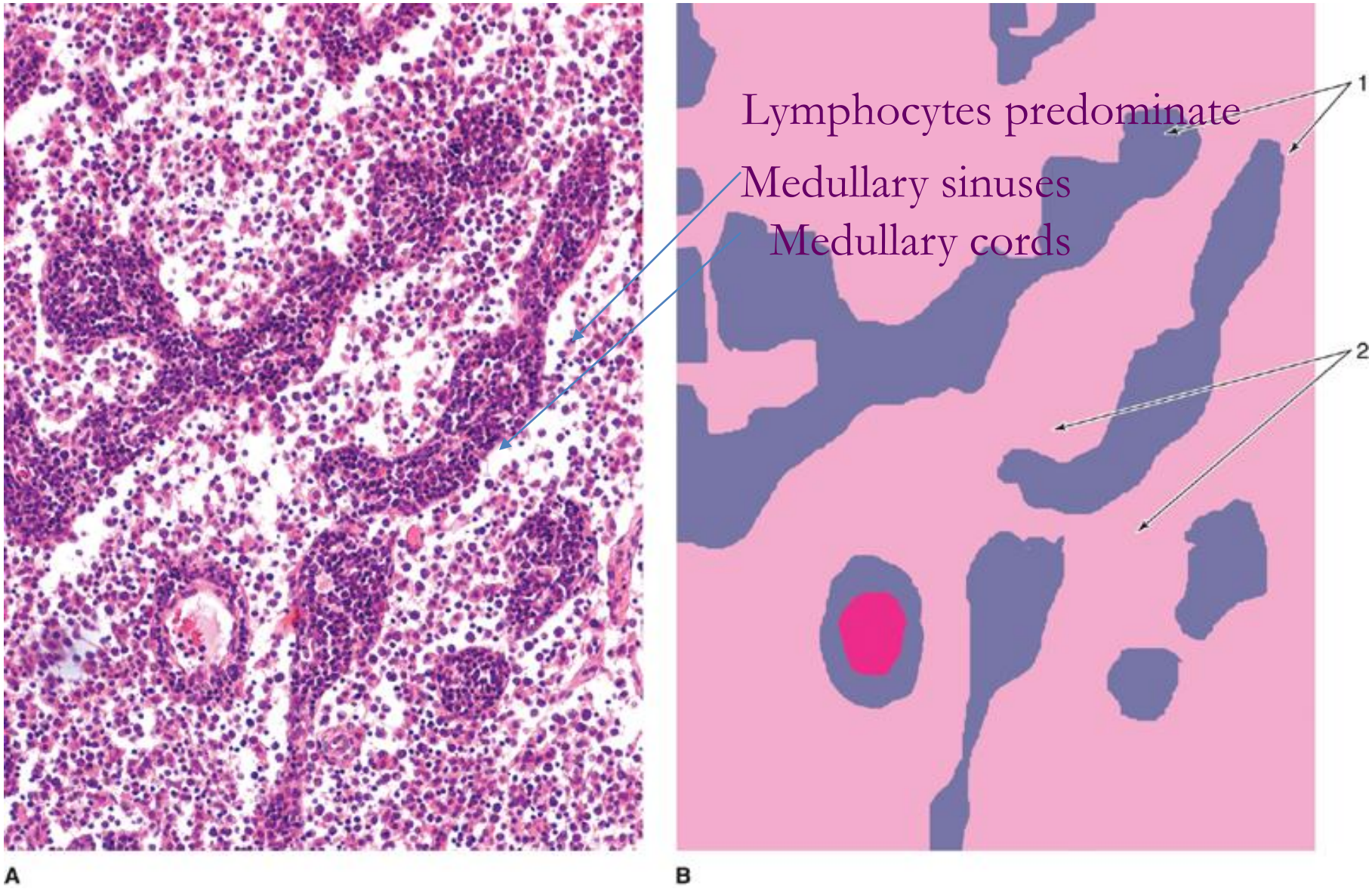
A

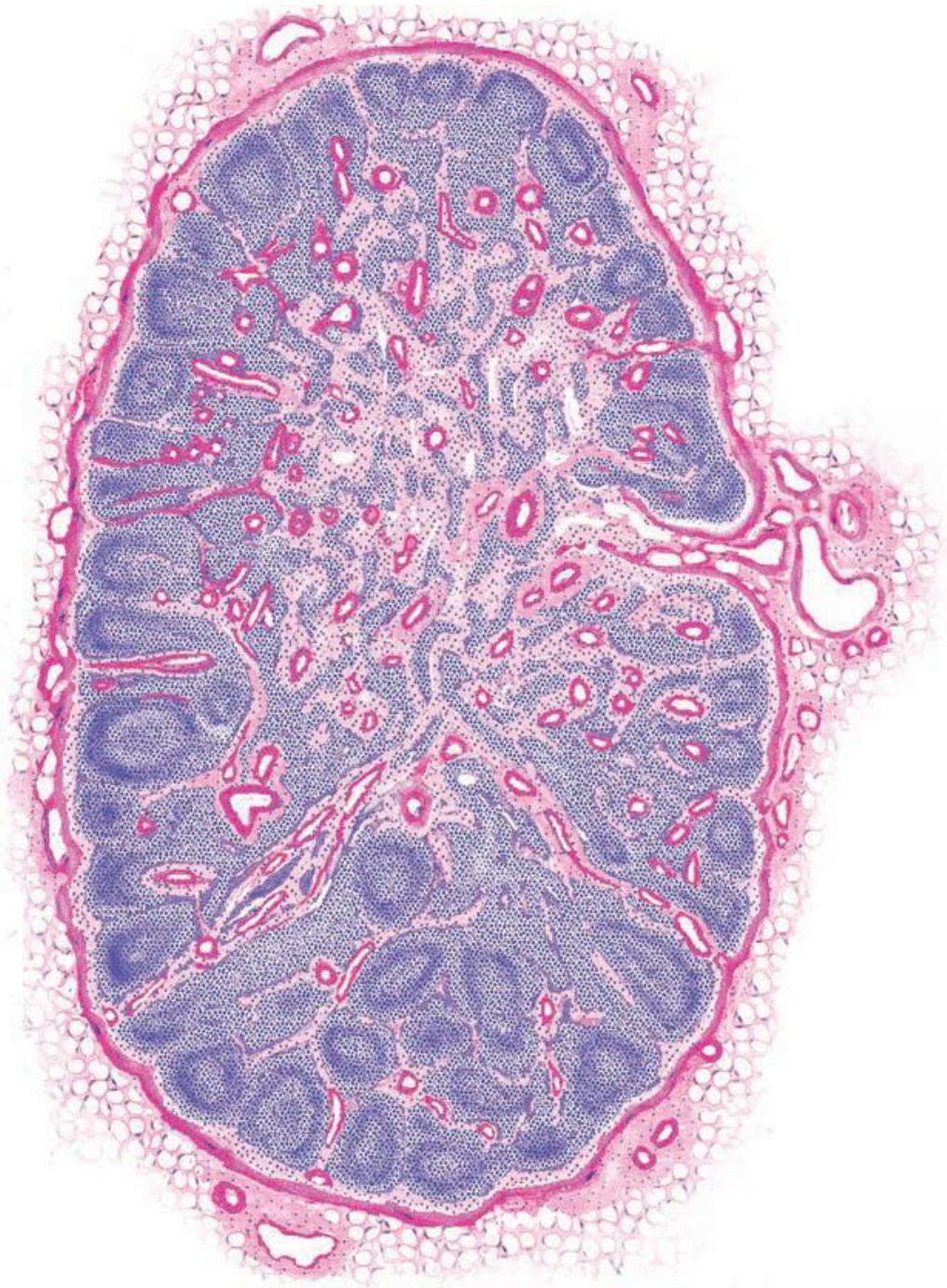


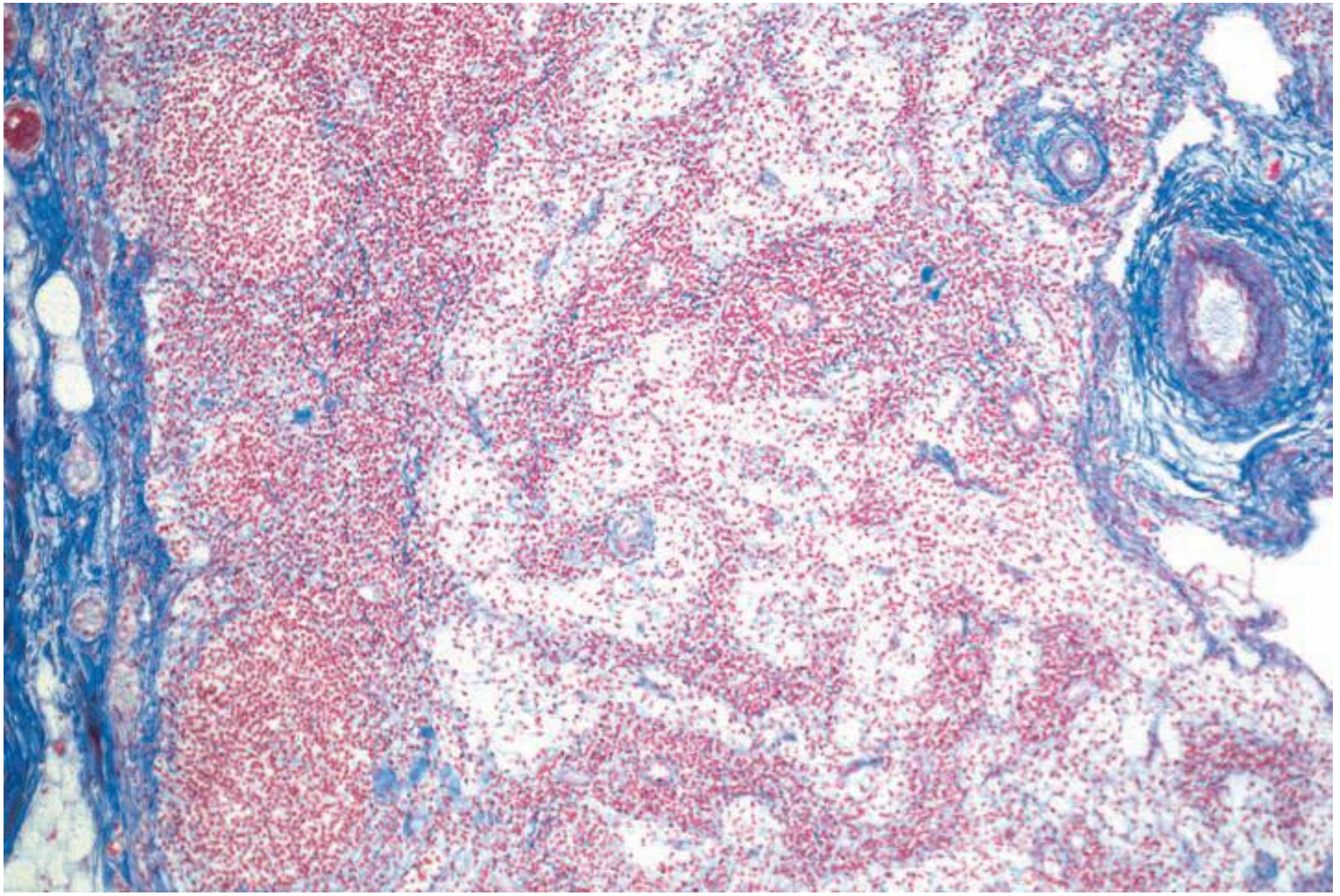

Section of a lymph node showing the cortex and the medulla 1 Capsule;2 lymphoid nodule with germinative center 3

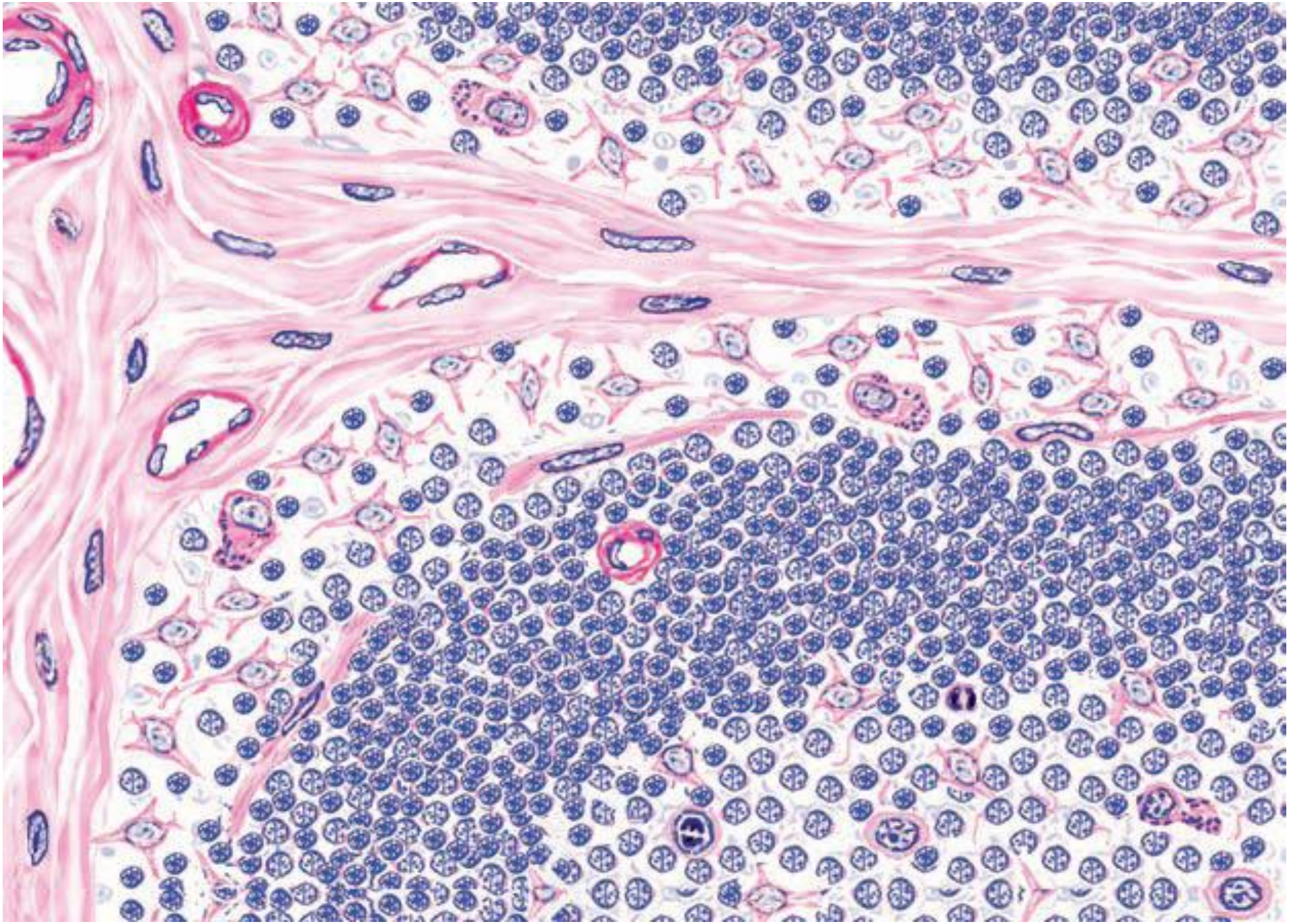
subcapsular sinus; (4) intermediate sinus; (5) medullary cords; (6) medullary sinus; (7) trabecula. (Courtesy of PA Abrahamsohn.)

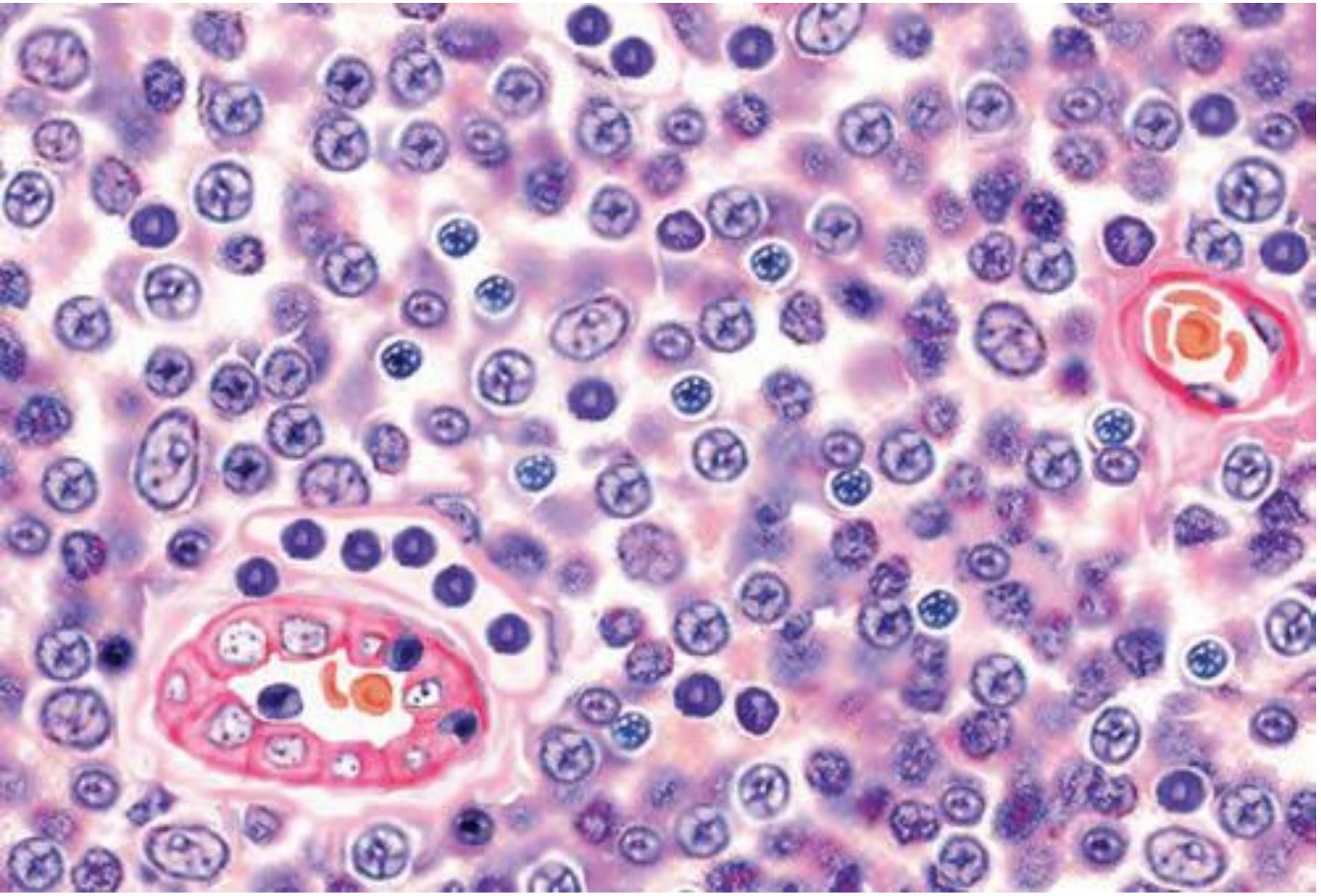
# Medulla of Lymph Node

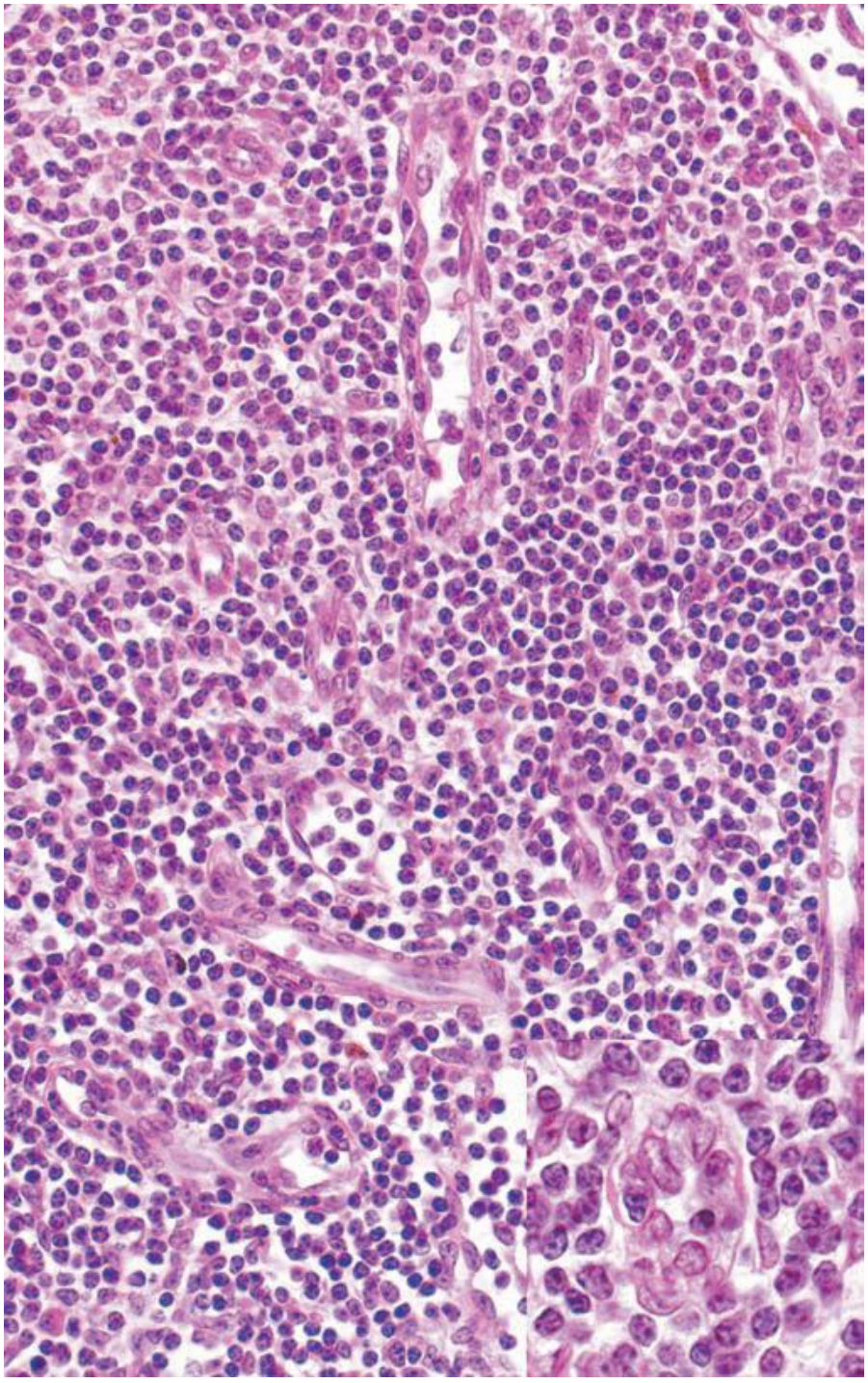




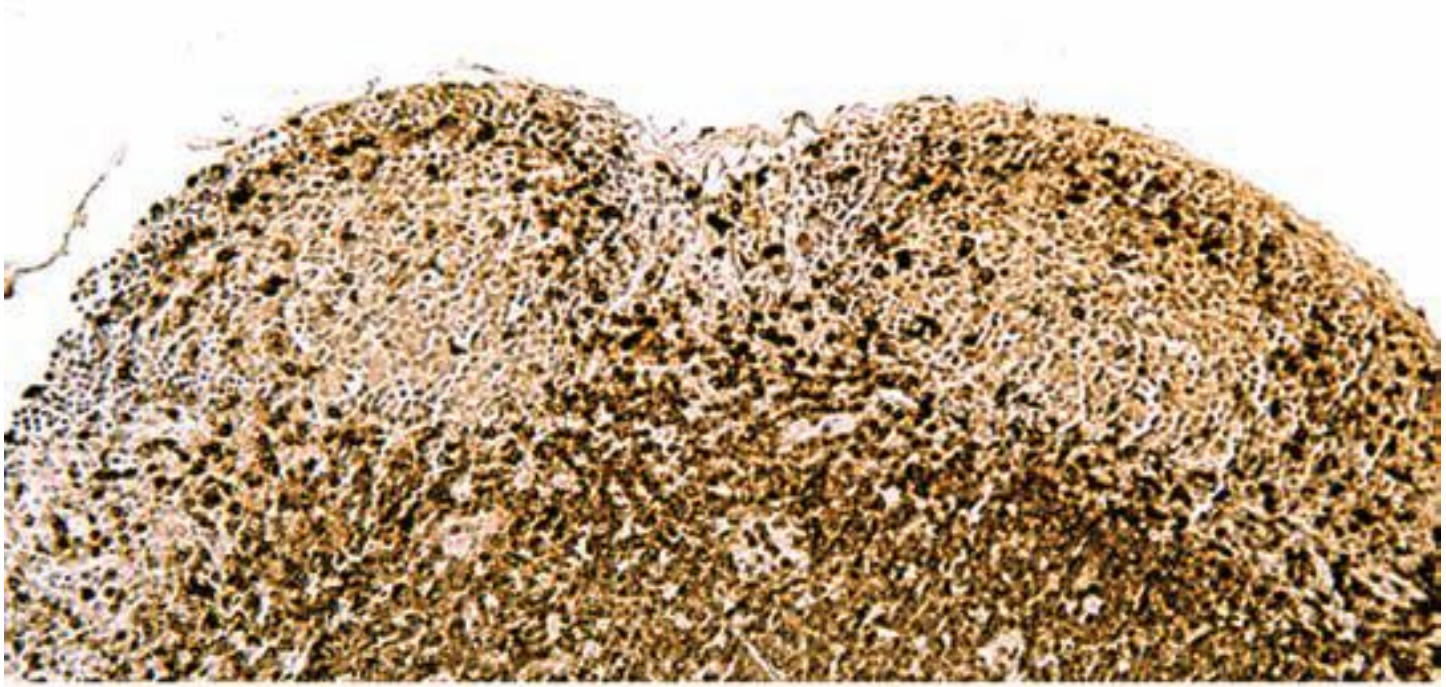




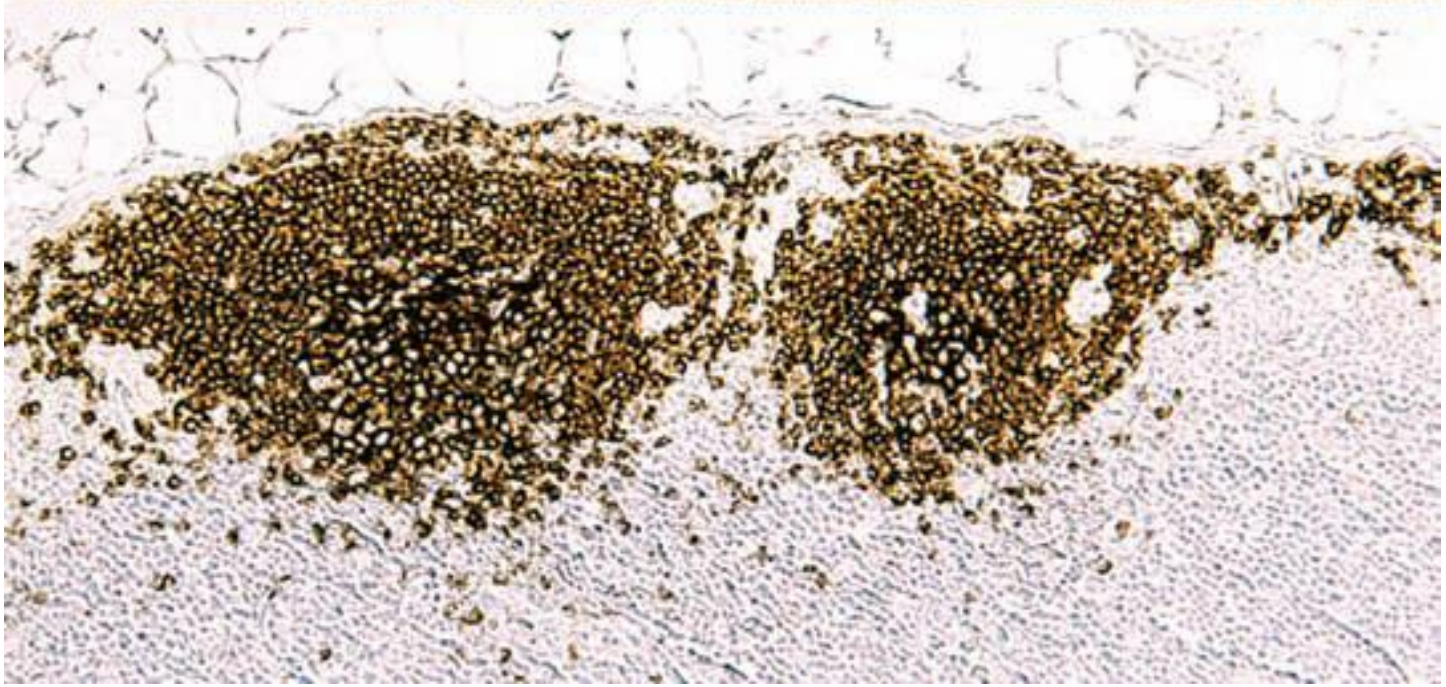


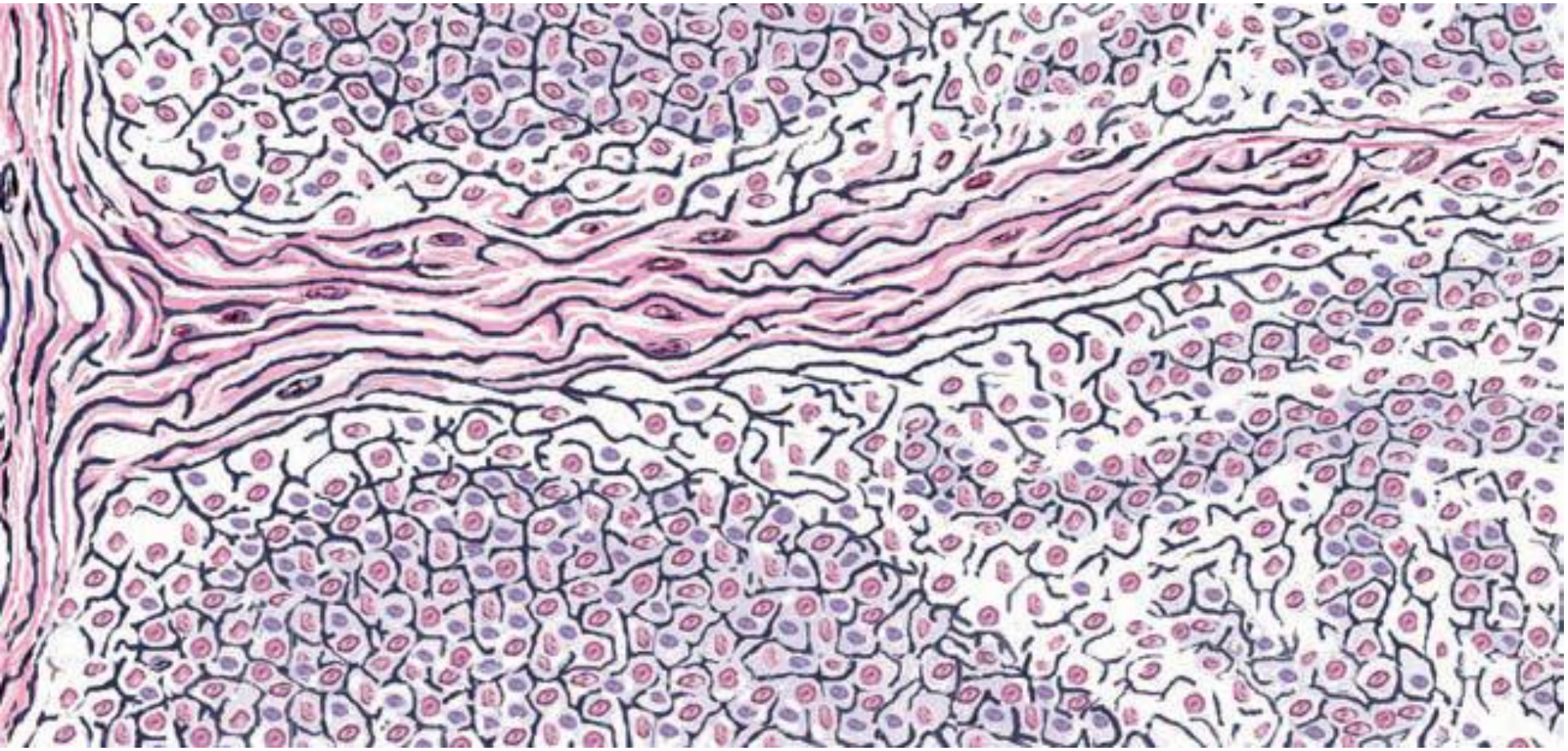


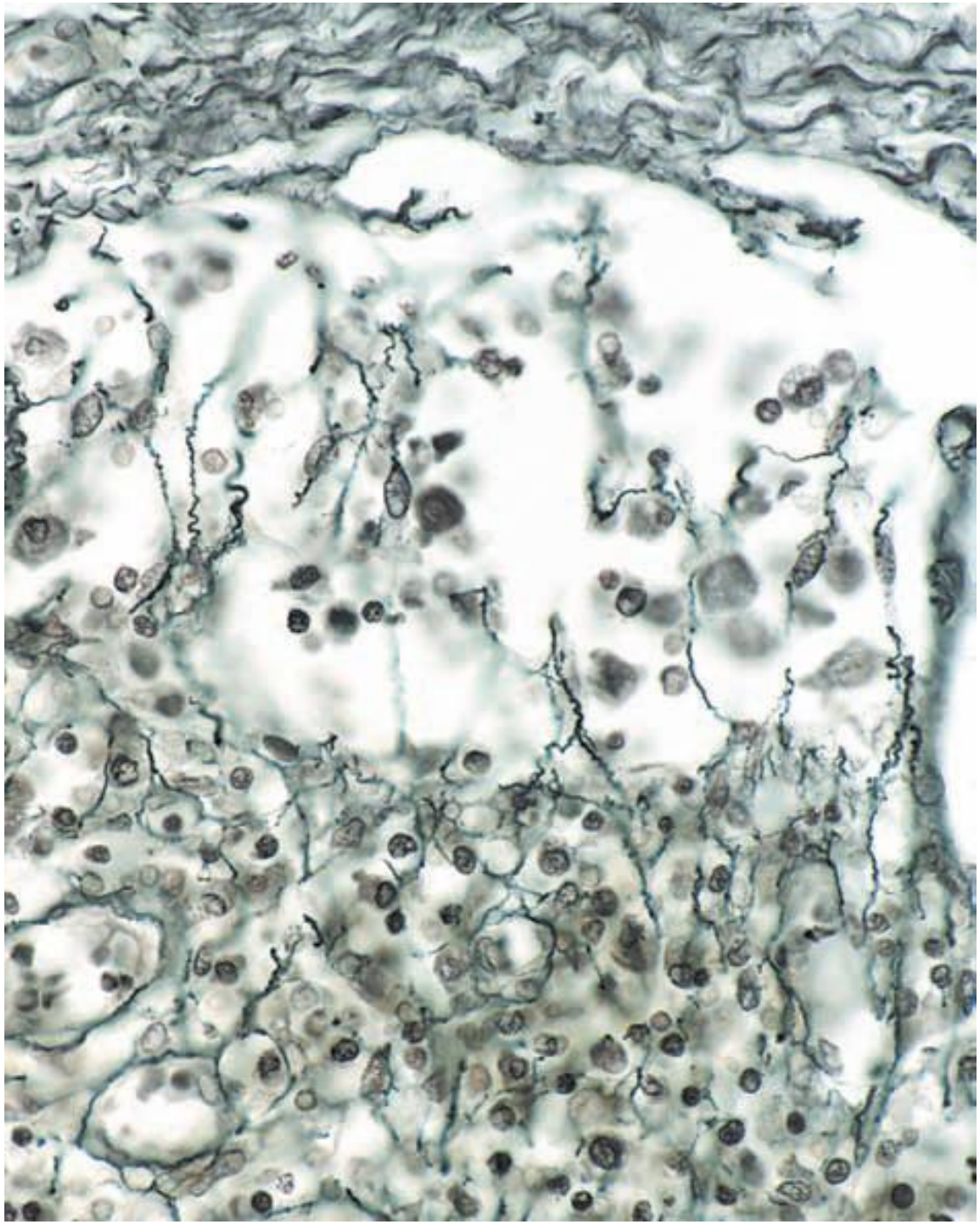
CD3/
T-cells

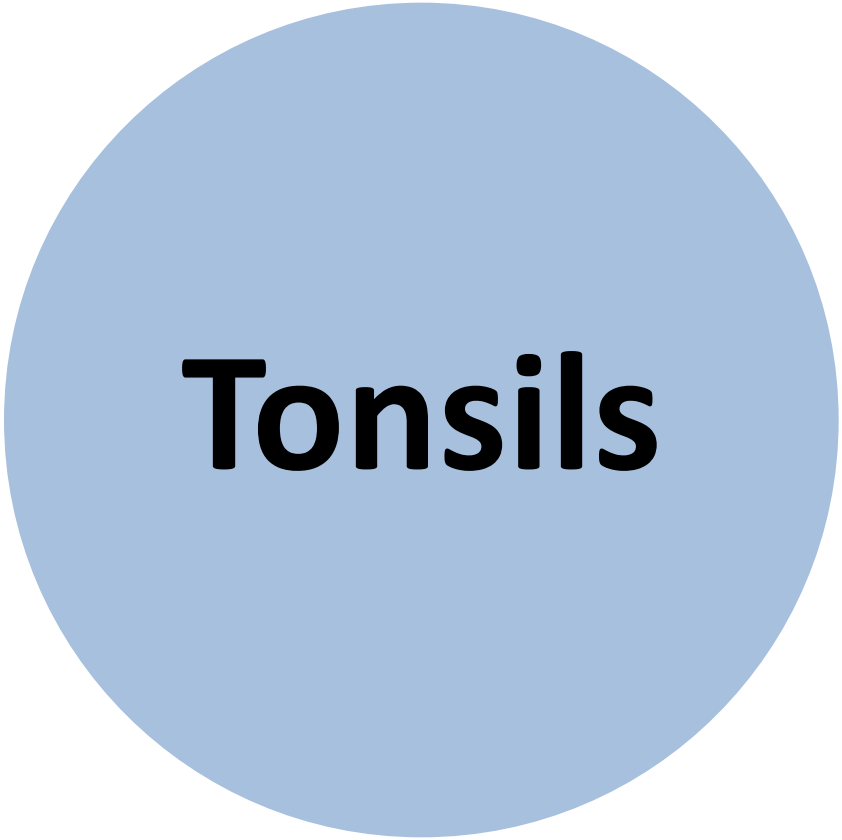


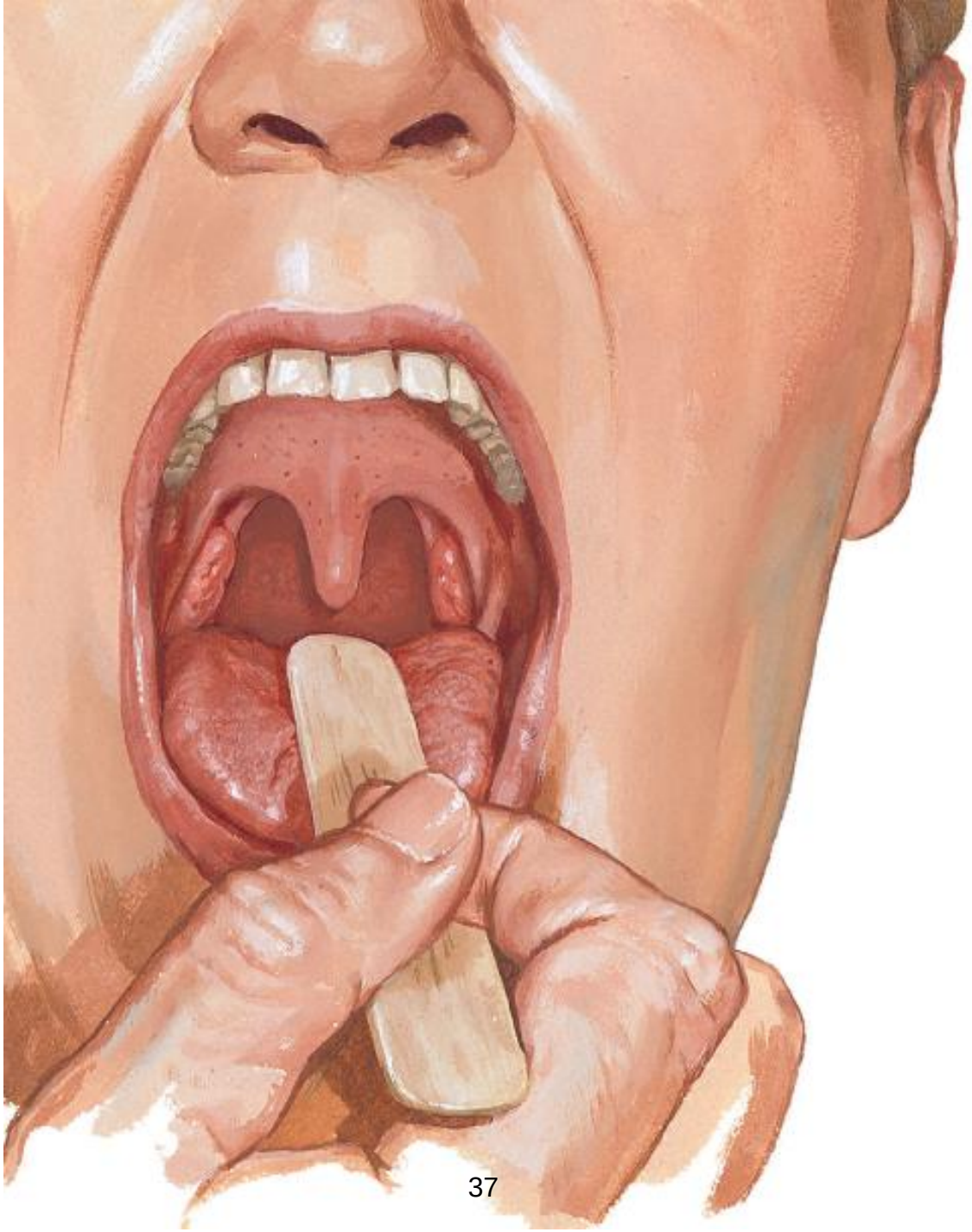
CD20/
B-cells








Tonsils



# Palatine Tonsils

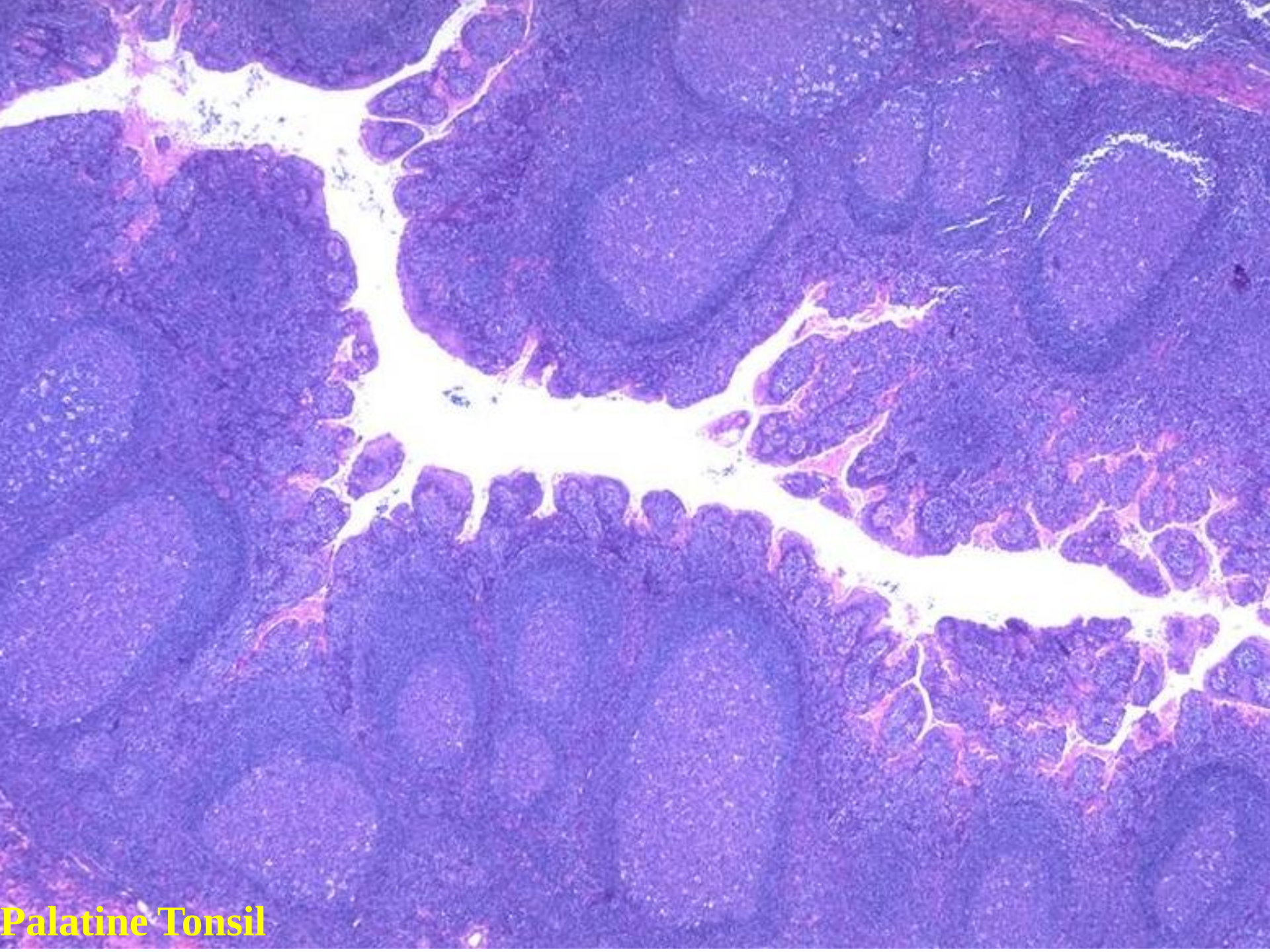
Location: in the tonsillar fossa between the palatoglossal and palatopharyngeal arches.

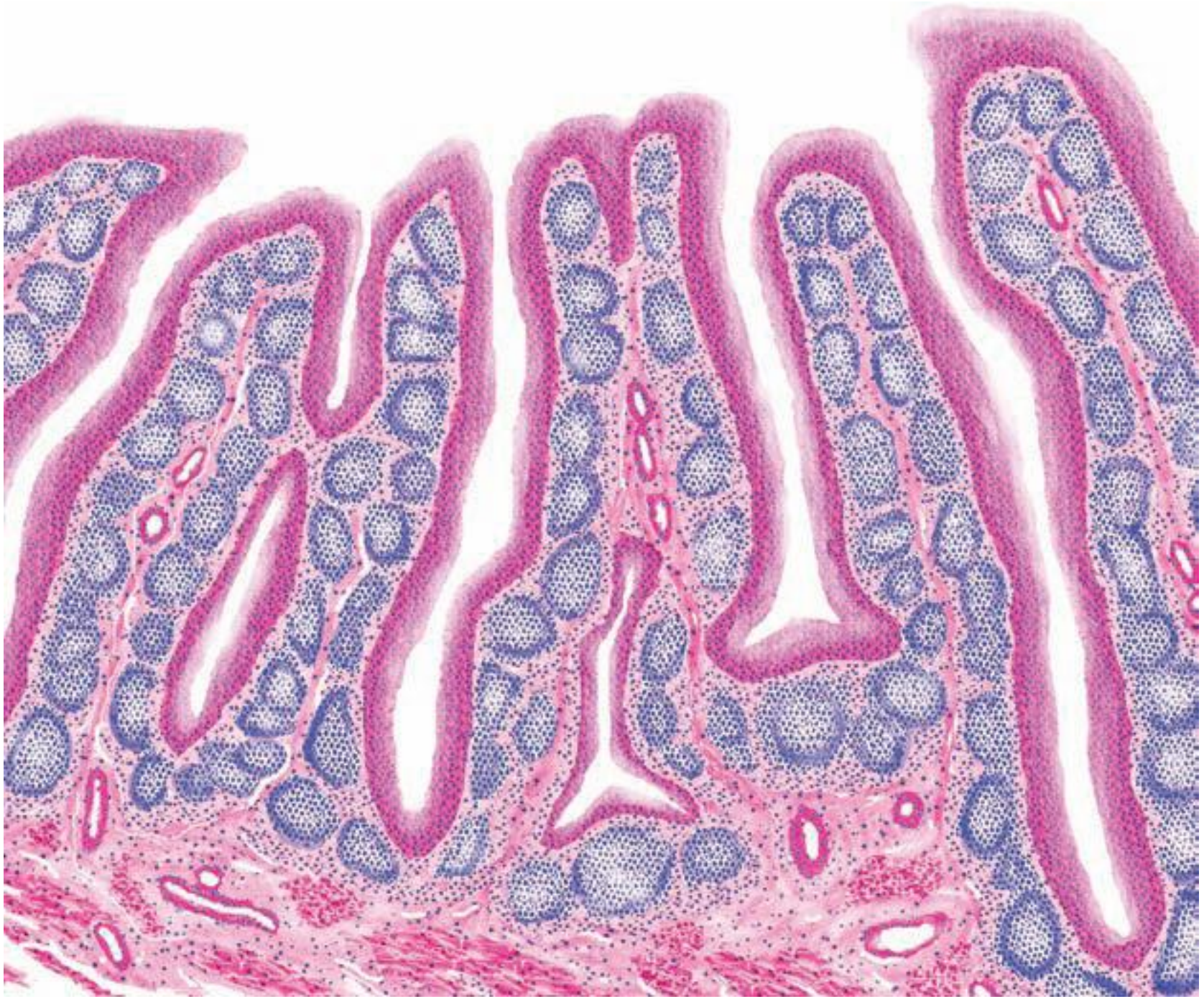
The deep part is surrounded by dense capsule.

The superficial aspect is covered by stratified squamous non keratinizing epithelium.

The epithelium form 10-15 crypts.

The parenchyma is composed of many lymphoid nodules.


Palatine Tonsil



# Pharyngeal Tonsil

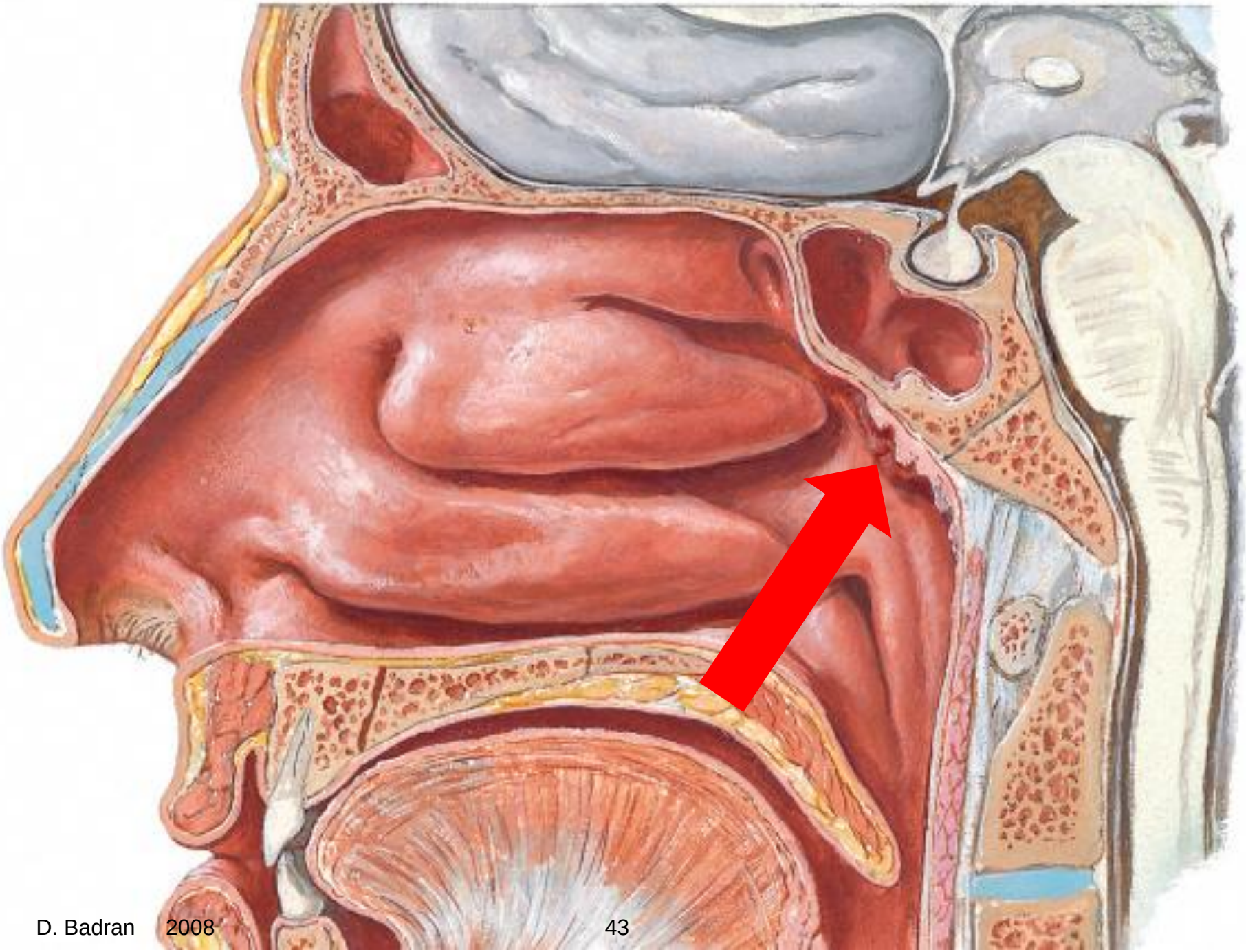
Single, in the roof of the nasopharynx.

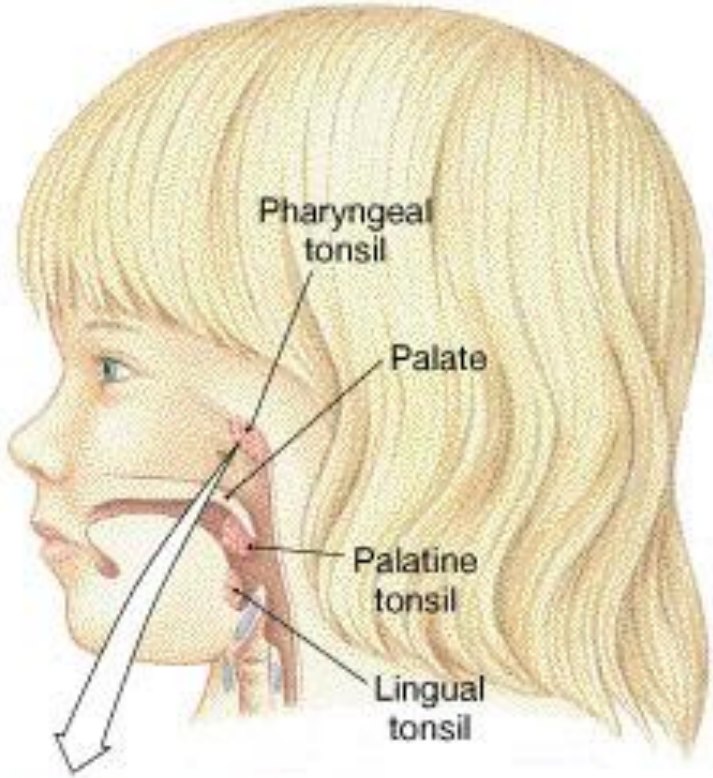
The capsule is thinner than in palatine tonsil.

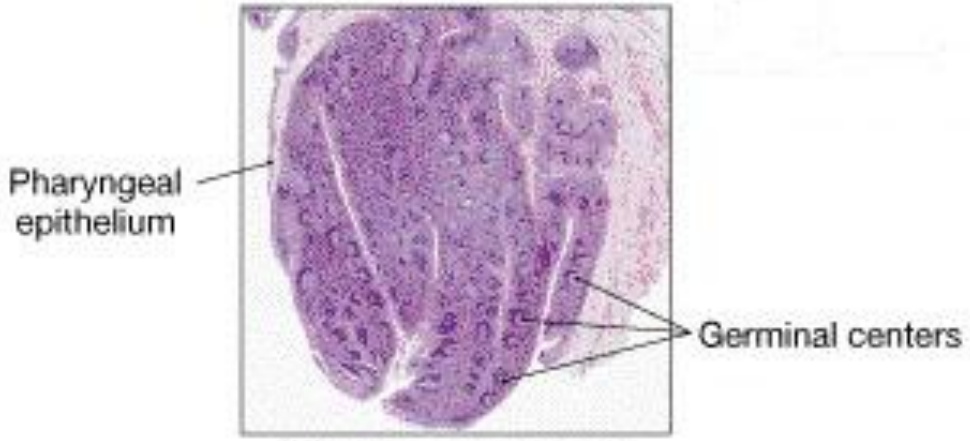
Epithelium covering is alternating stratified squamous and respiratory epithelium.

No crypts but ***Pleats.***

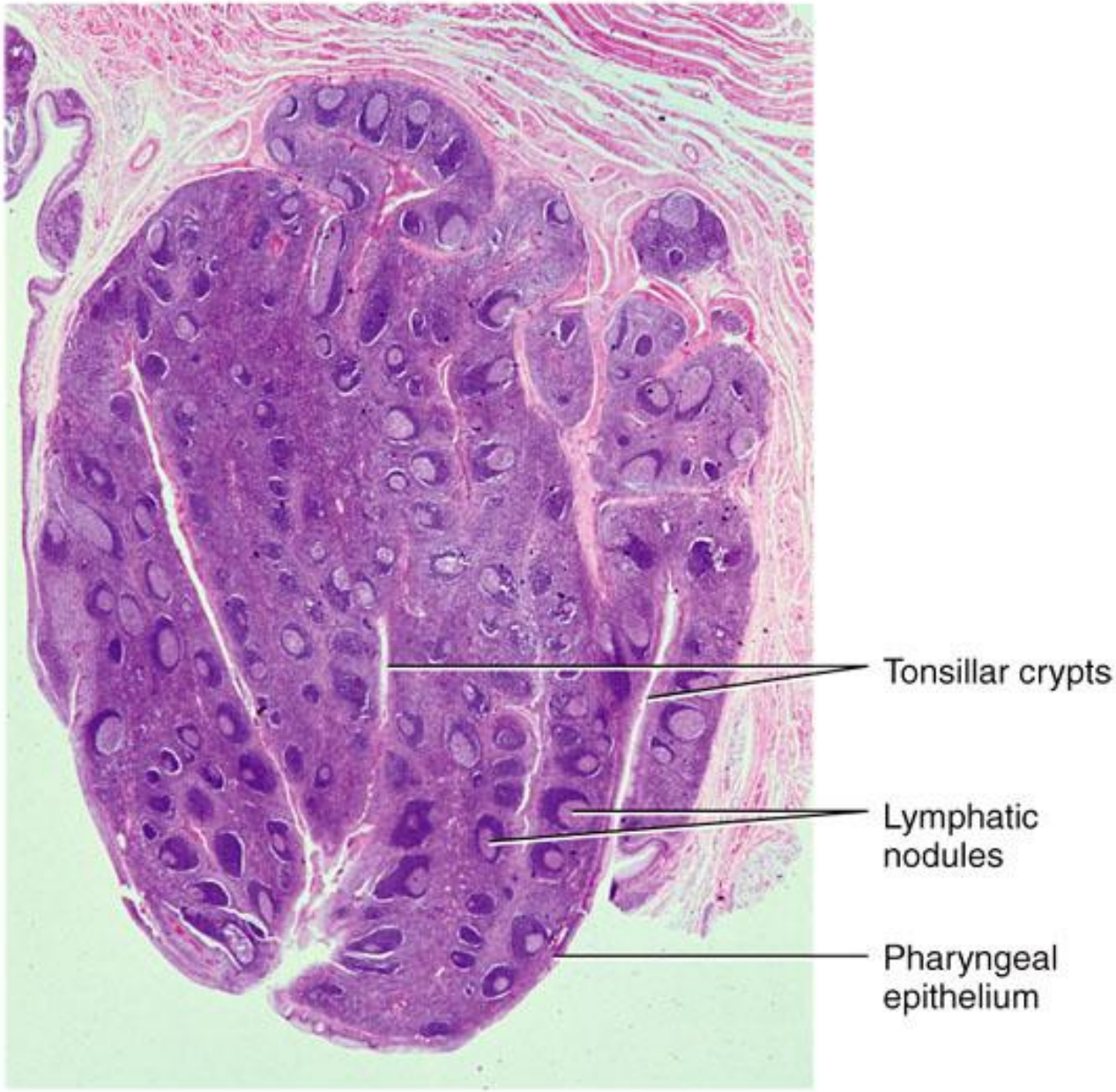
Ducts of glands (seromucous) open into the pleats.






(b) Pharyngeal tonsil

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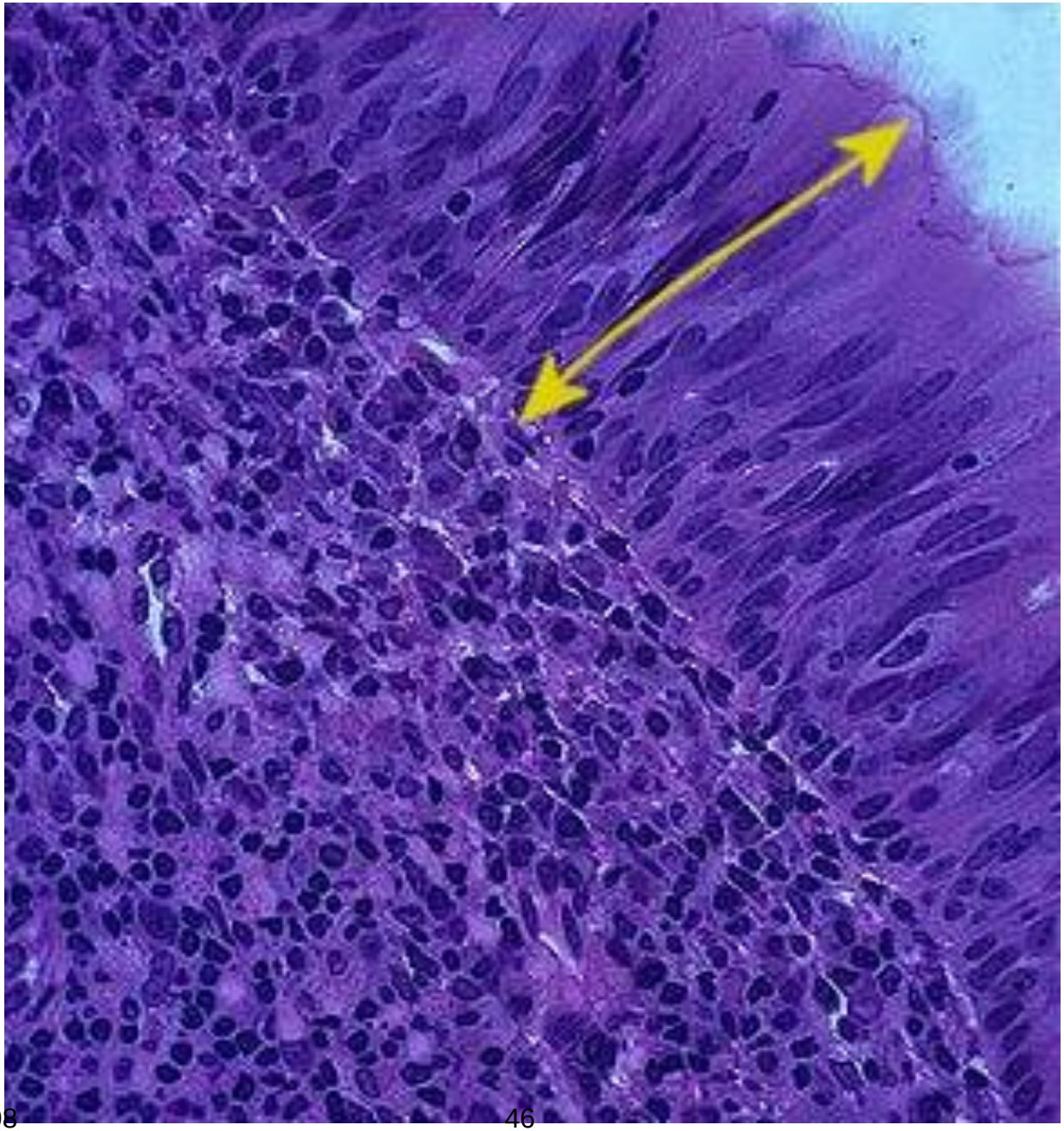
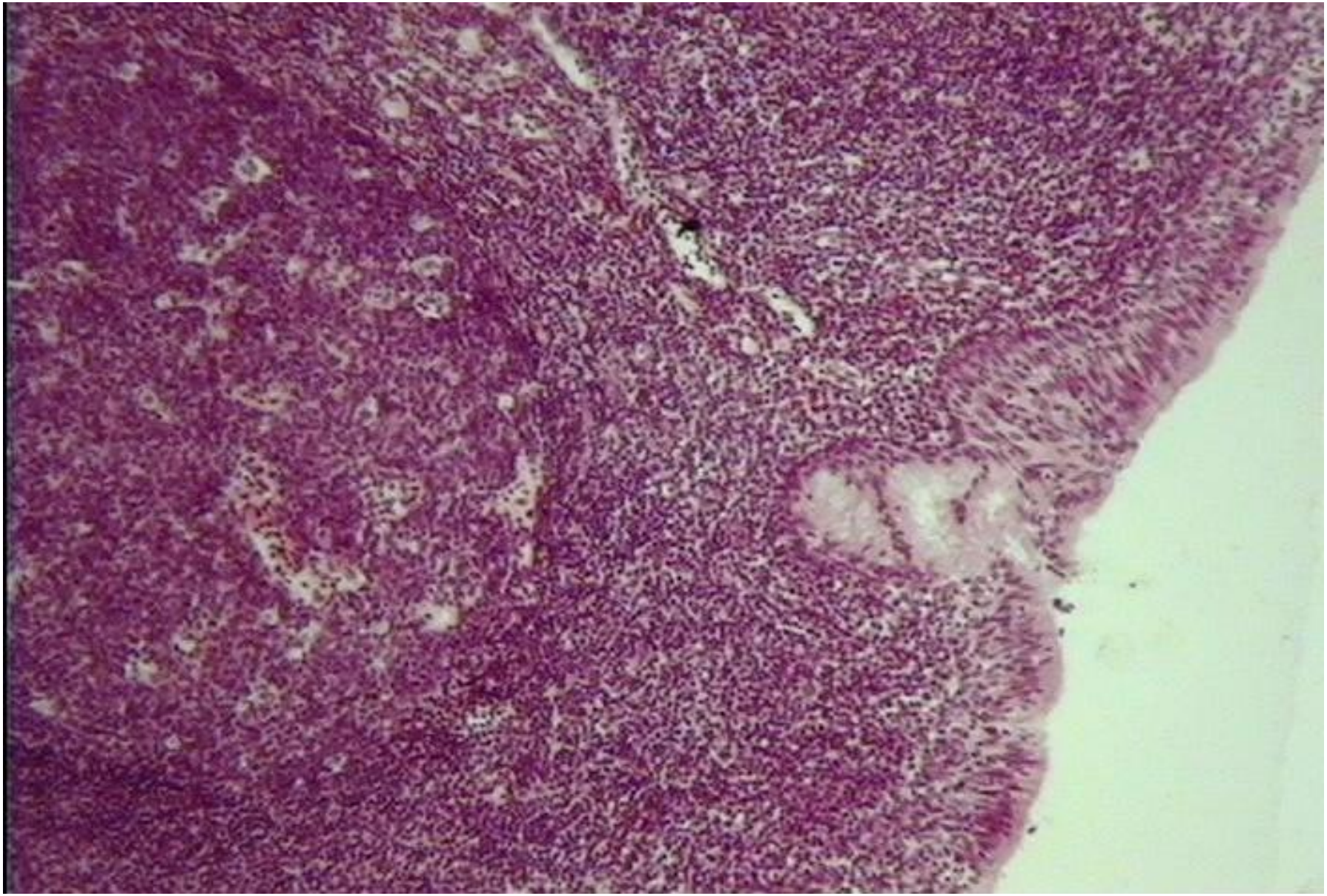
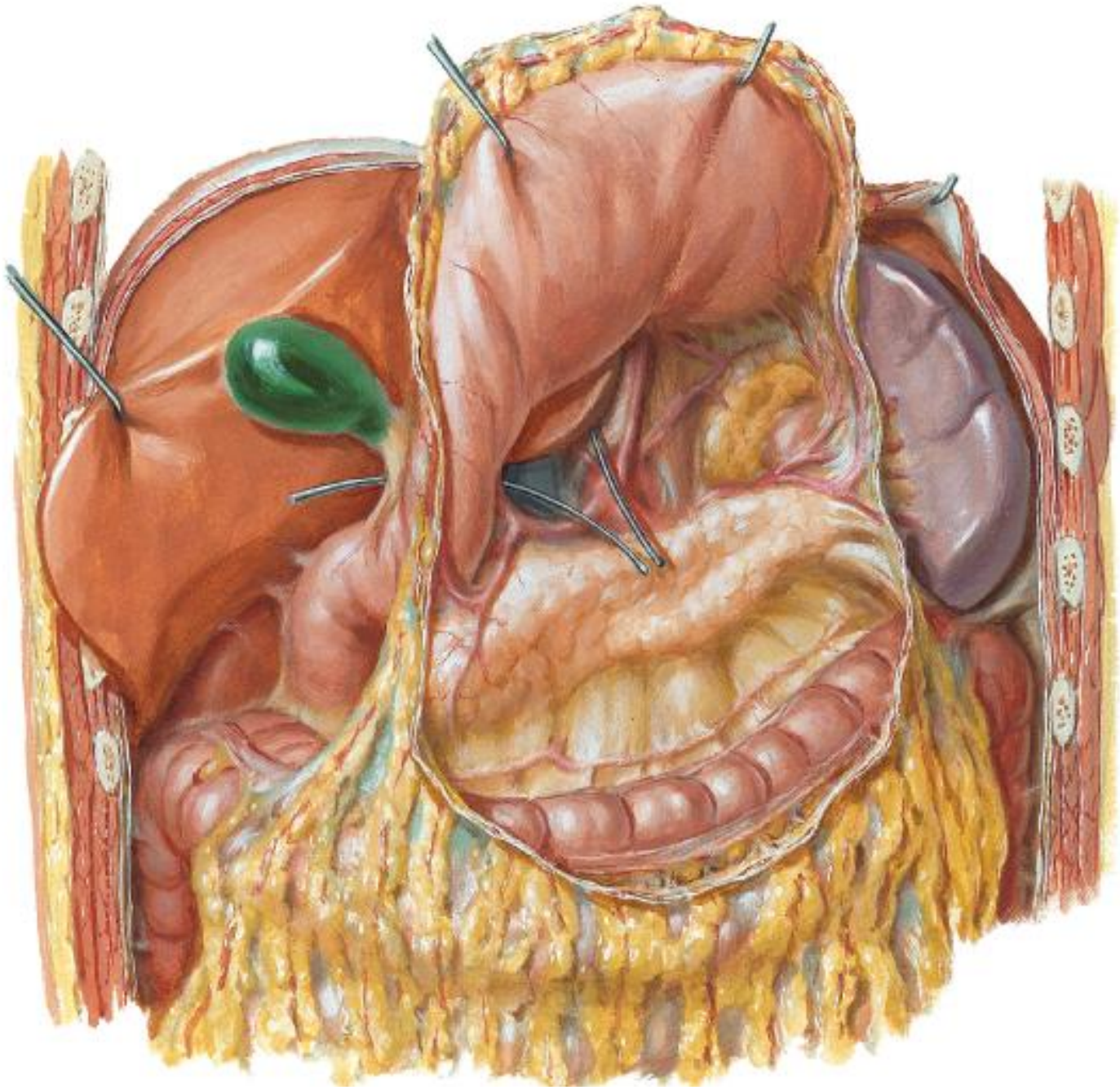
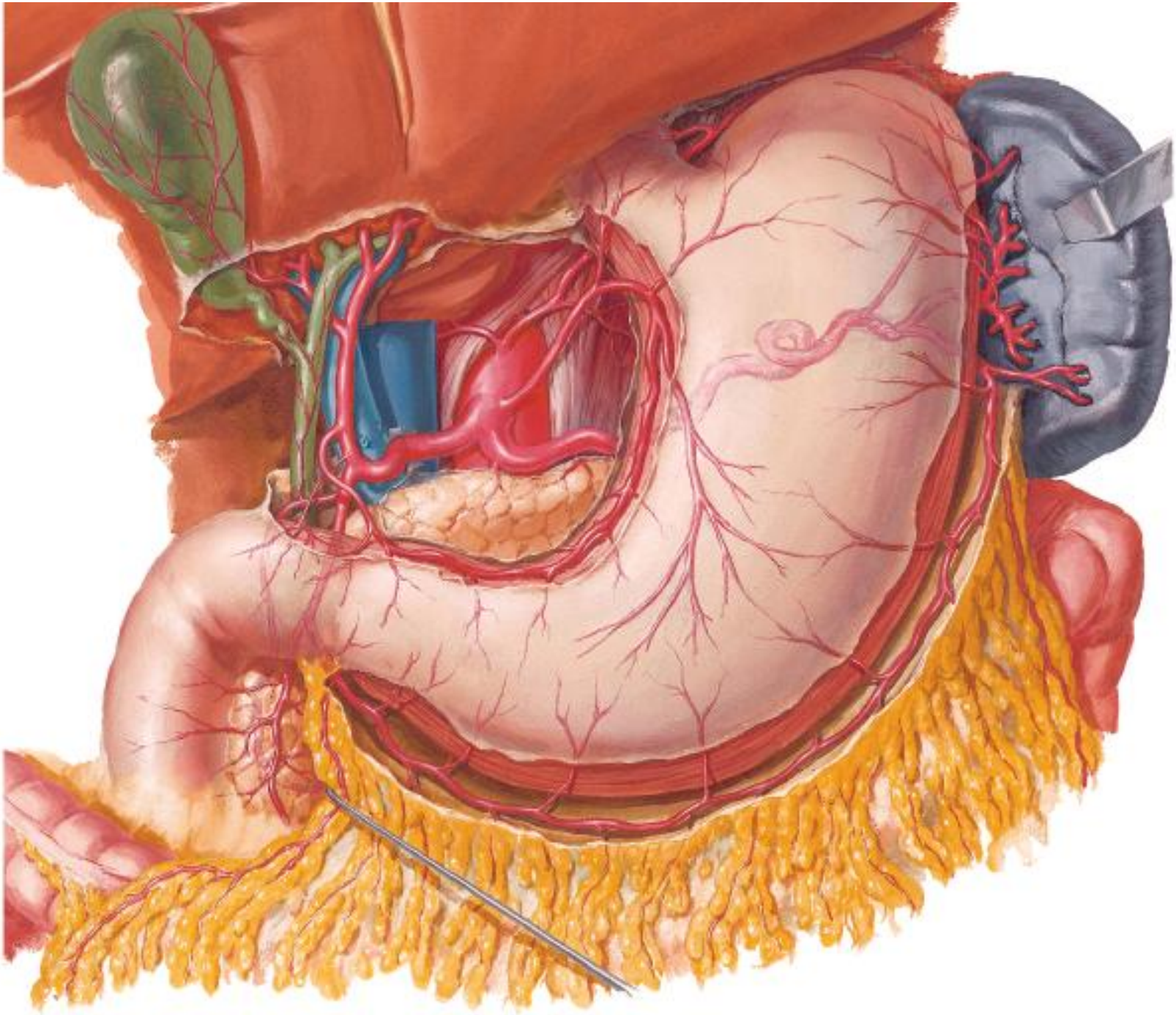
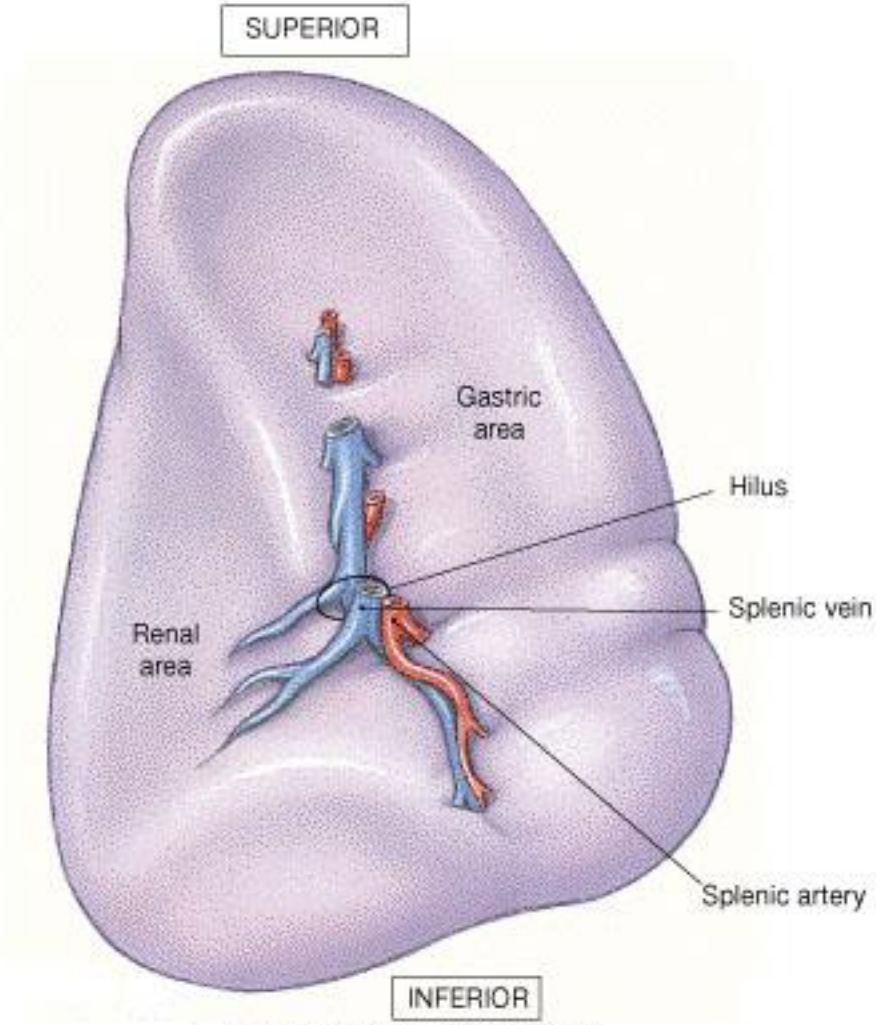


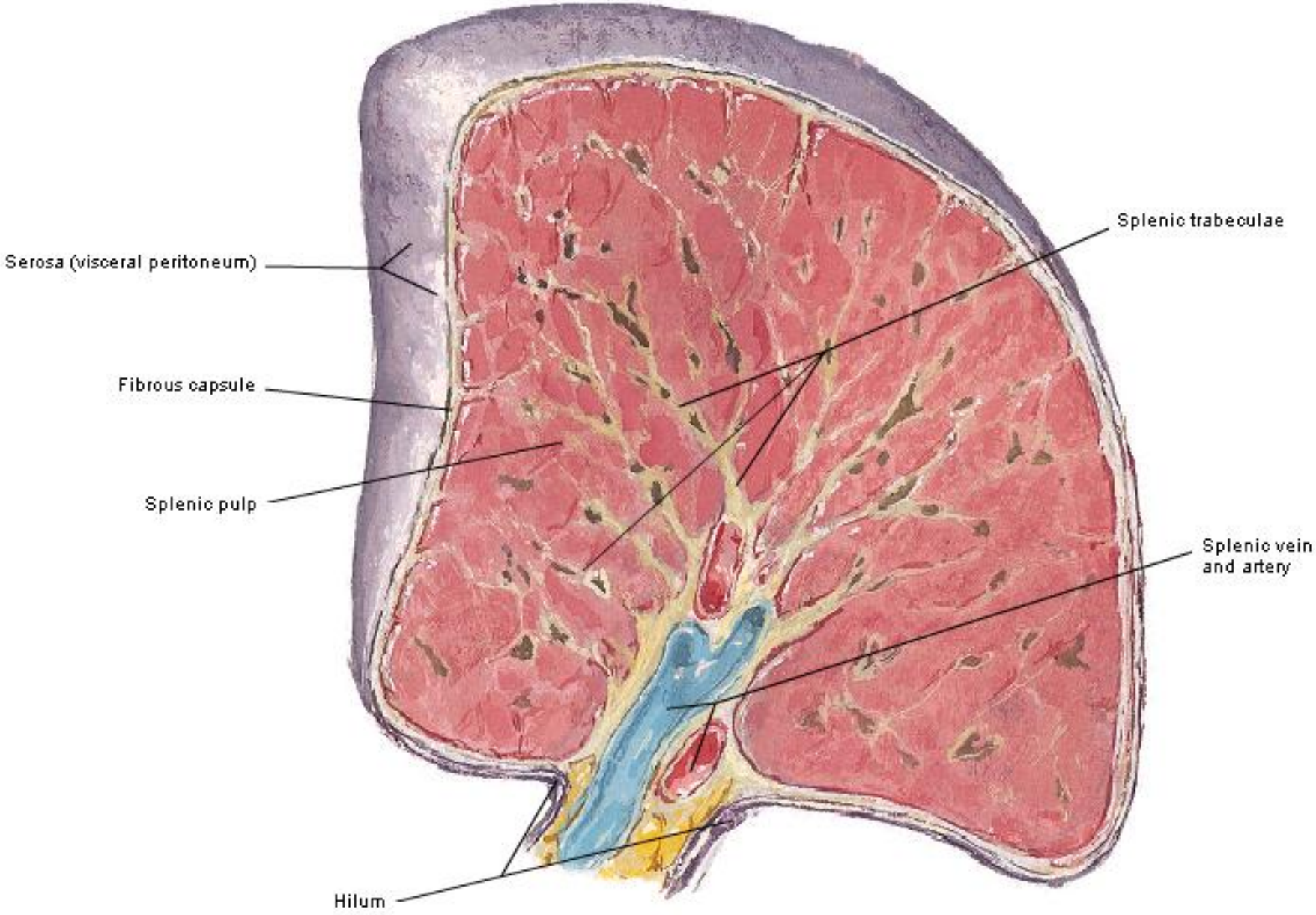


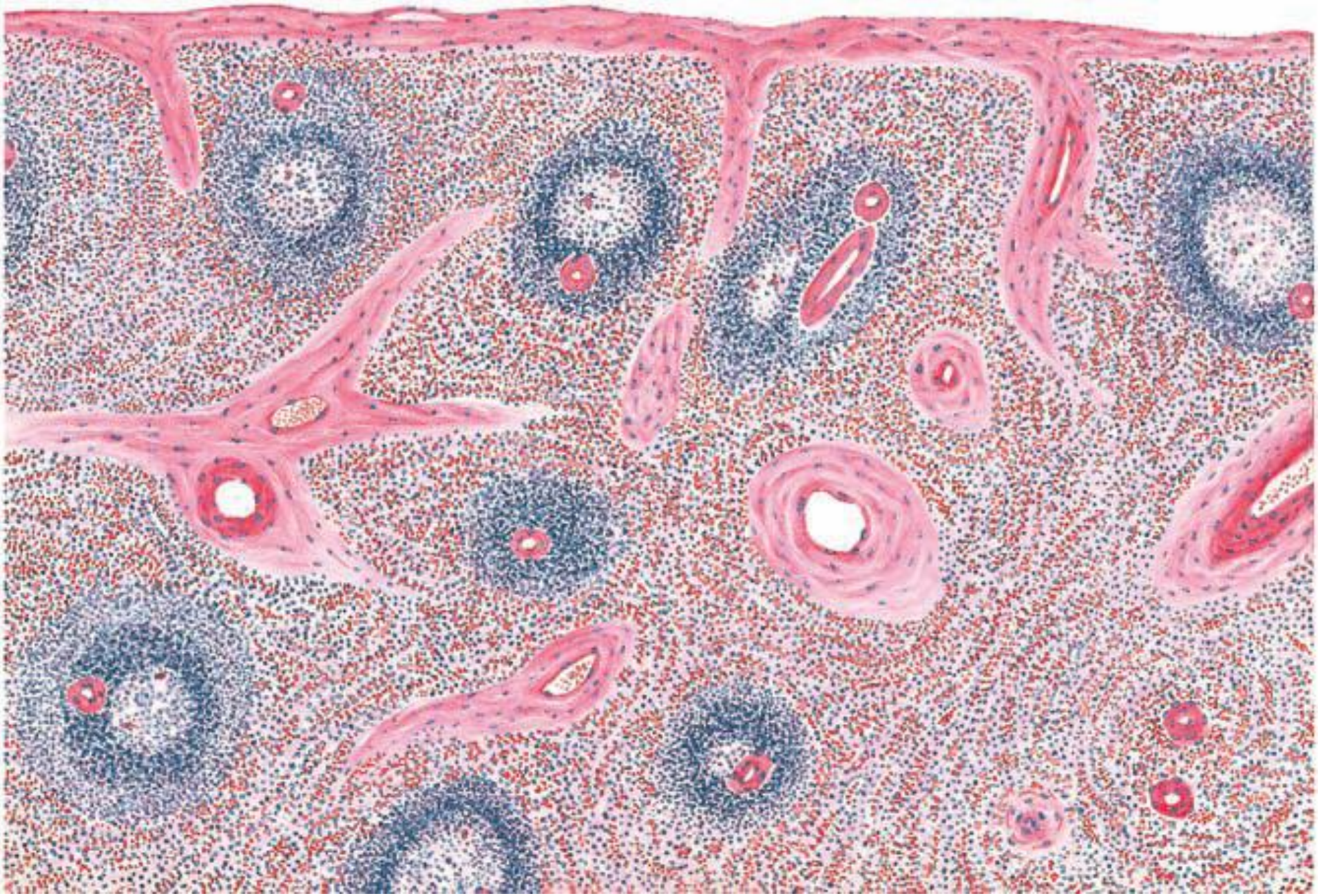


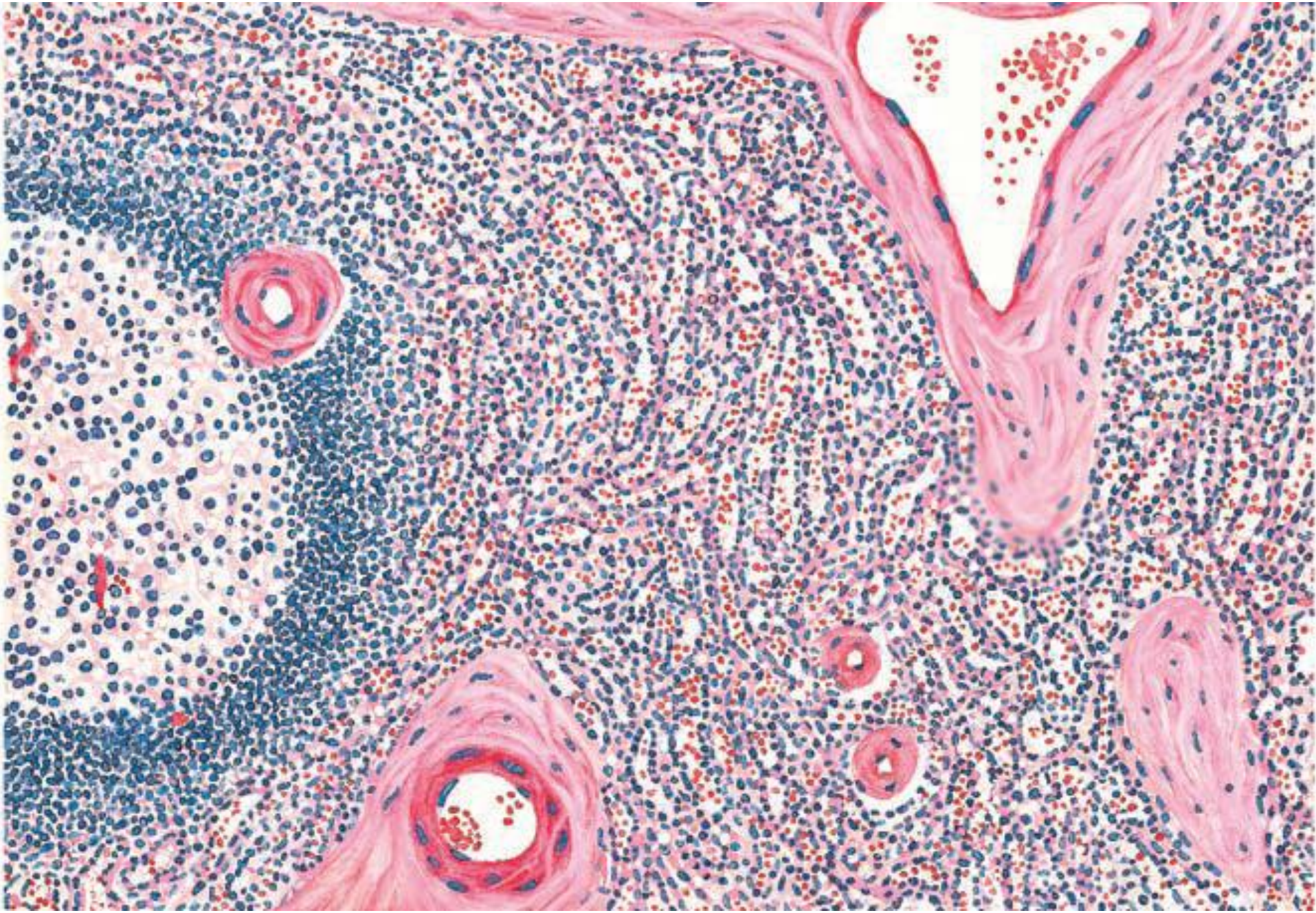


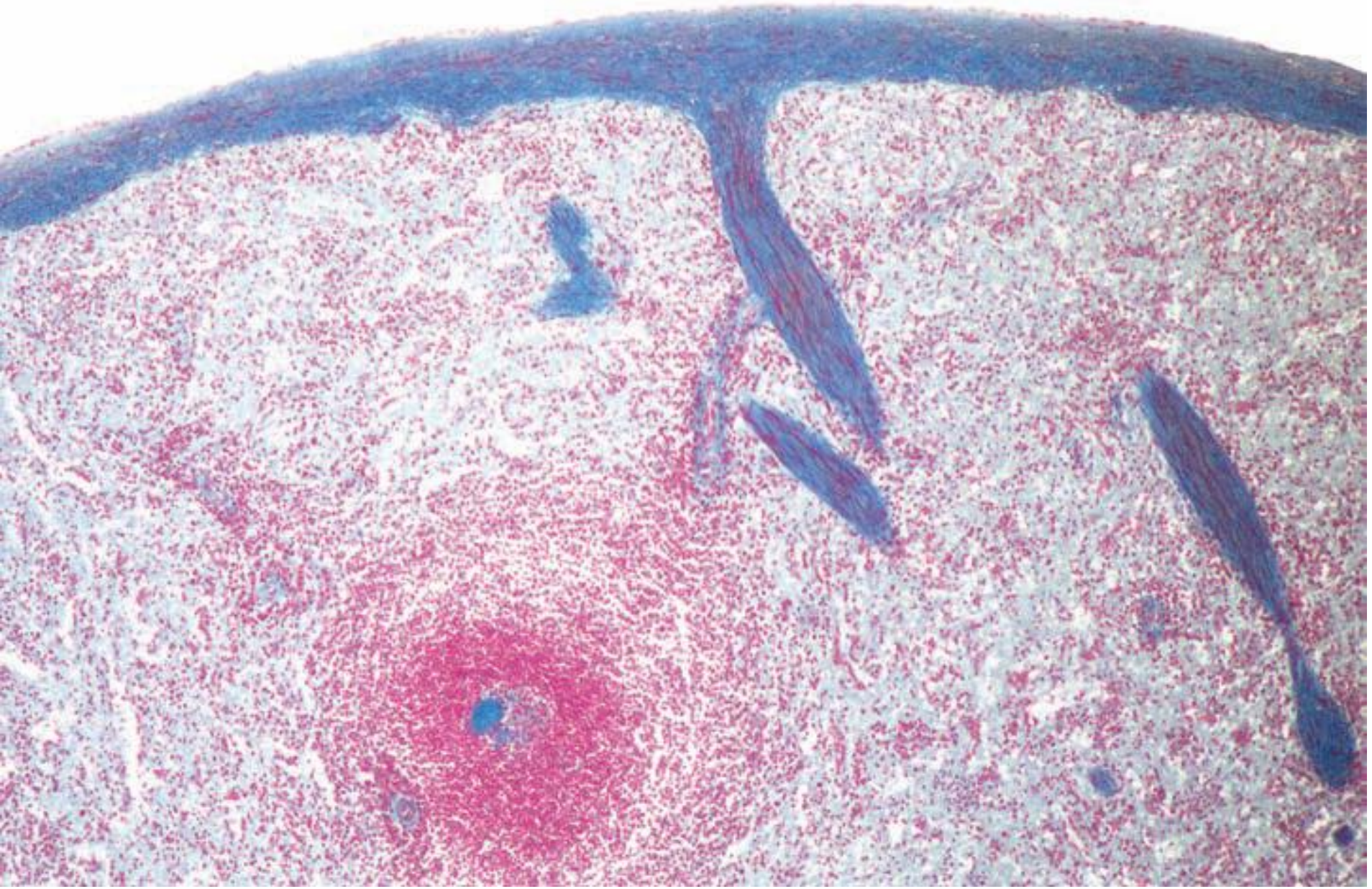


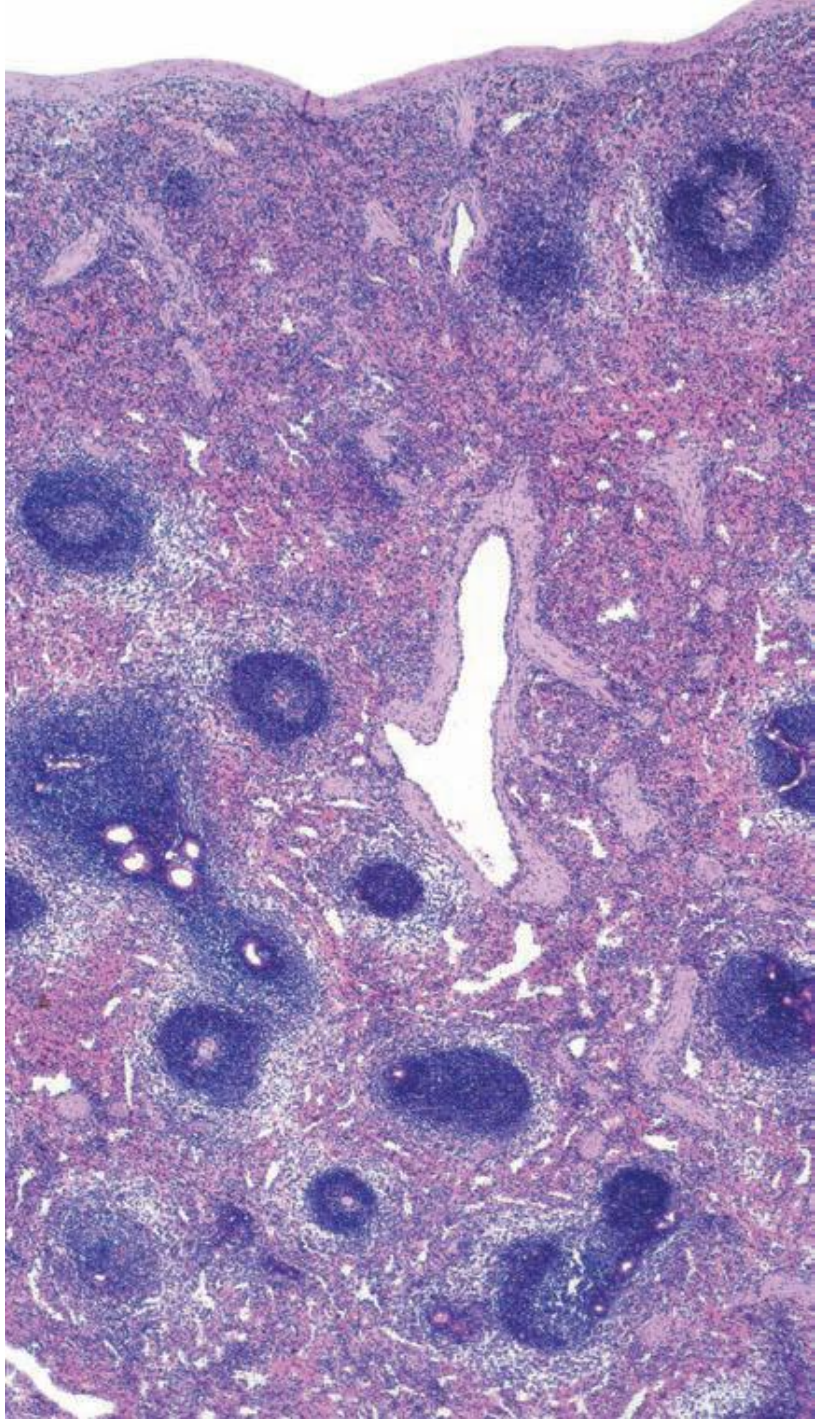

**(b) Visceral surface of spleen**

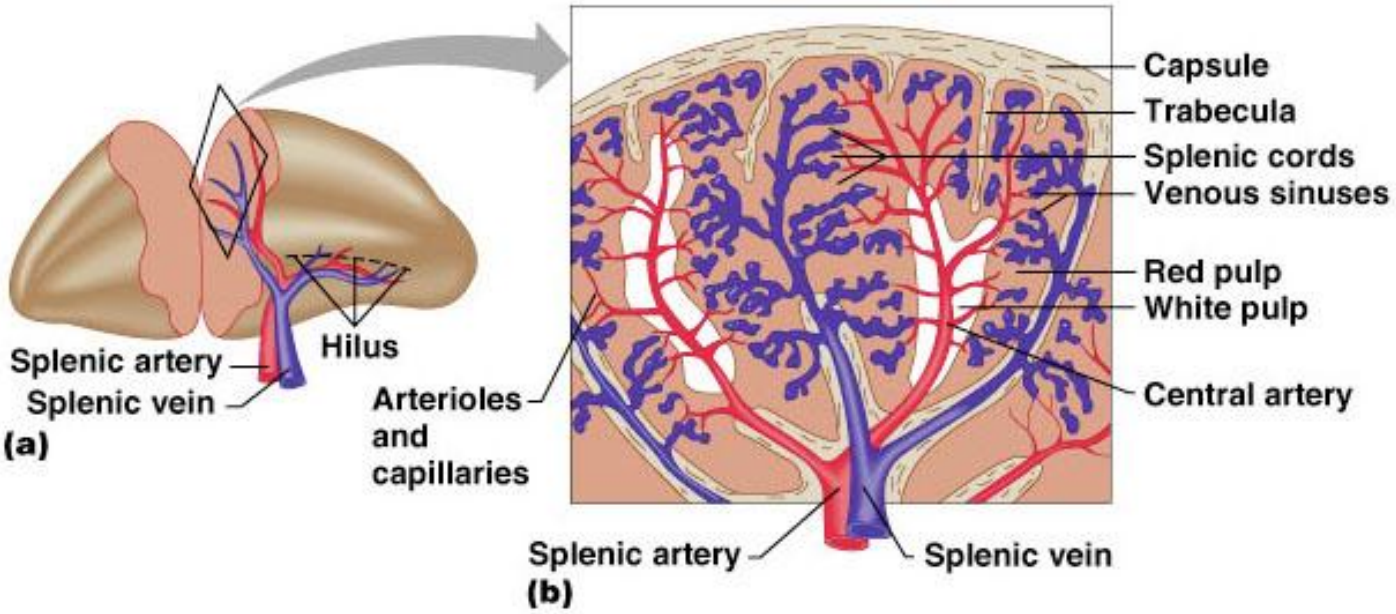

Serosa (visceral peritoneum)
Fibrous capsule
Splenic pulp
Hilum
Splenic trabeculae
Splenic vein
and artery

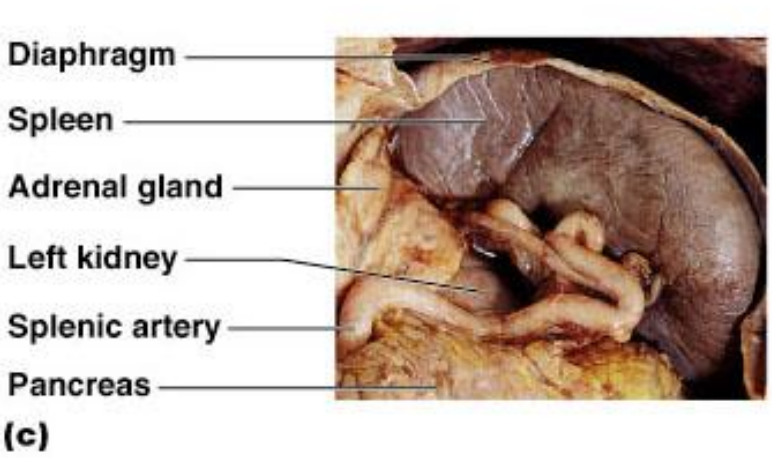


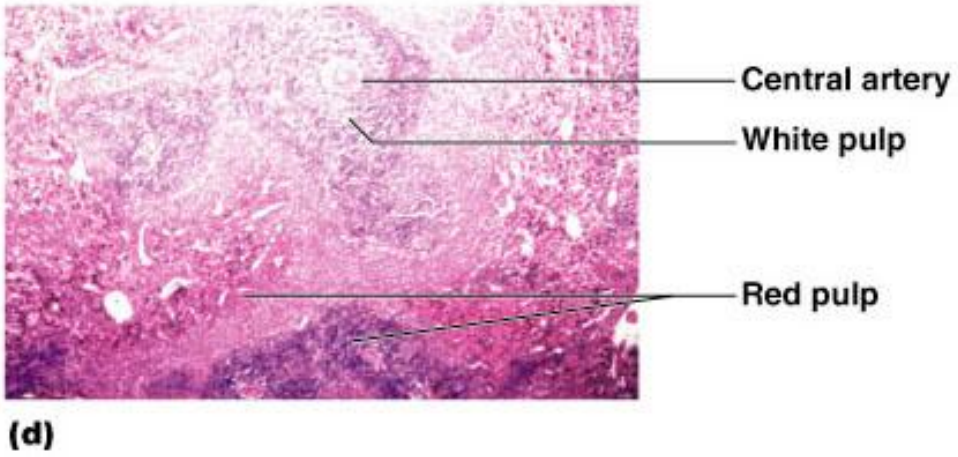






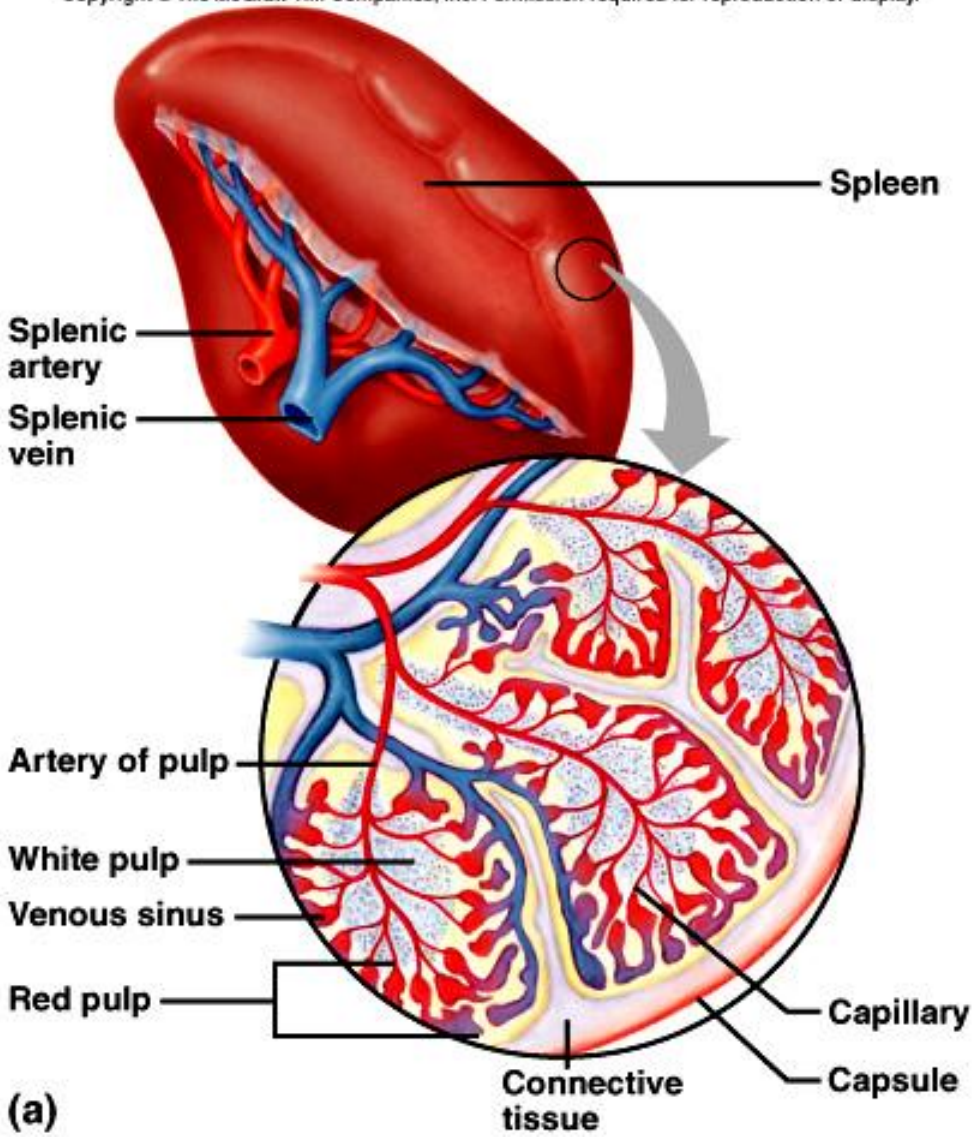

Splenic artery
Splenic vein
Hilus
(a)
Arterioles and capillaries
Capsule
Trabecula
Splenic cords
Venous sinuses
Red pulp
White pulp
Central artery
Splenic artery
Splenic vein
(b)


Diaphragm
Spleen
Adrenal gland
Left kidney
Splenic artery
Pancreas
(c)

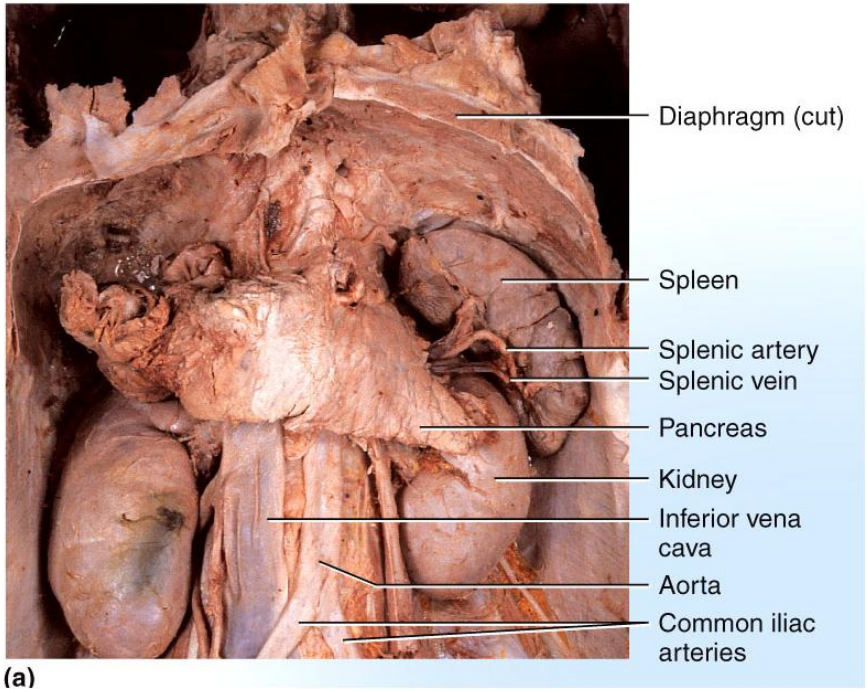

Central artery
White pulp
Red pulp
(d)

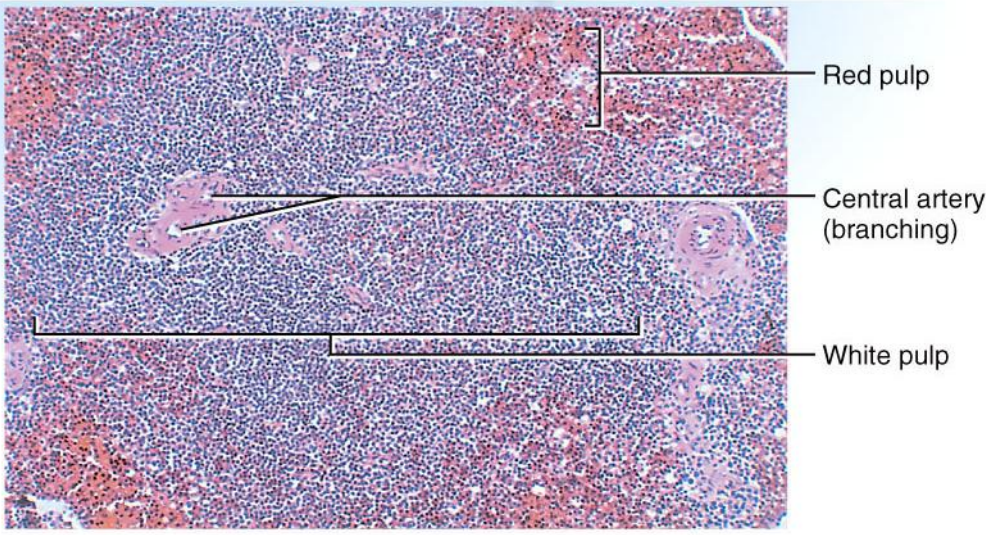
# Spleen



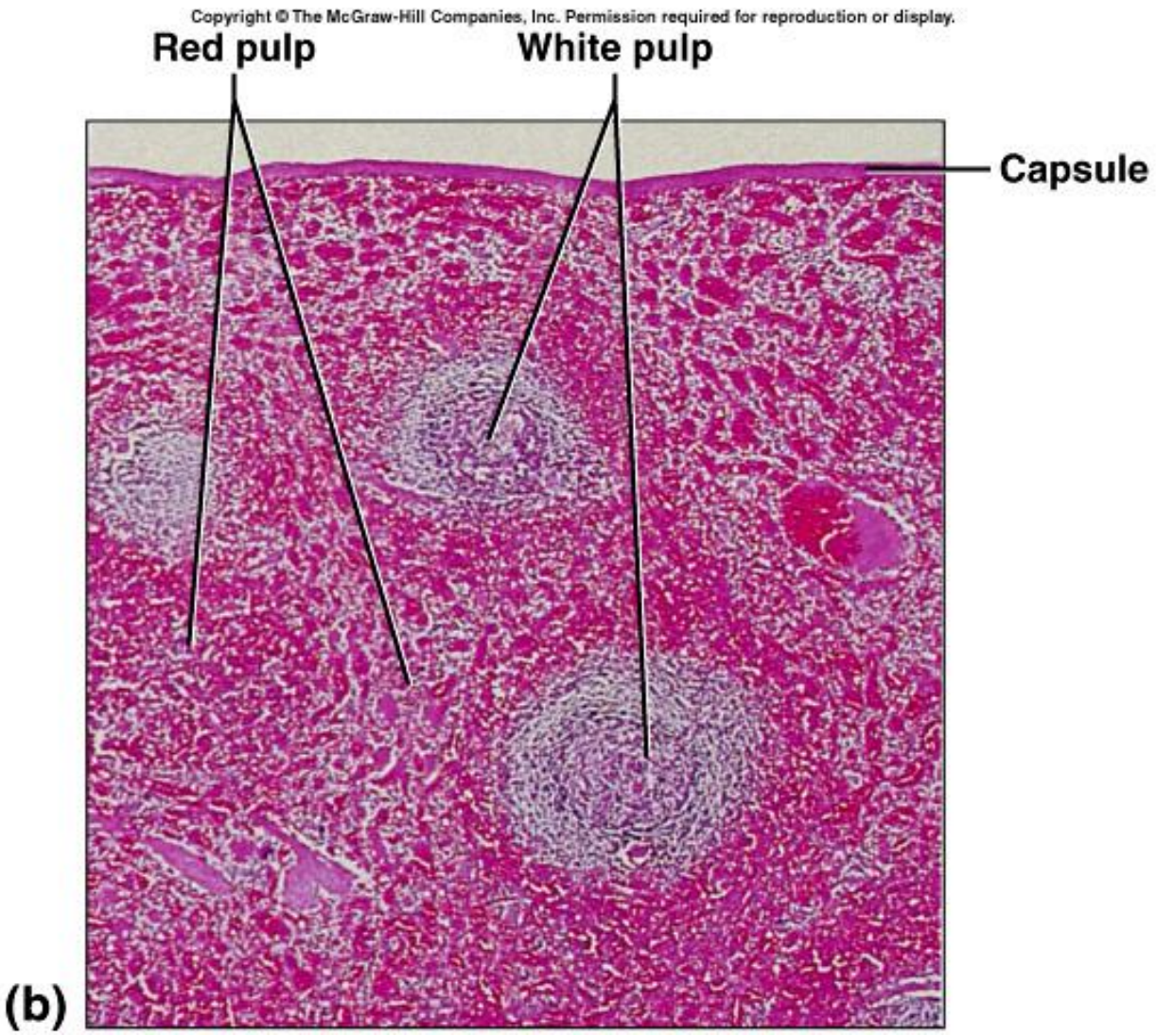


# Spleen


Diaphragm (cut)
Spleen
Splenic artery
Splenic vein
Pancreas
Kidney
Inferior vena cava
Aorta
Common iliac arteries
(a)


Red pulp
Central artery (branching)
White pulp
(c)

# Spleen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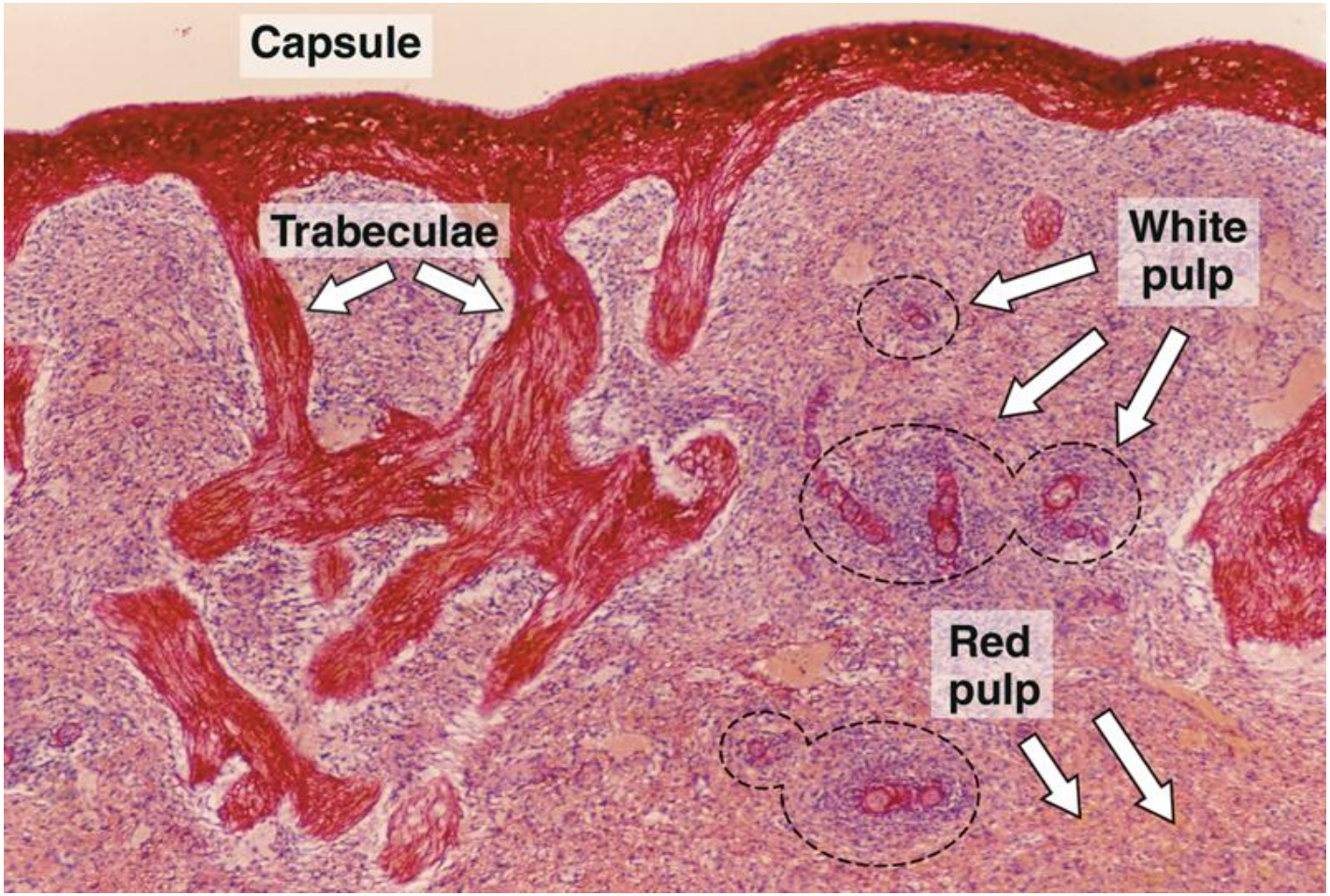
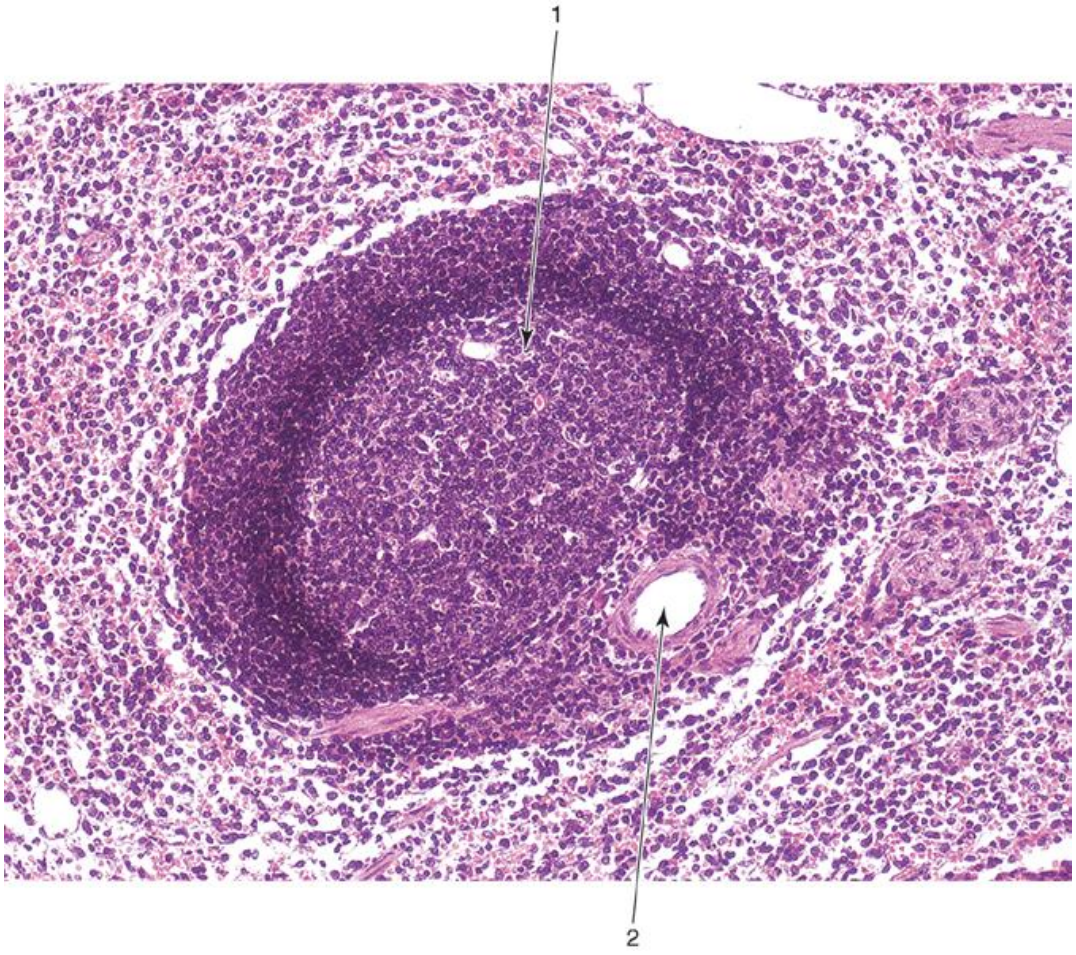
Red pulp
White pulp
Capsule
(b)

# Spleen



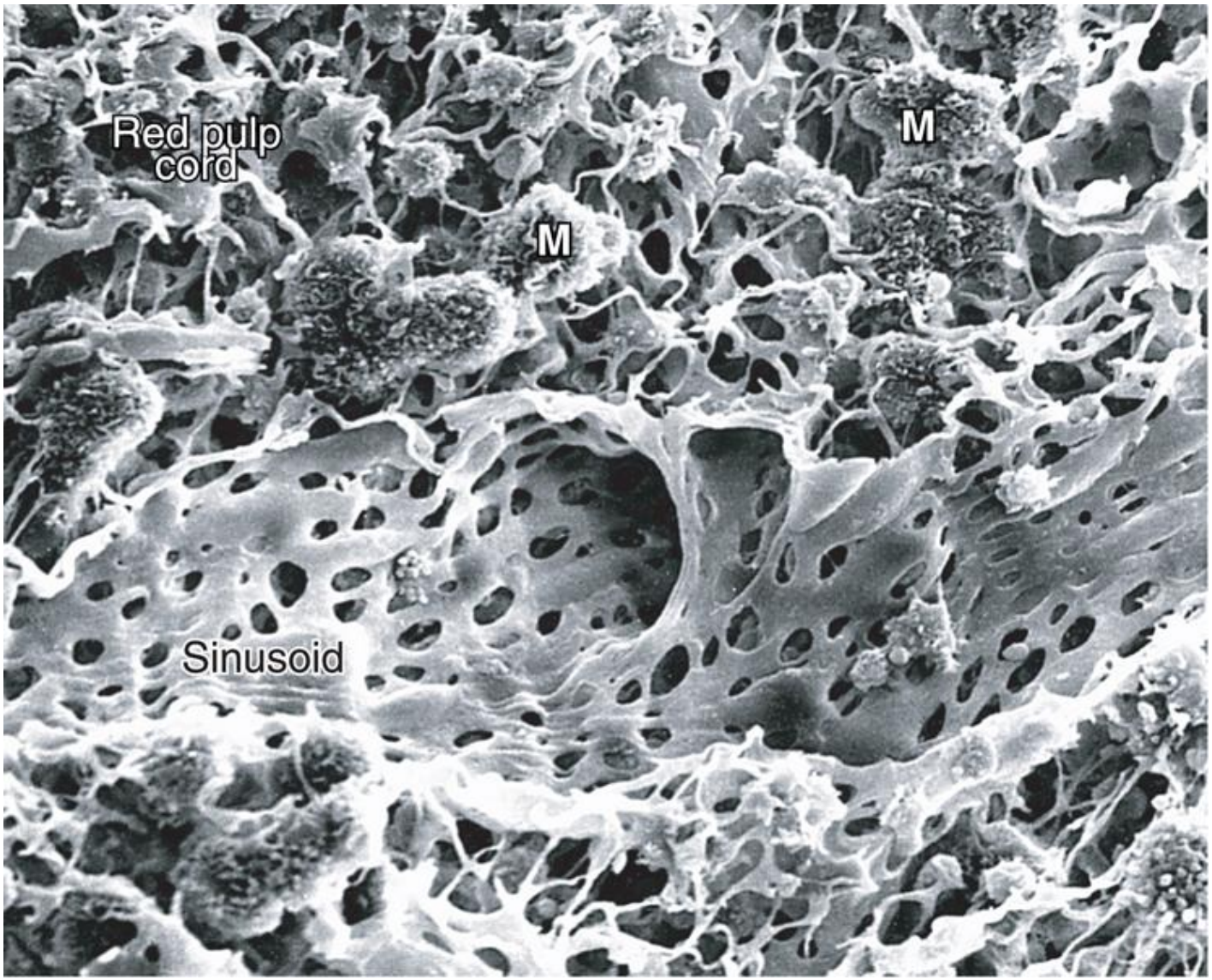
# Lymphoid Nodule




Germinative Center .1

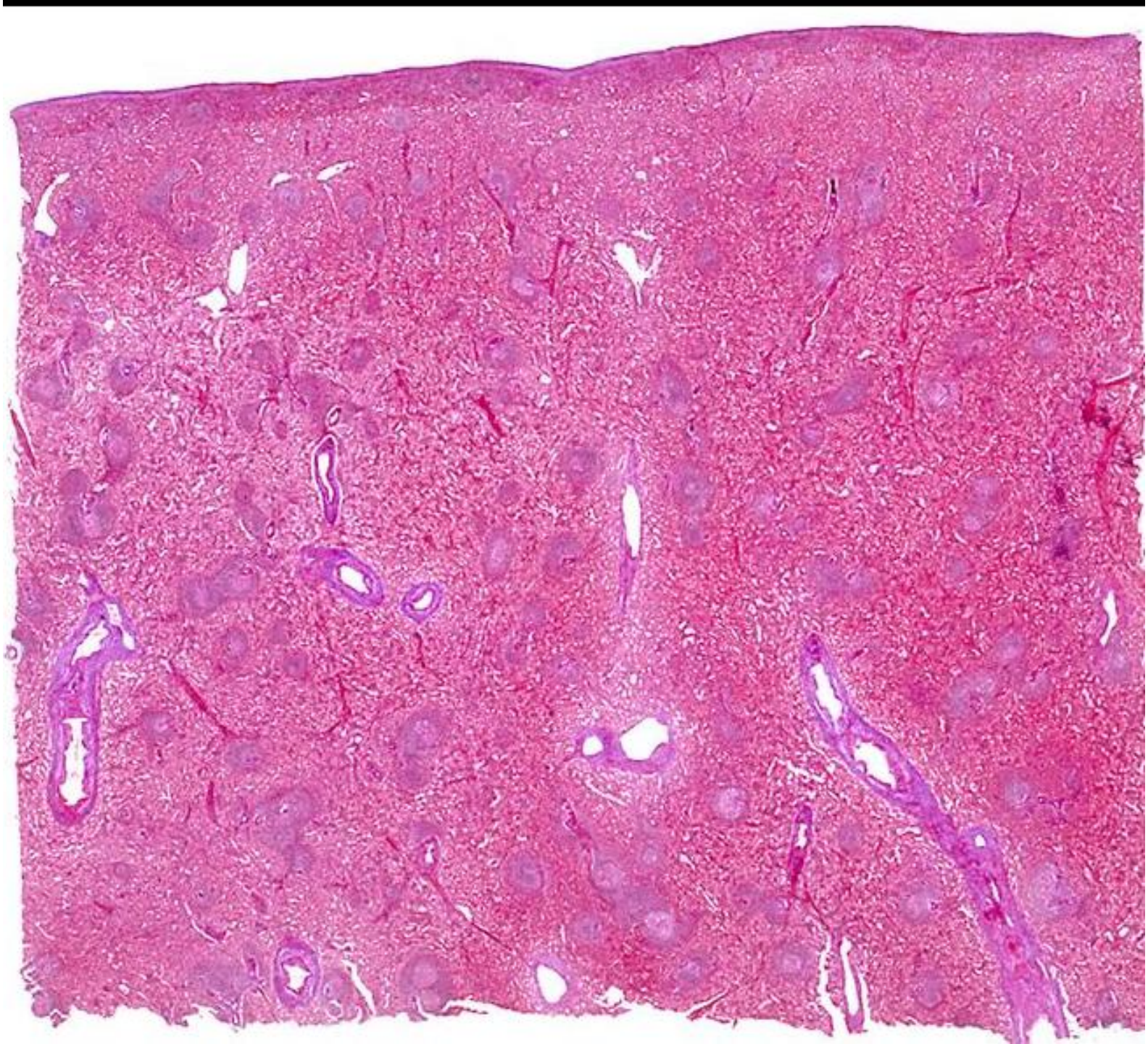
Central artery .2

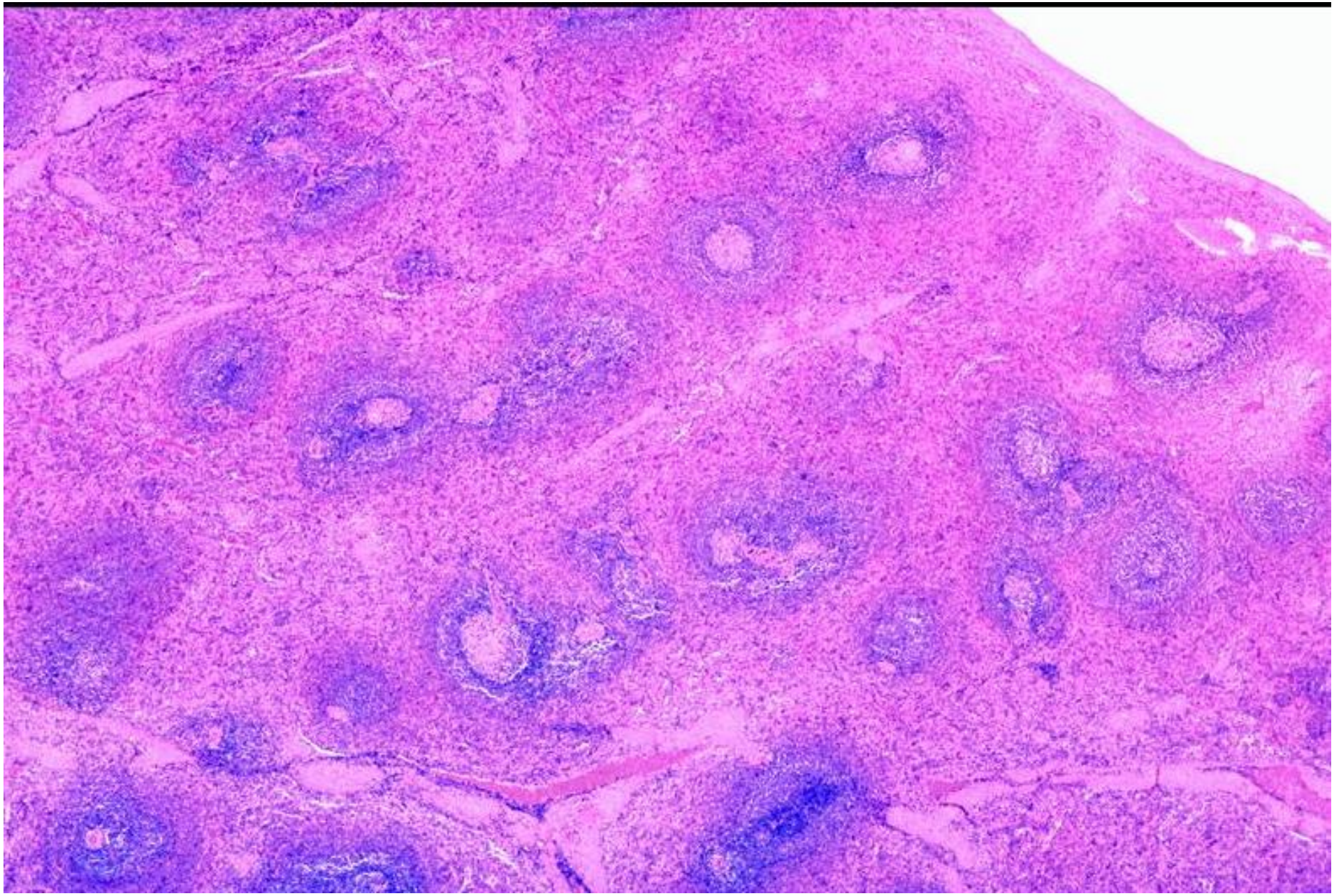
# Red Pulp of Spleen

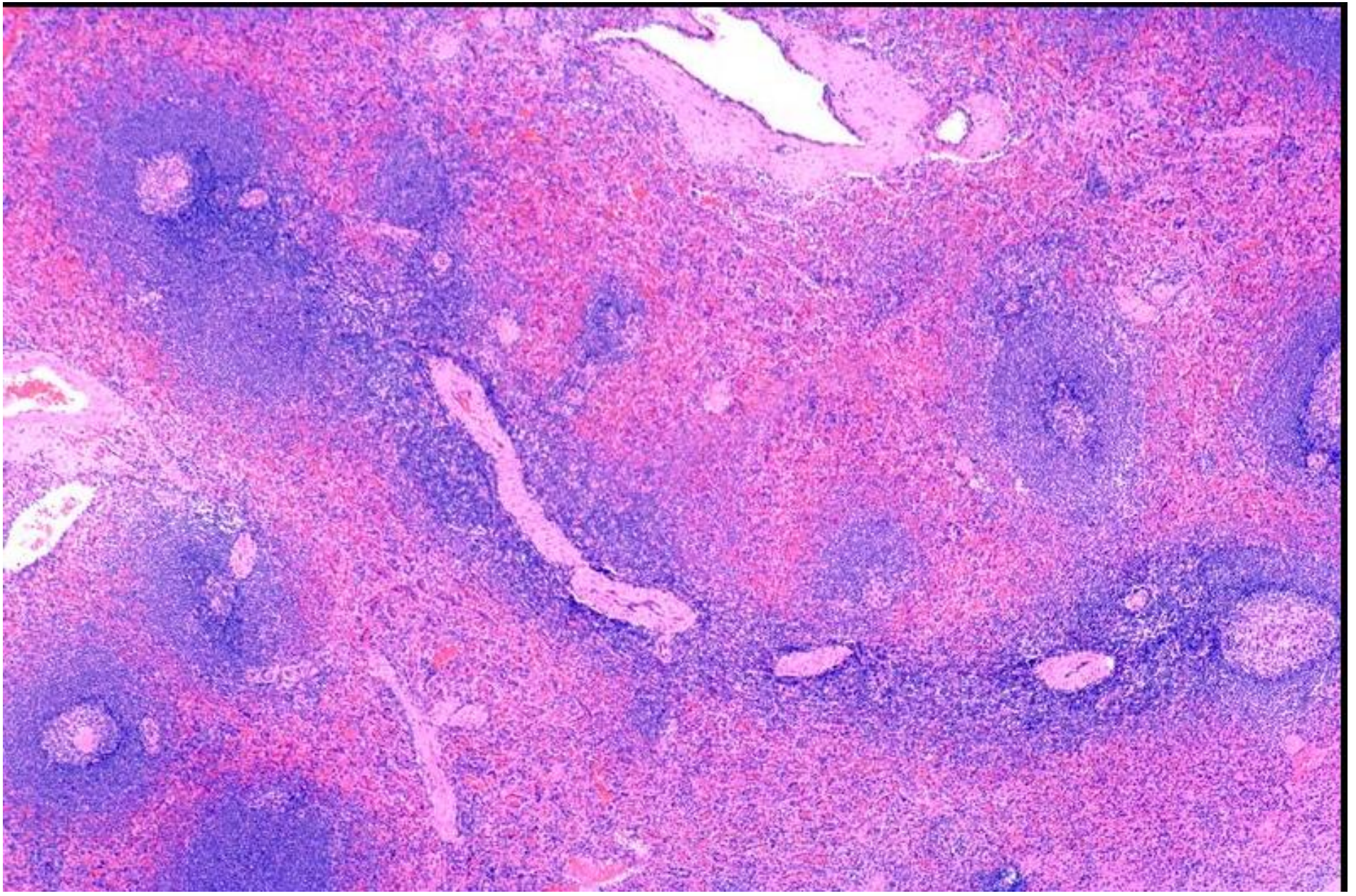


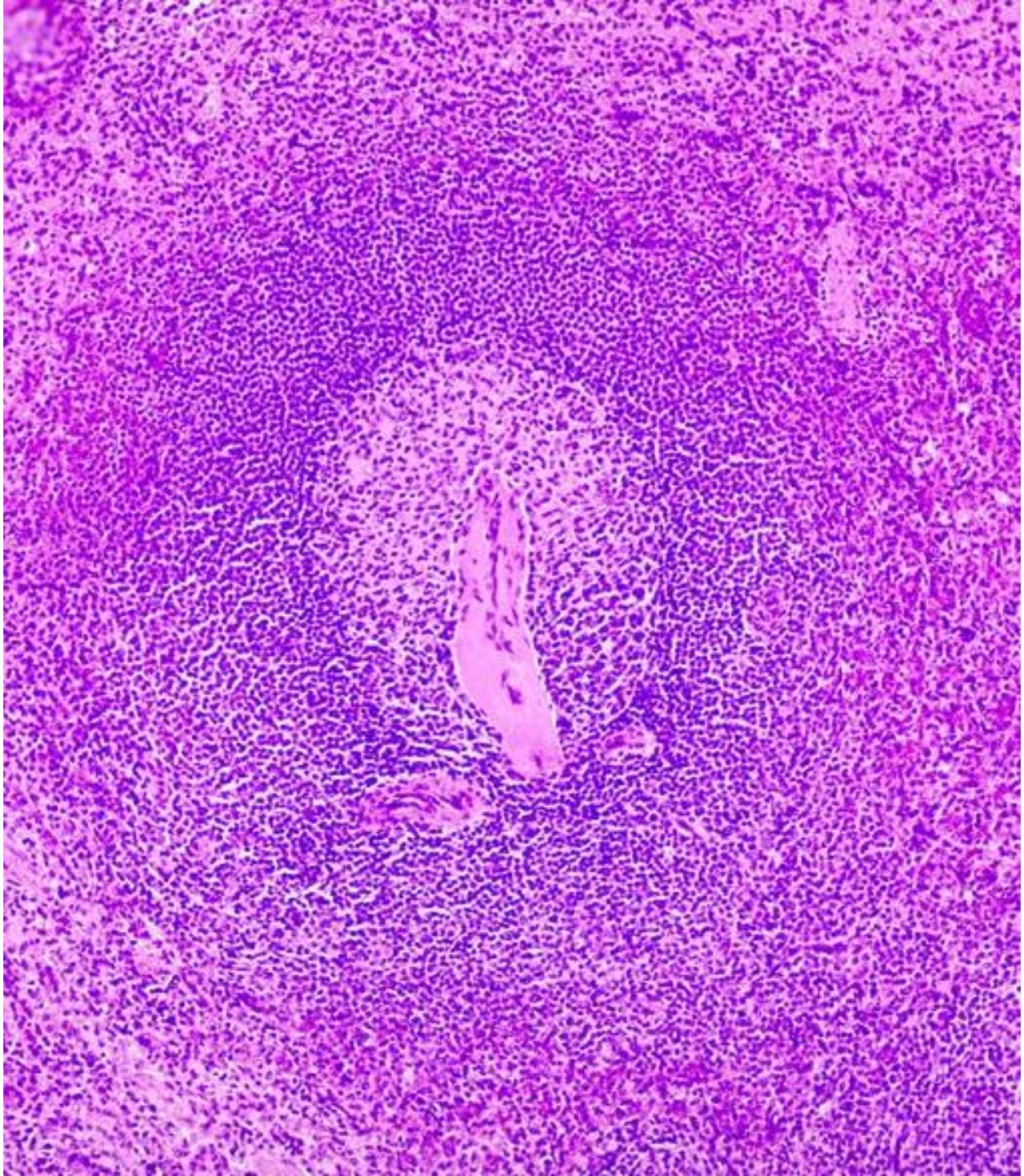

Macrophages

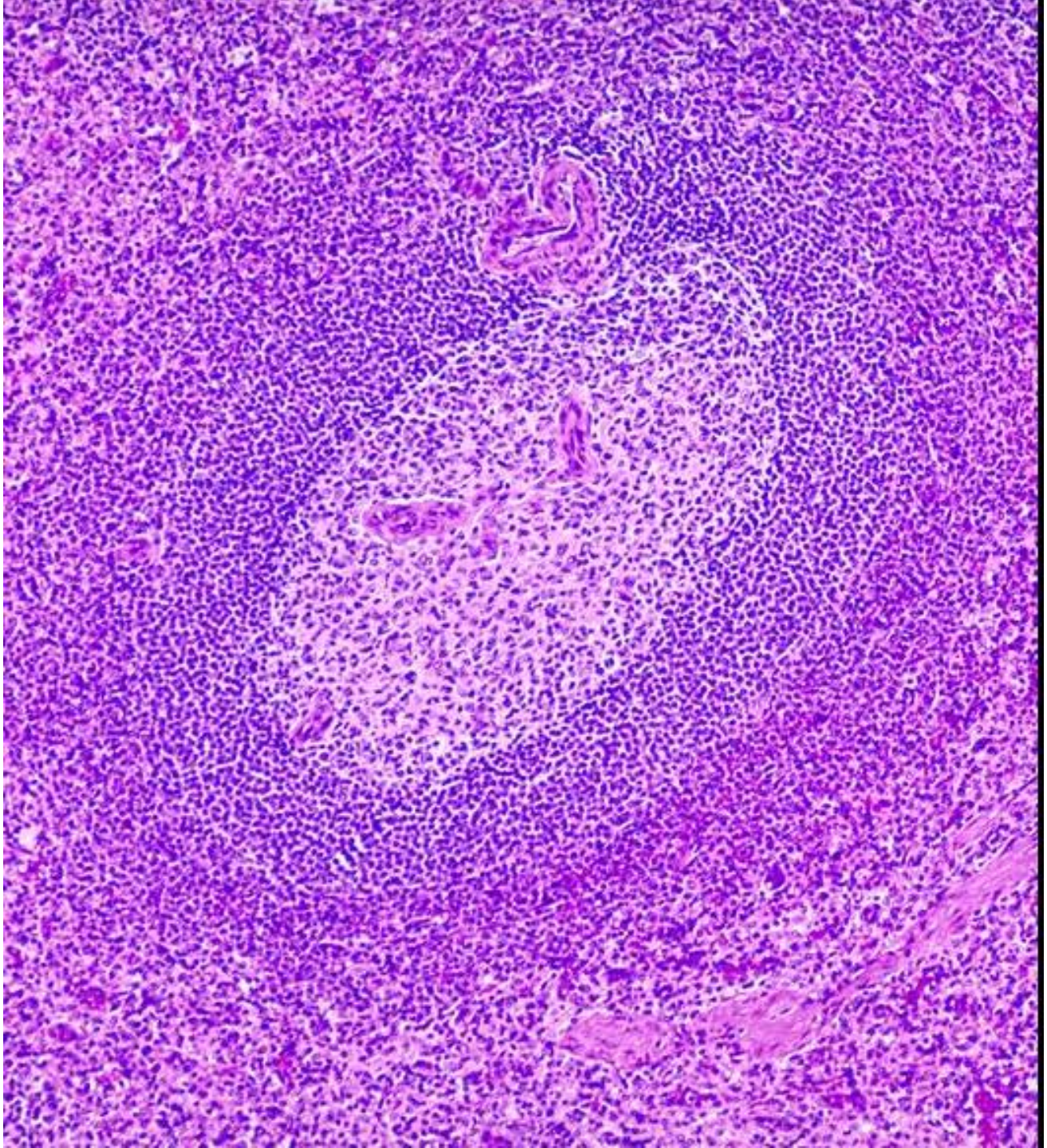
Fenestrated endothelium

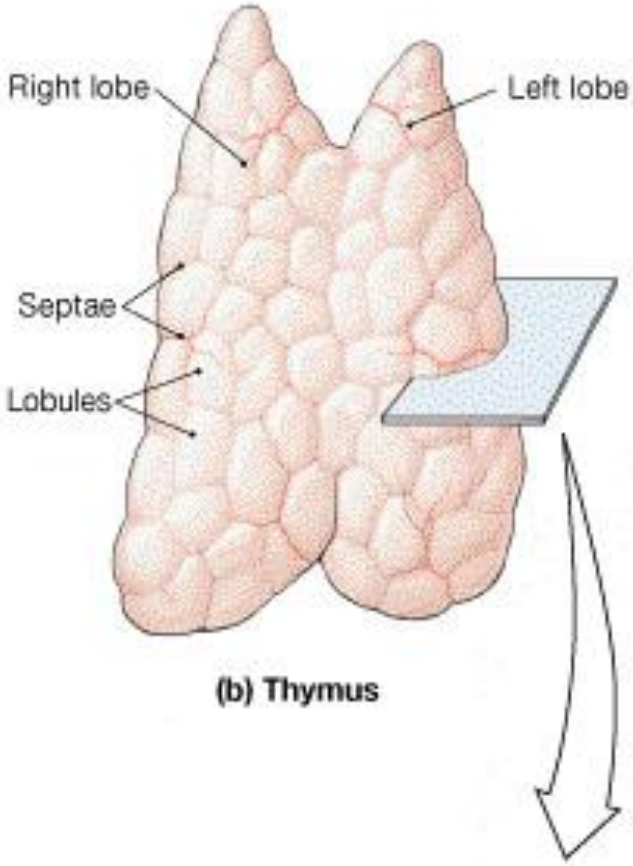




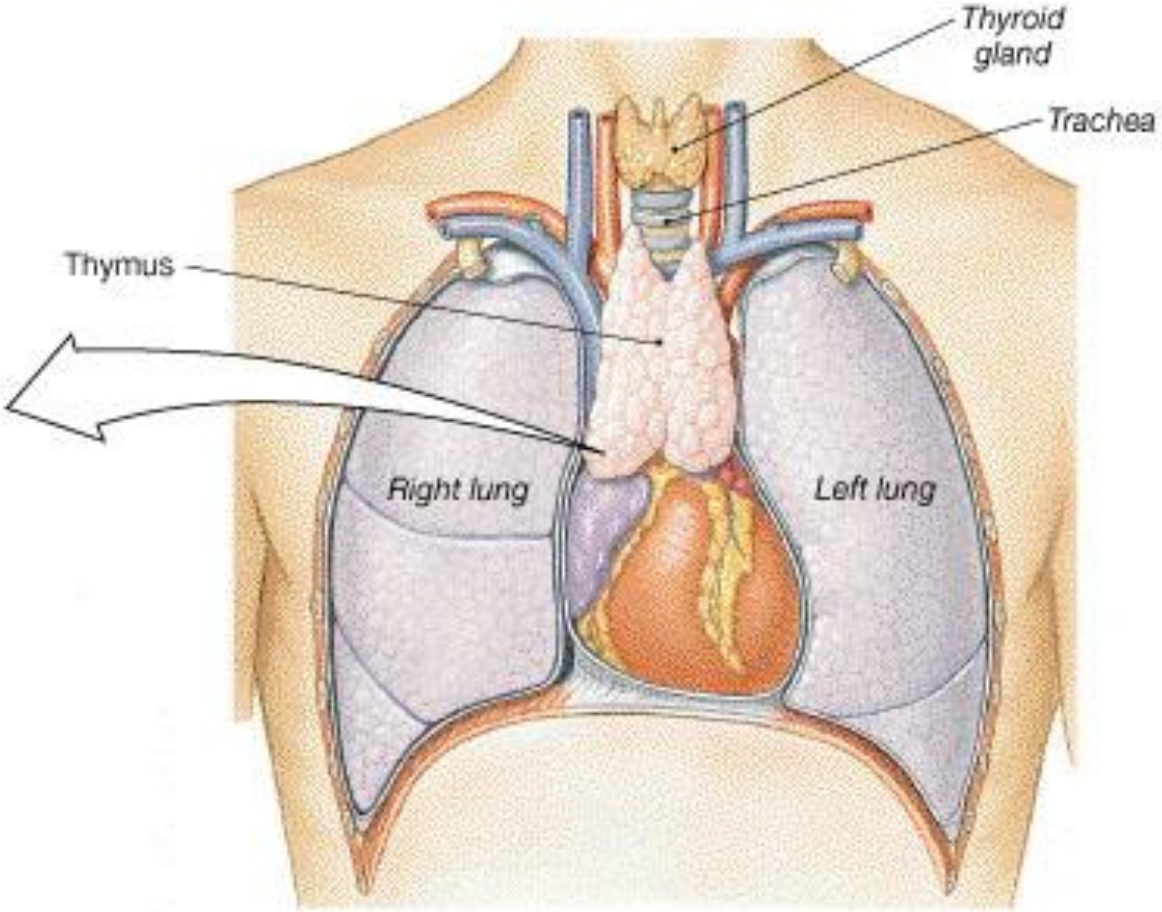




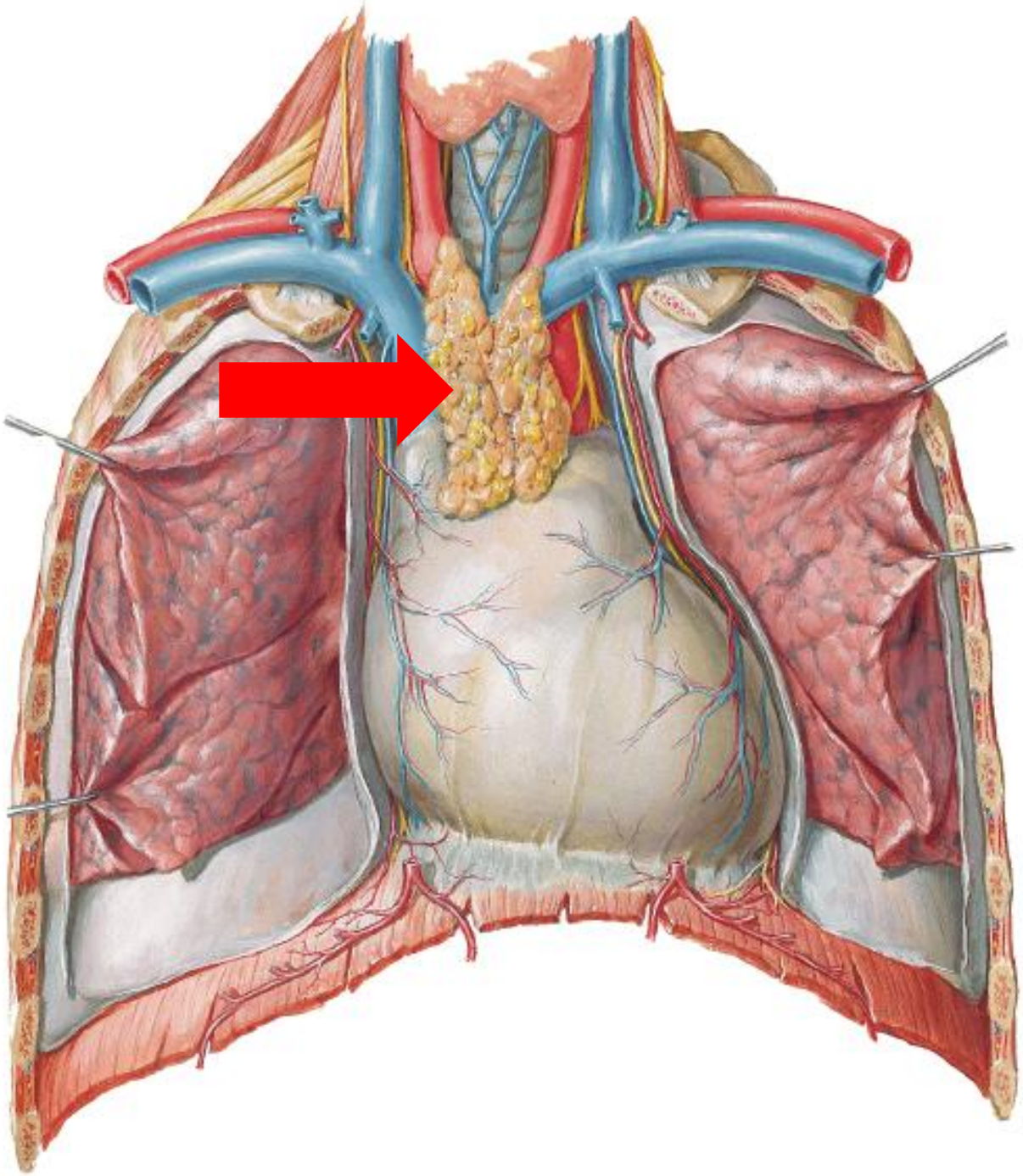




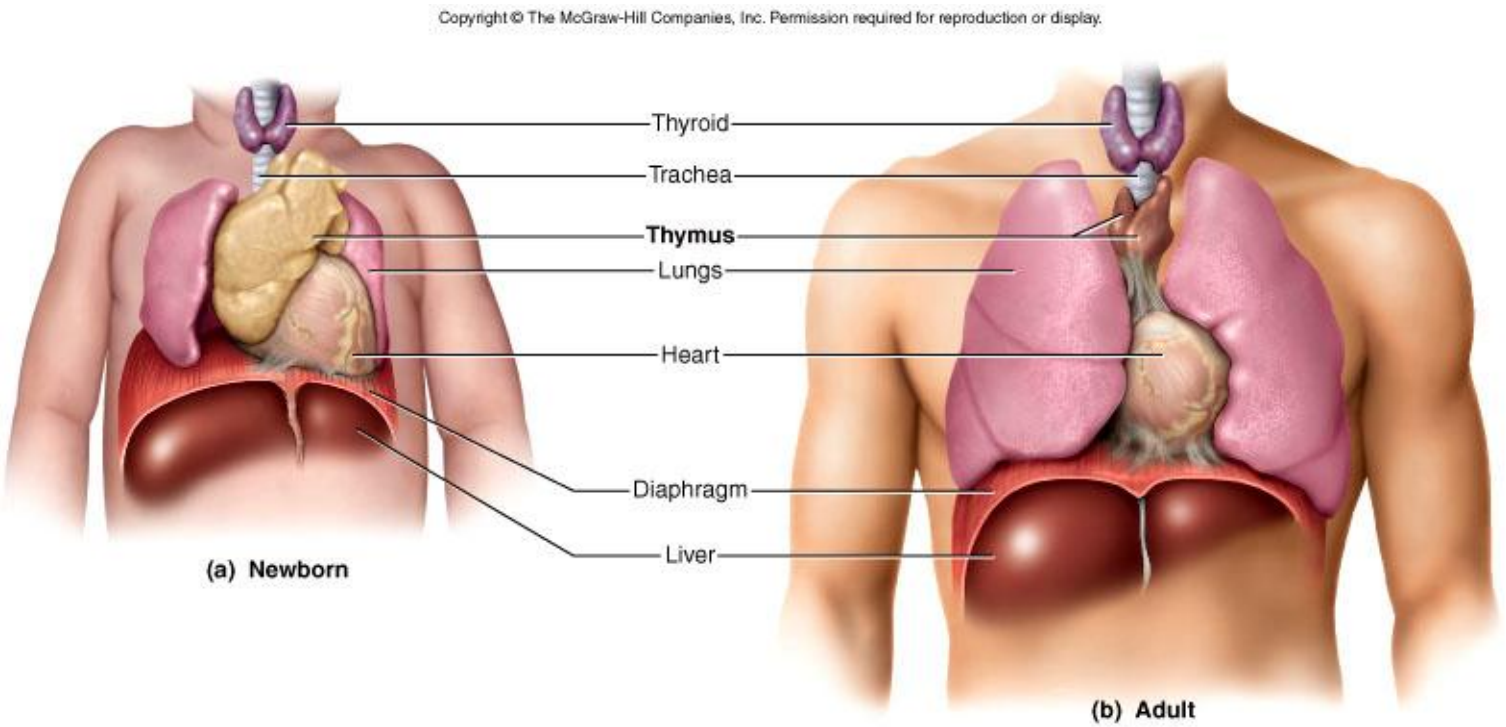

(b) Thymus




(a) Location of thymus within thoracic cavity



# Thymus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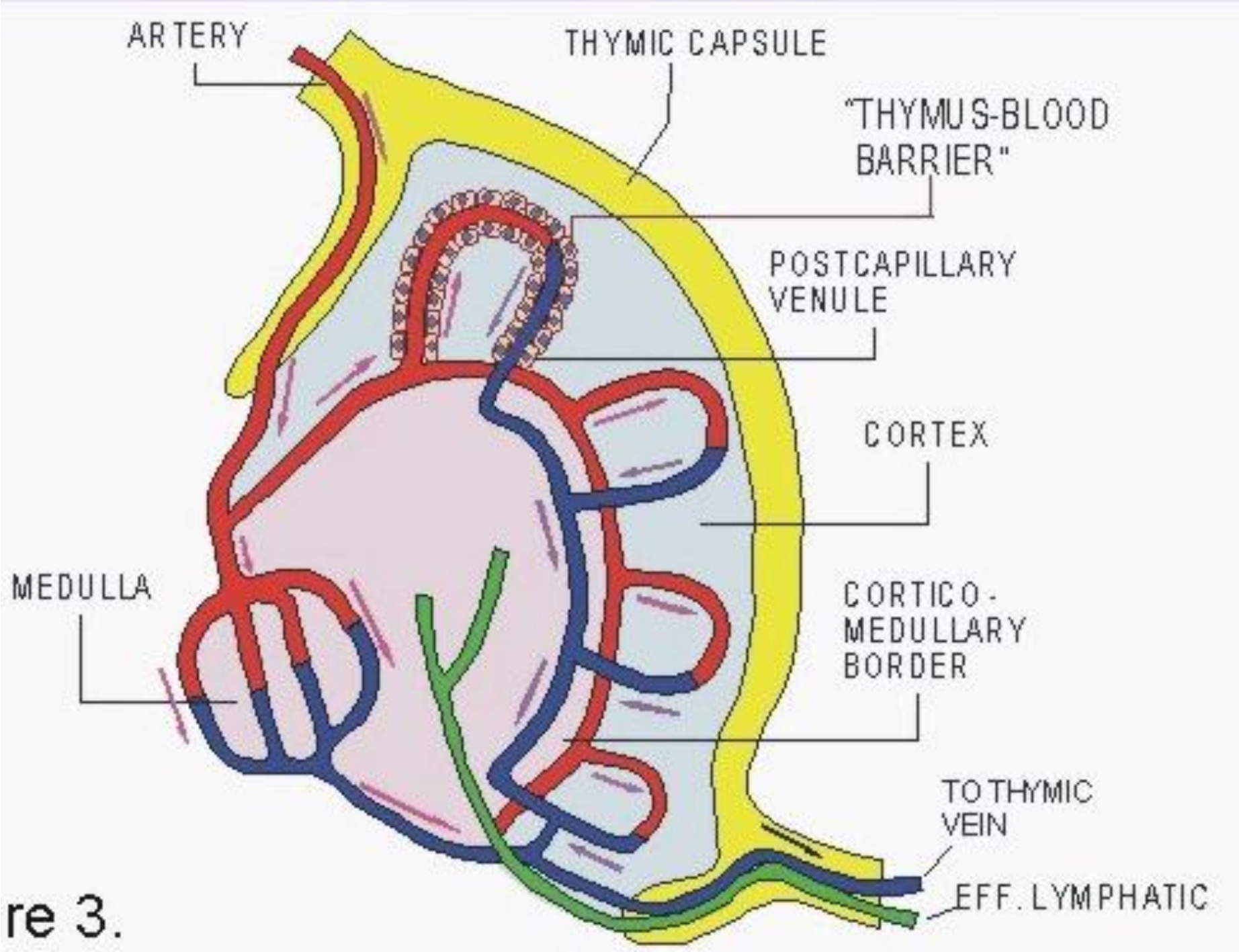
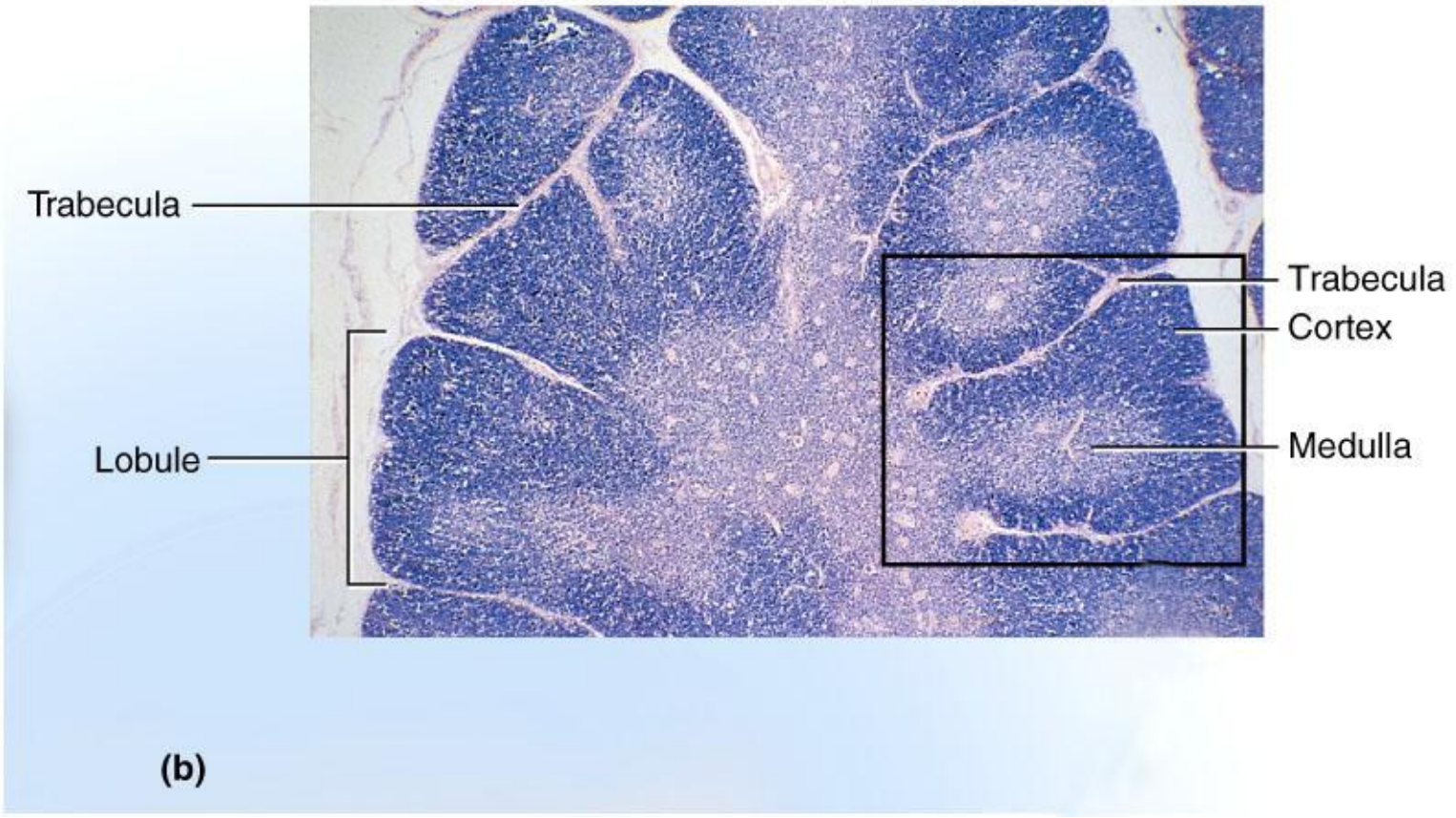
Thyroid
Trachea
Thymus
Lungs
Heart
Diaphragm
Liver
(a) Newborn
(b) Adult

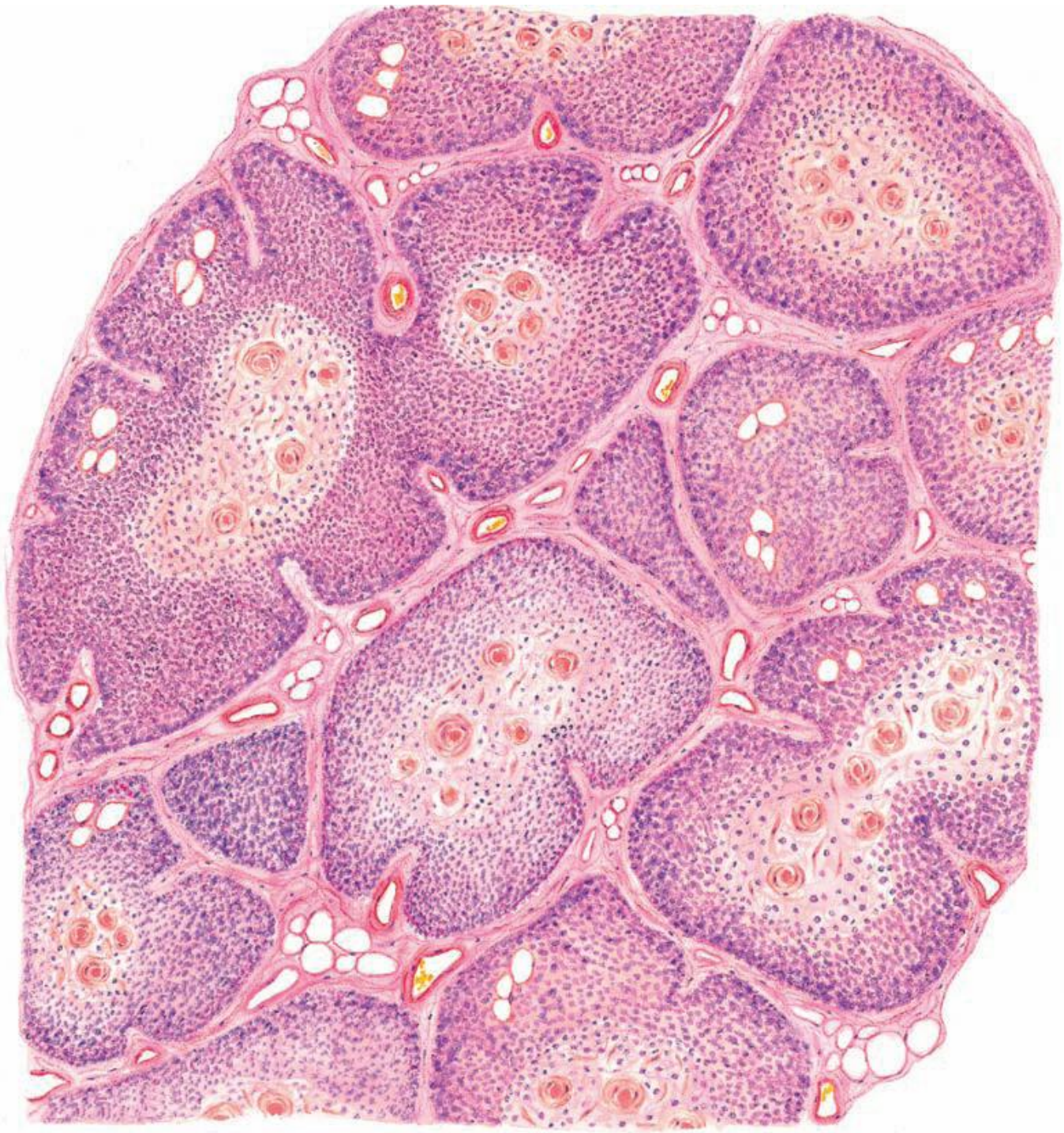

ARTERY
THYMIC CAPSULE
"THYMUS-BLOOD BARRIER"
POSTCAPILLARY VENULE
CORTEX
MEDULLA
CORTICO-MEDULLARY BORDER
TO THYMIC VEIN
EFF. LYMPHATIC

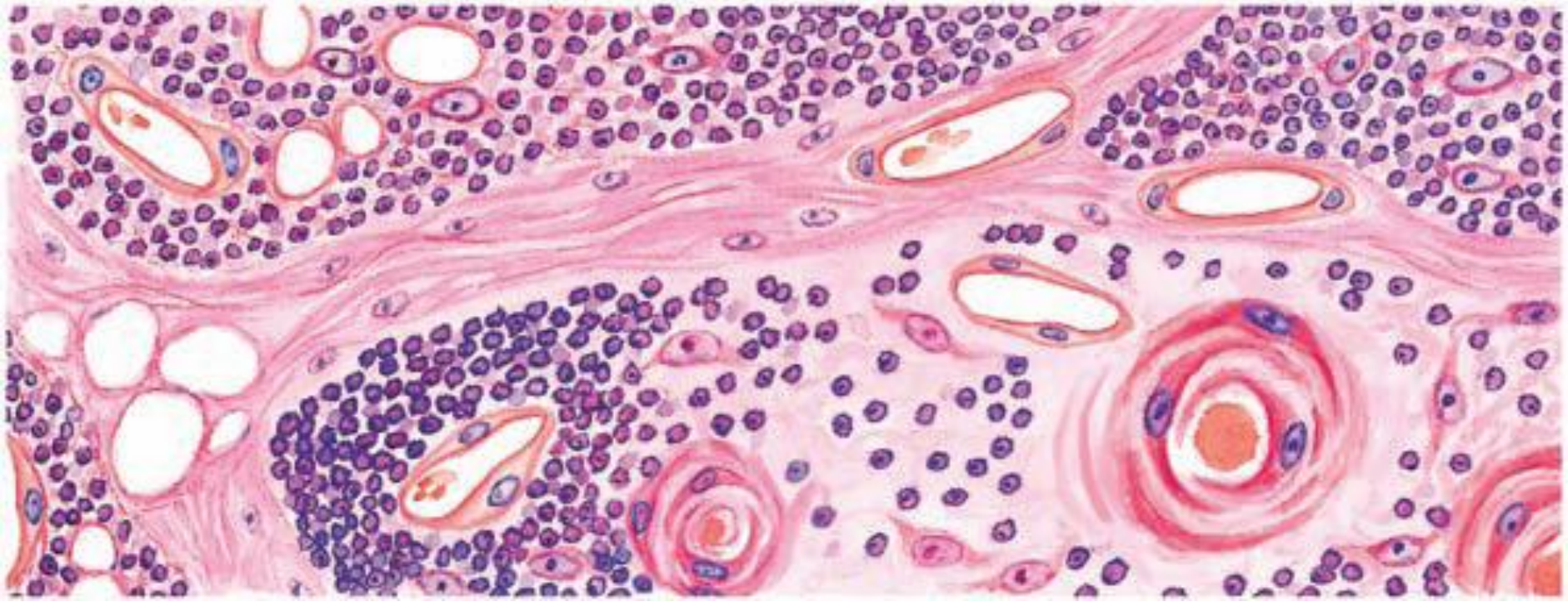
re 3.

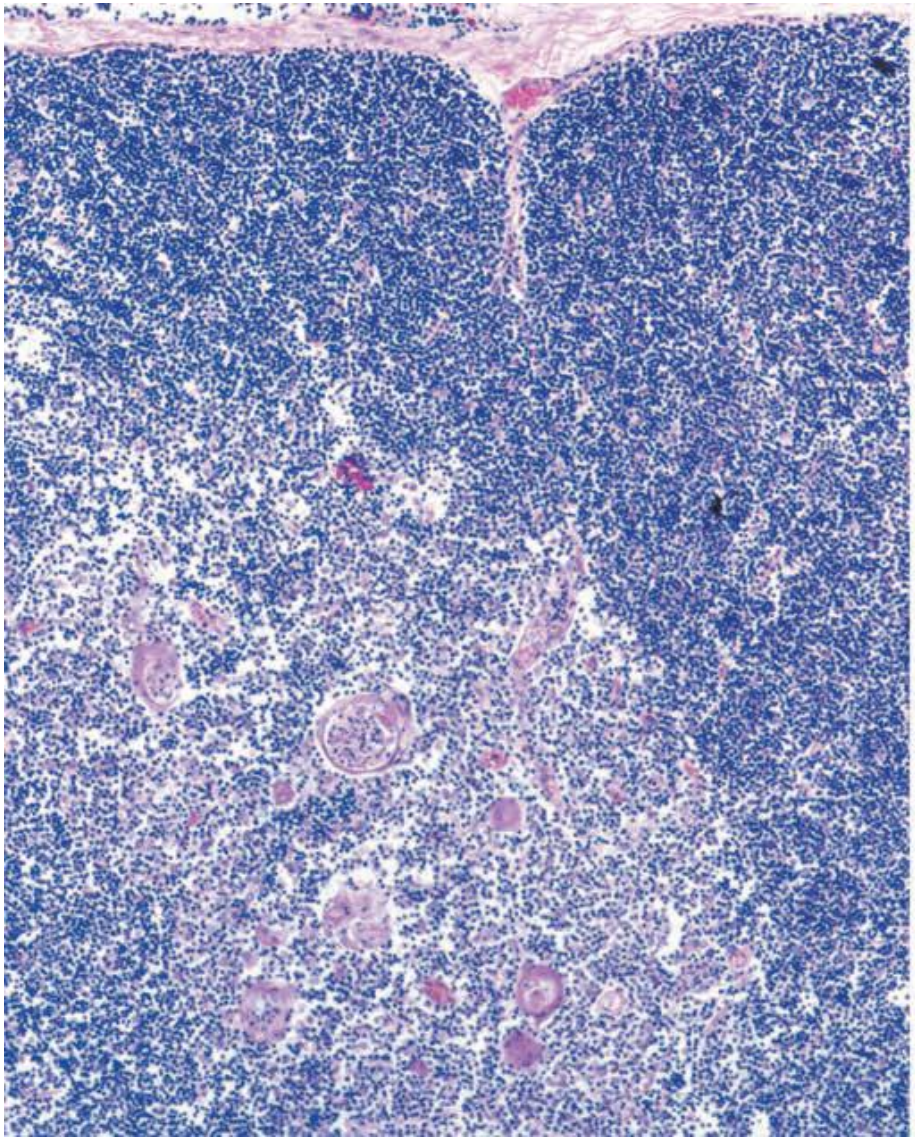
# Histology of Thymus

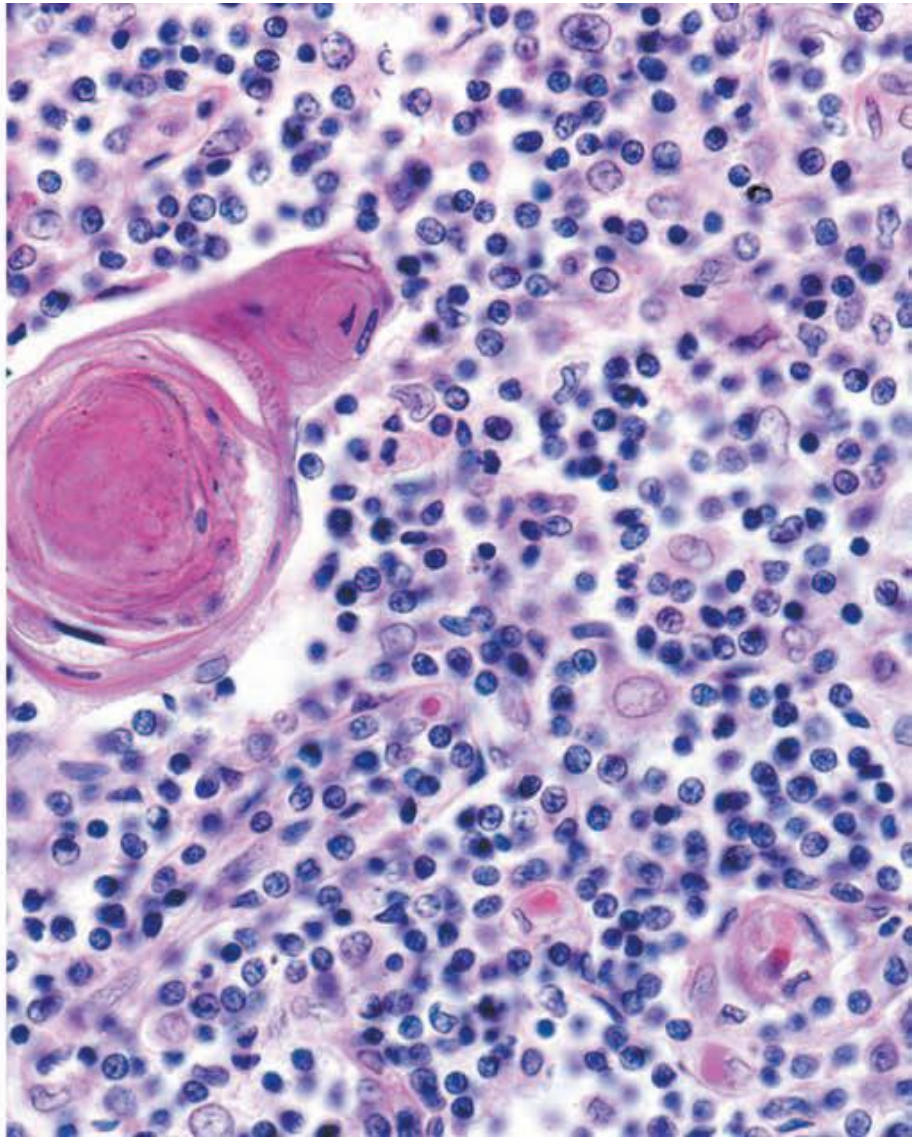


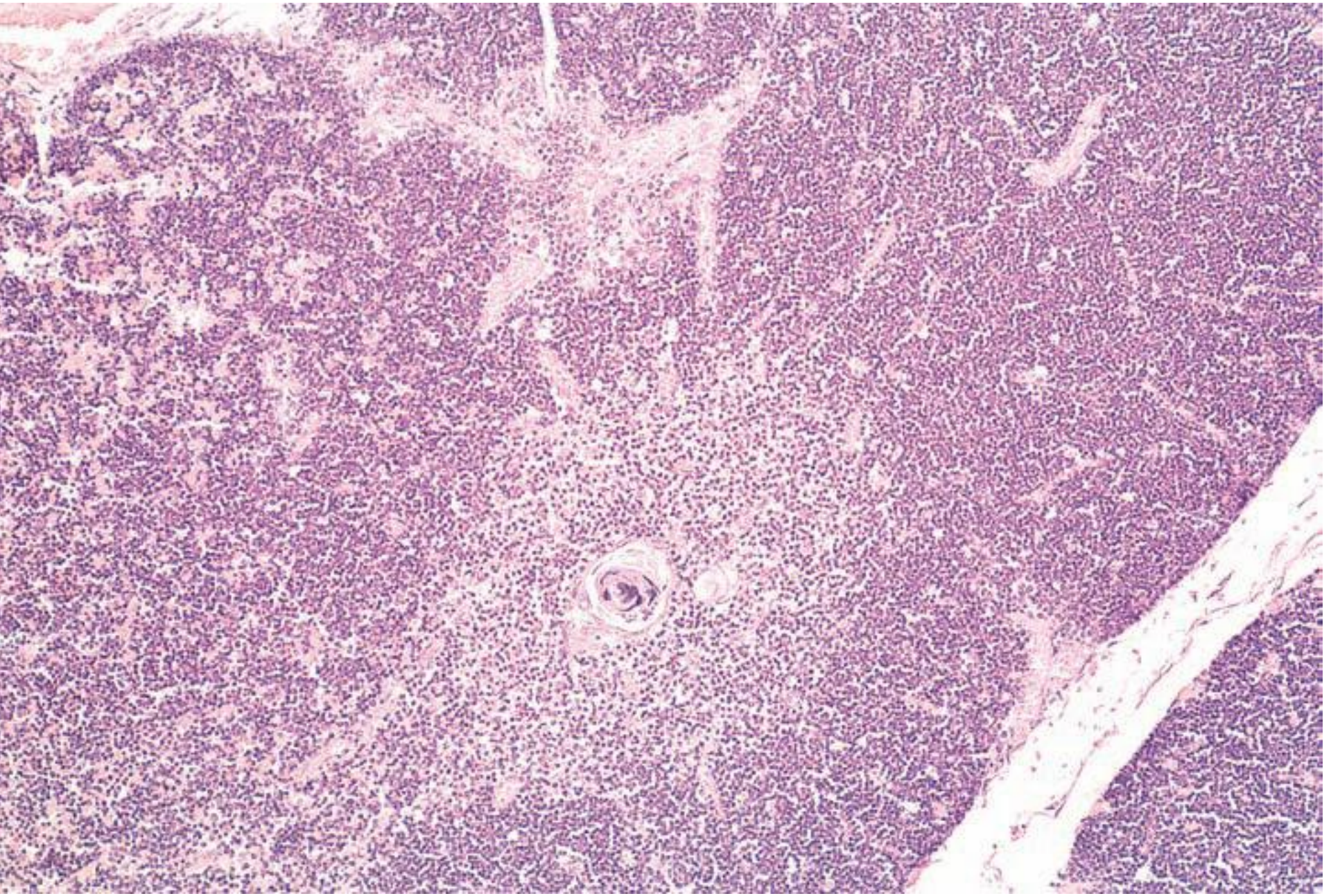


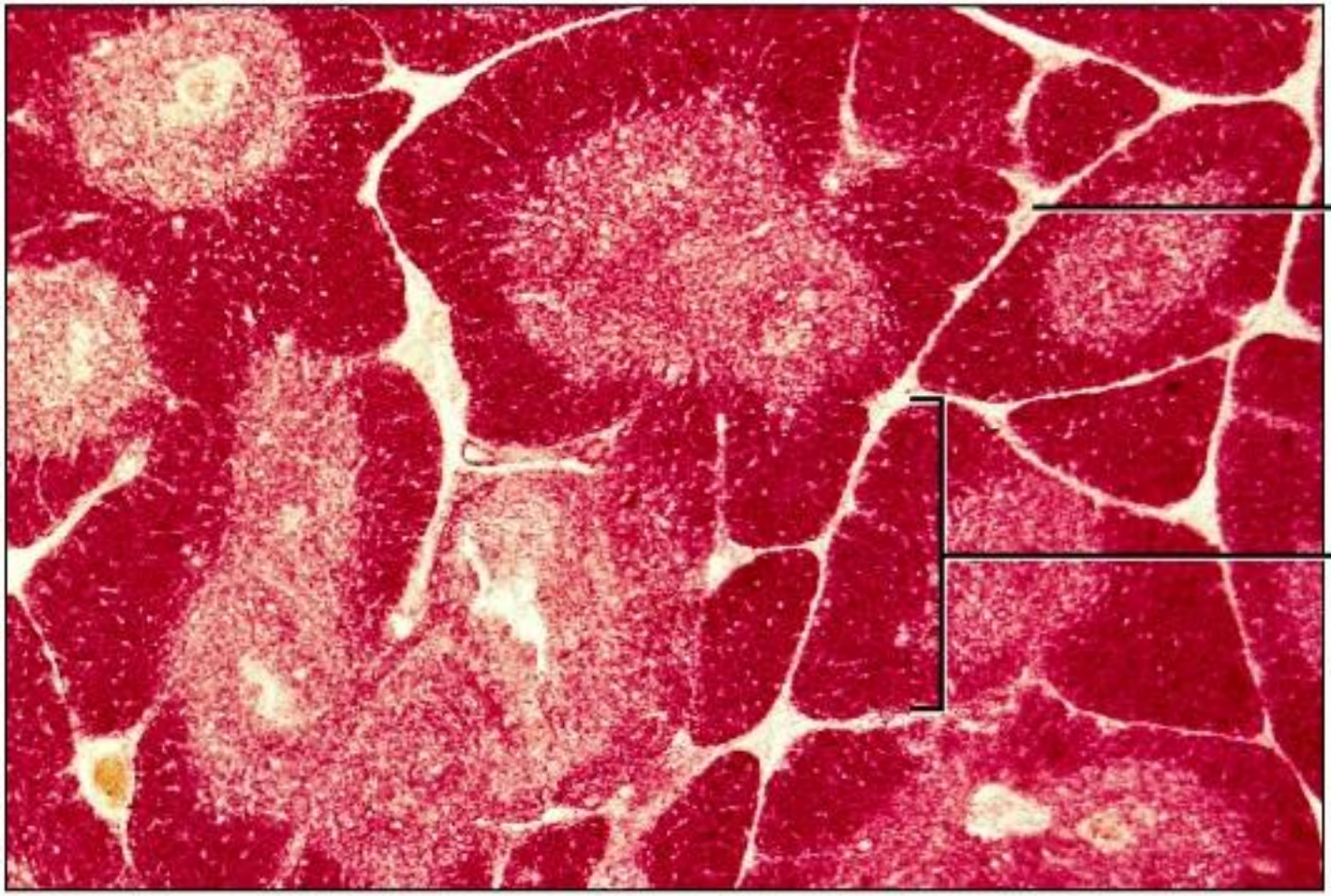













(b)