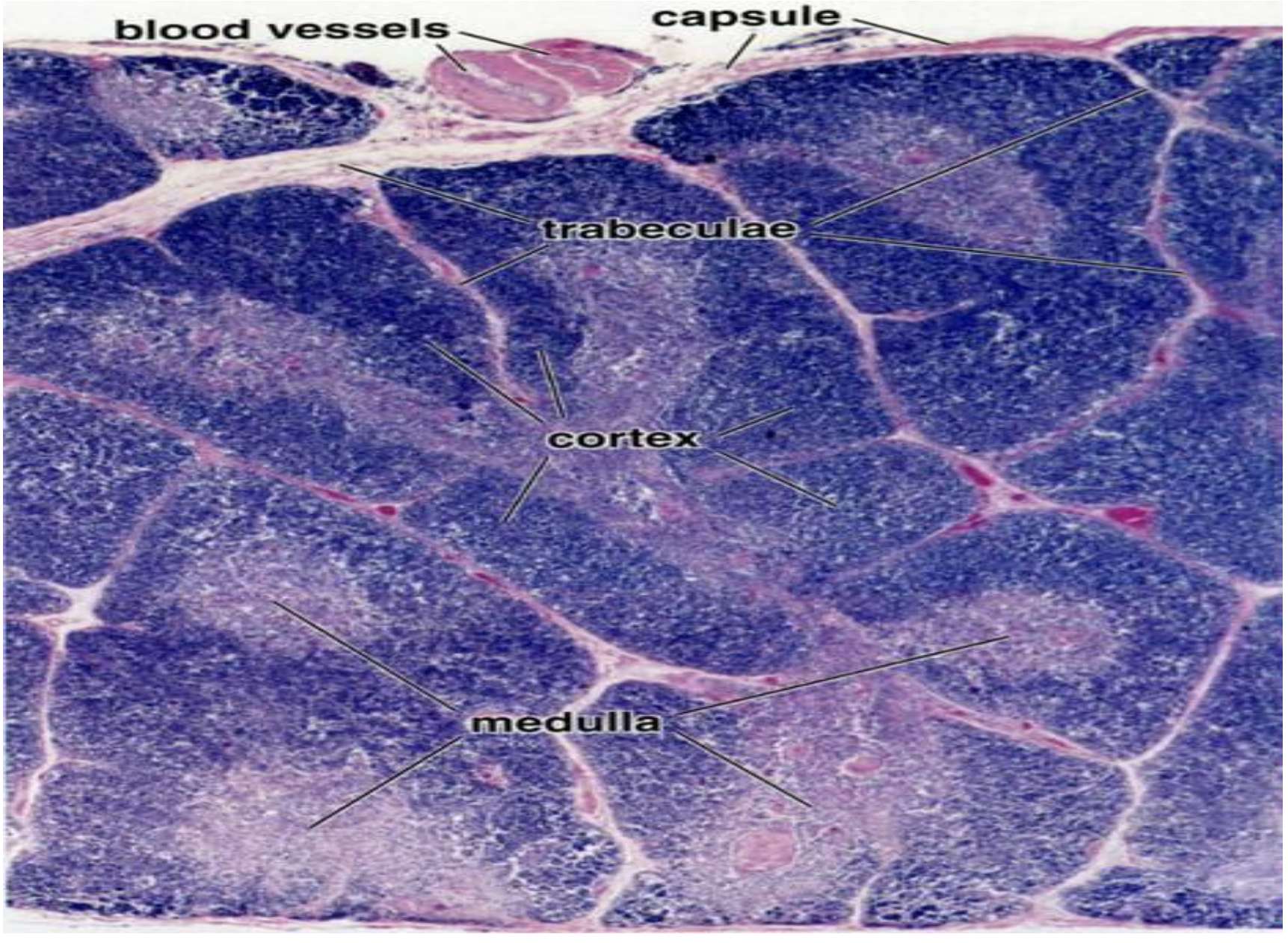
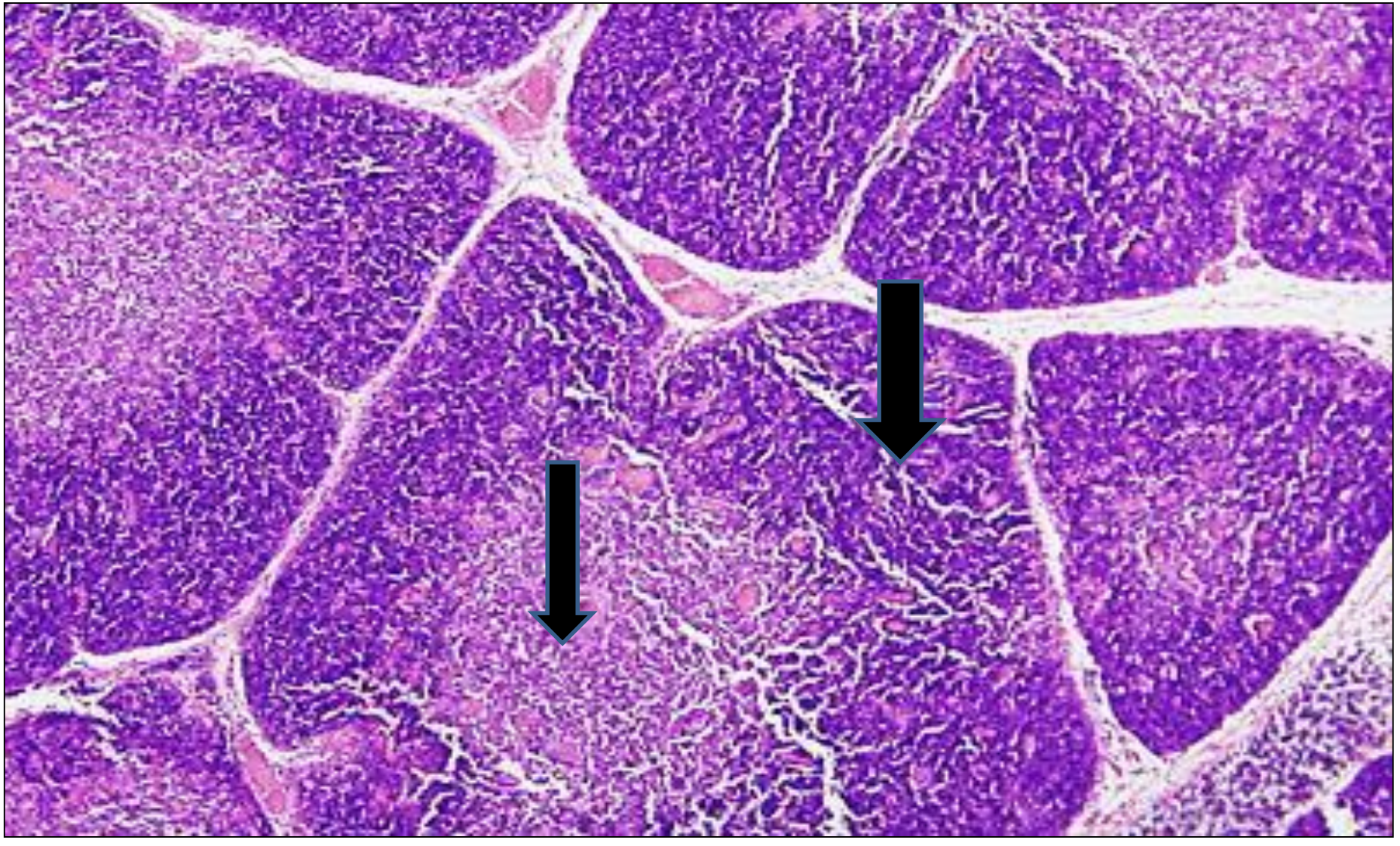
Thymus gland



Thymus gland

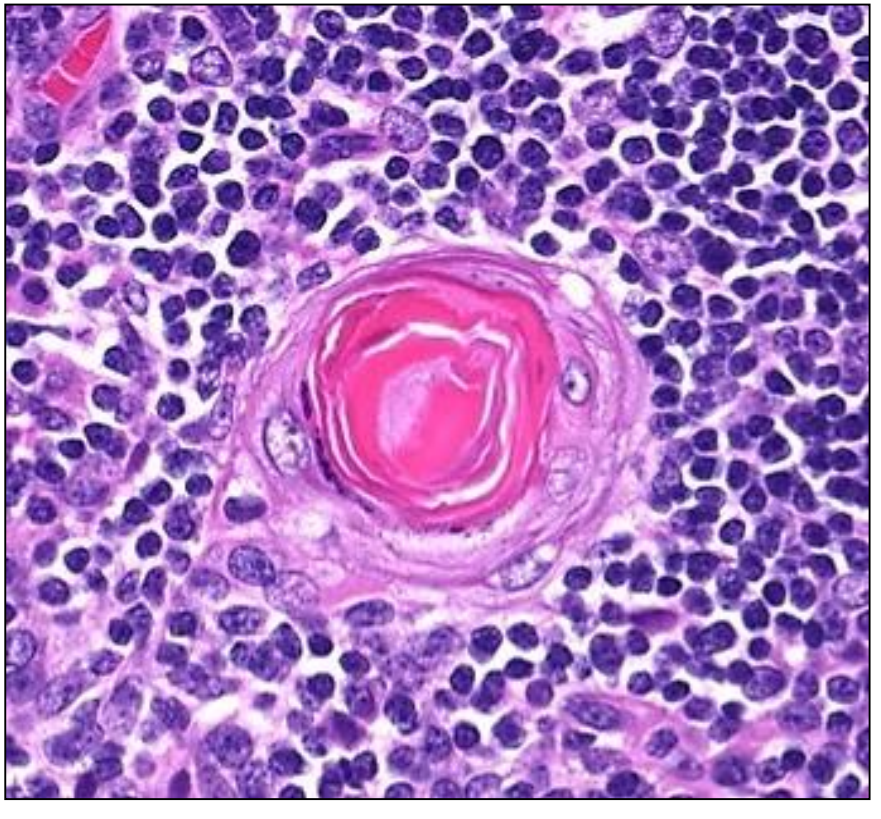


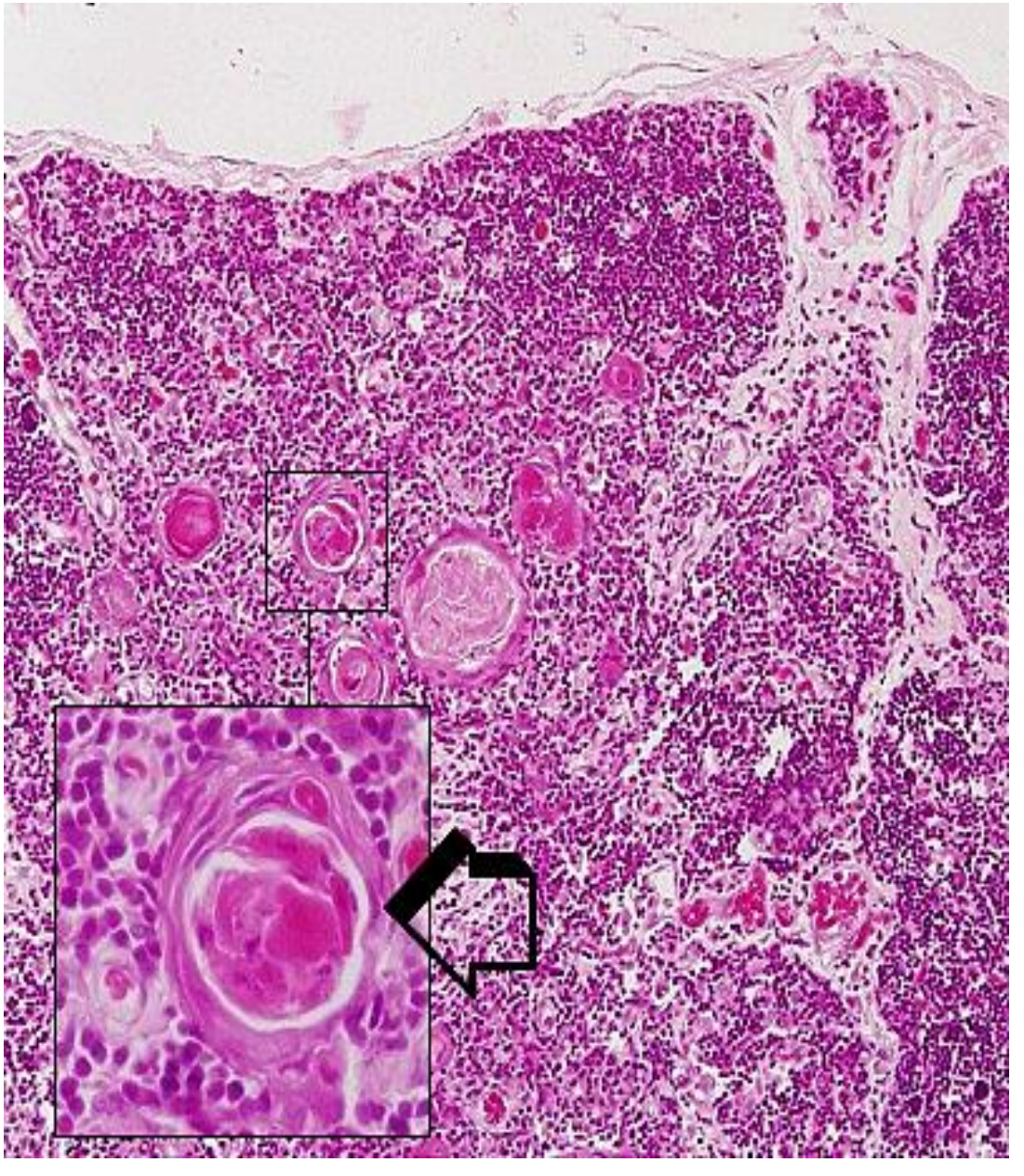
In the medulla, epithelioreticular cells form onionized structures called **Hassall's corpuscles**

quite prevalent in older thymus

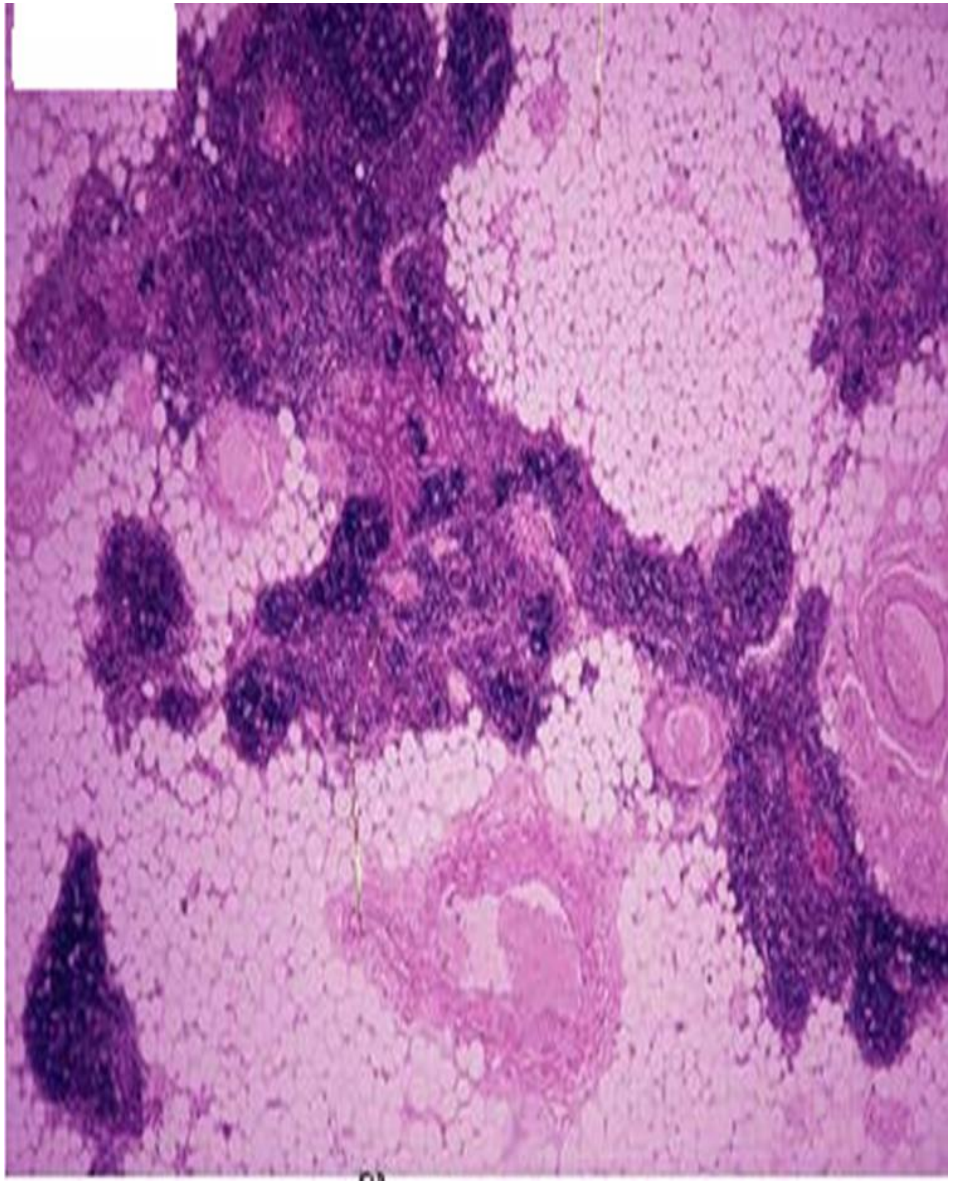
function not very well known

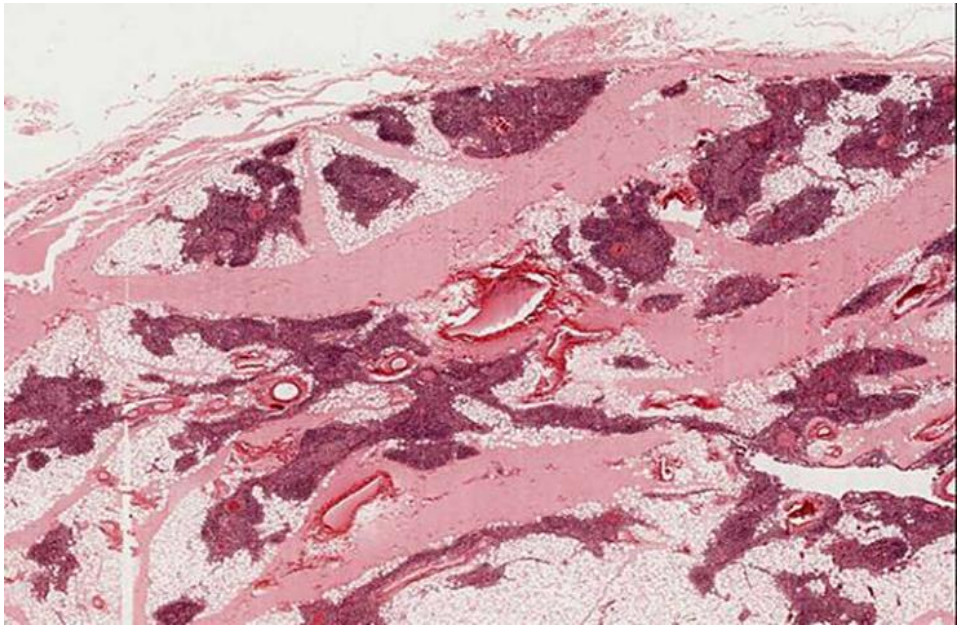
but produce interleukins and so likely influence T-cell differentiation



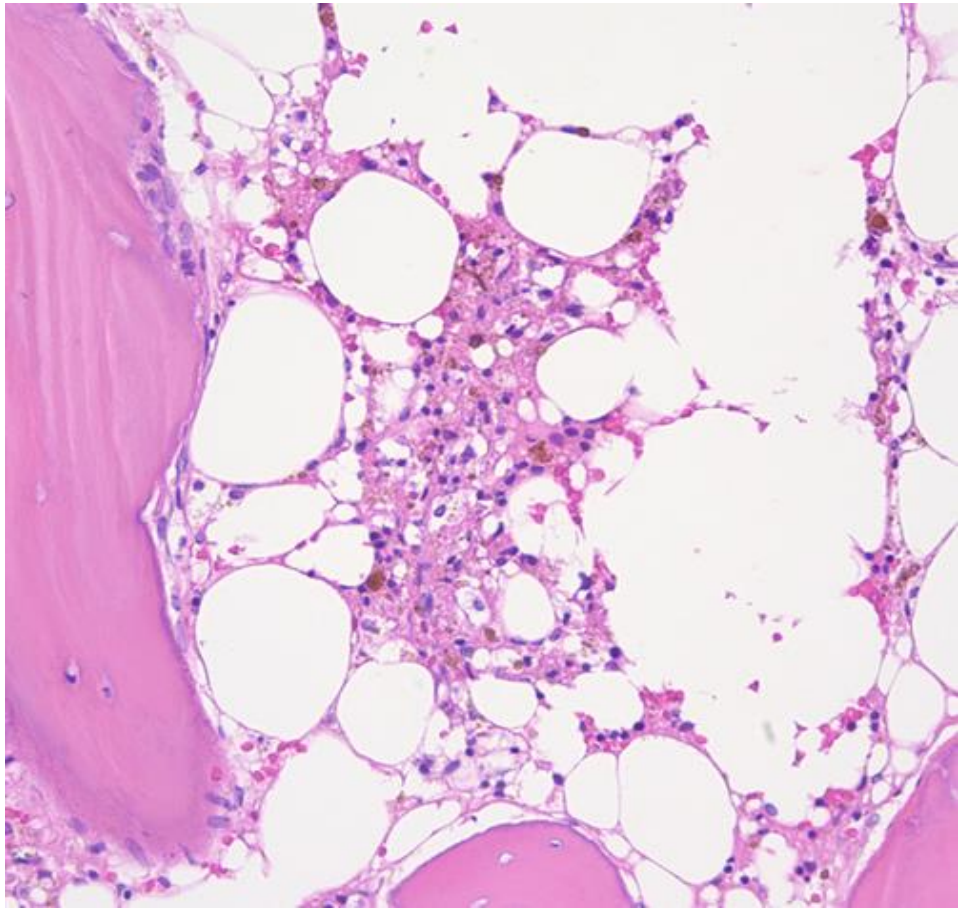


Thymus gland of adult

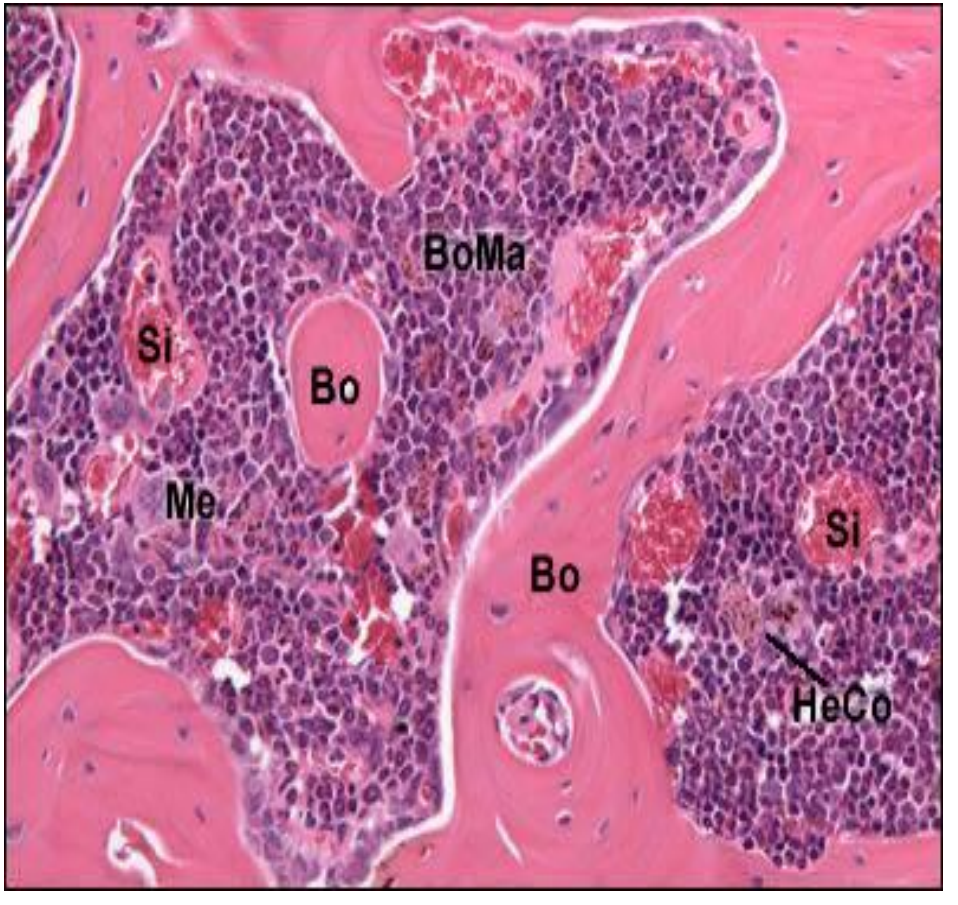




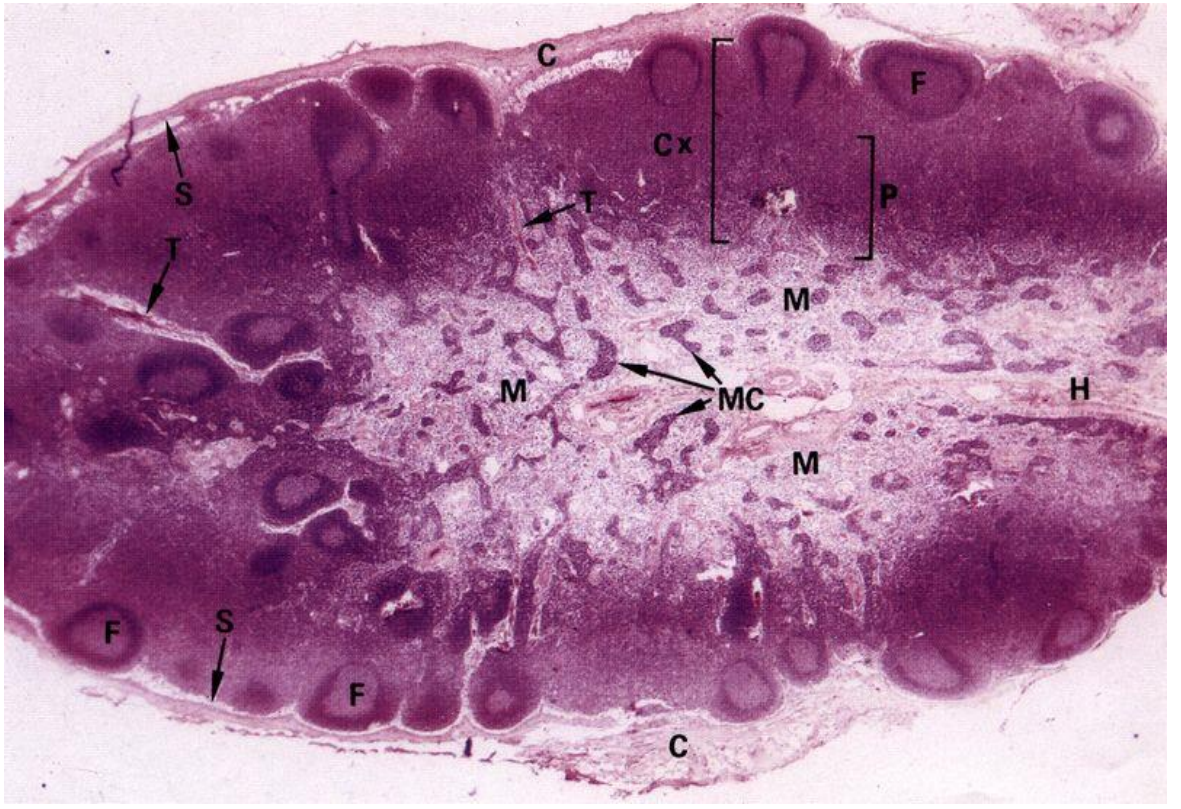
Yellow bone marrow: inactive



Red bone marrow: active.



Low power view of LN



The outer part of the LN is highly cellular → cortex, superficial (outer) cortex and paracortex (inner cortex)

The inner part of the LN is less cellular→ medulla

The cellular component of the LN which are T & B lymphocytes plasma cells and APCs are arranged into dense and loose arrangement.

Dense→ cortical nodules and medullary cords

Loose→ loosely scattered B lymphocytes, plasma cells, macrophages and lymph sinuses

Lymph Node Structure

- Capsule & subcapsular sinus

- Trabeculae & trabecular sinuses

sinuses contain lymph, macrophages, and reticular cells

- Cortex:

- superficial cortex (B-cells)
  - -primary follicles/nodules
  - -secondary follicles/nodules
    (i.e. with germinal centers)
- "deep" cortex (T-cells, dendritic cells)

- Medulla:

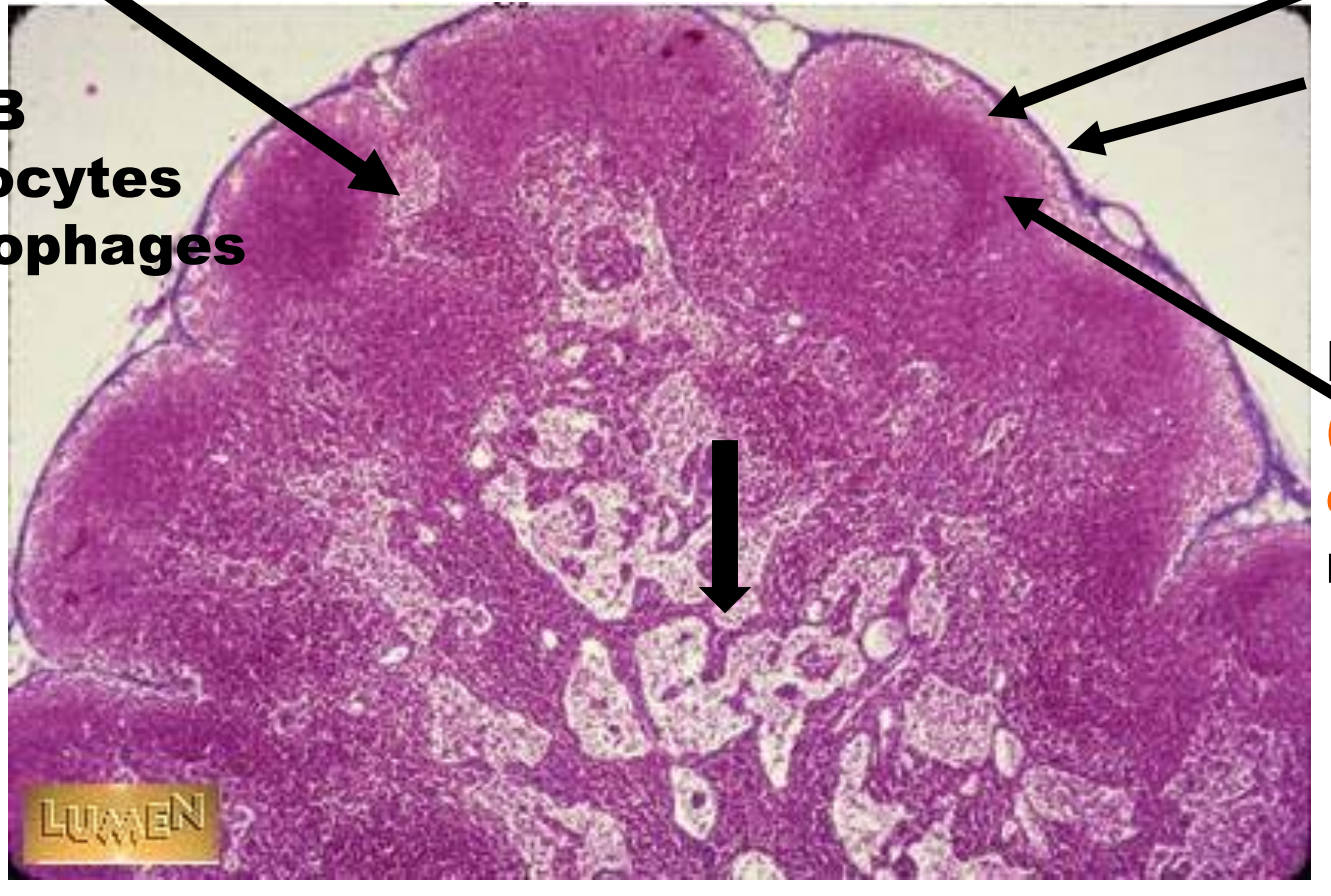
- medullary cords (B-cells, plasma cells)
- medullary sinuses (lymph, more macrophages, plasma cells, and reticular cells)

Cortical nodules

rounded aggregation of B lymphocytes

Primary LN

Secondary LN



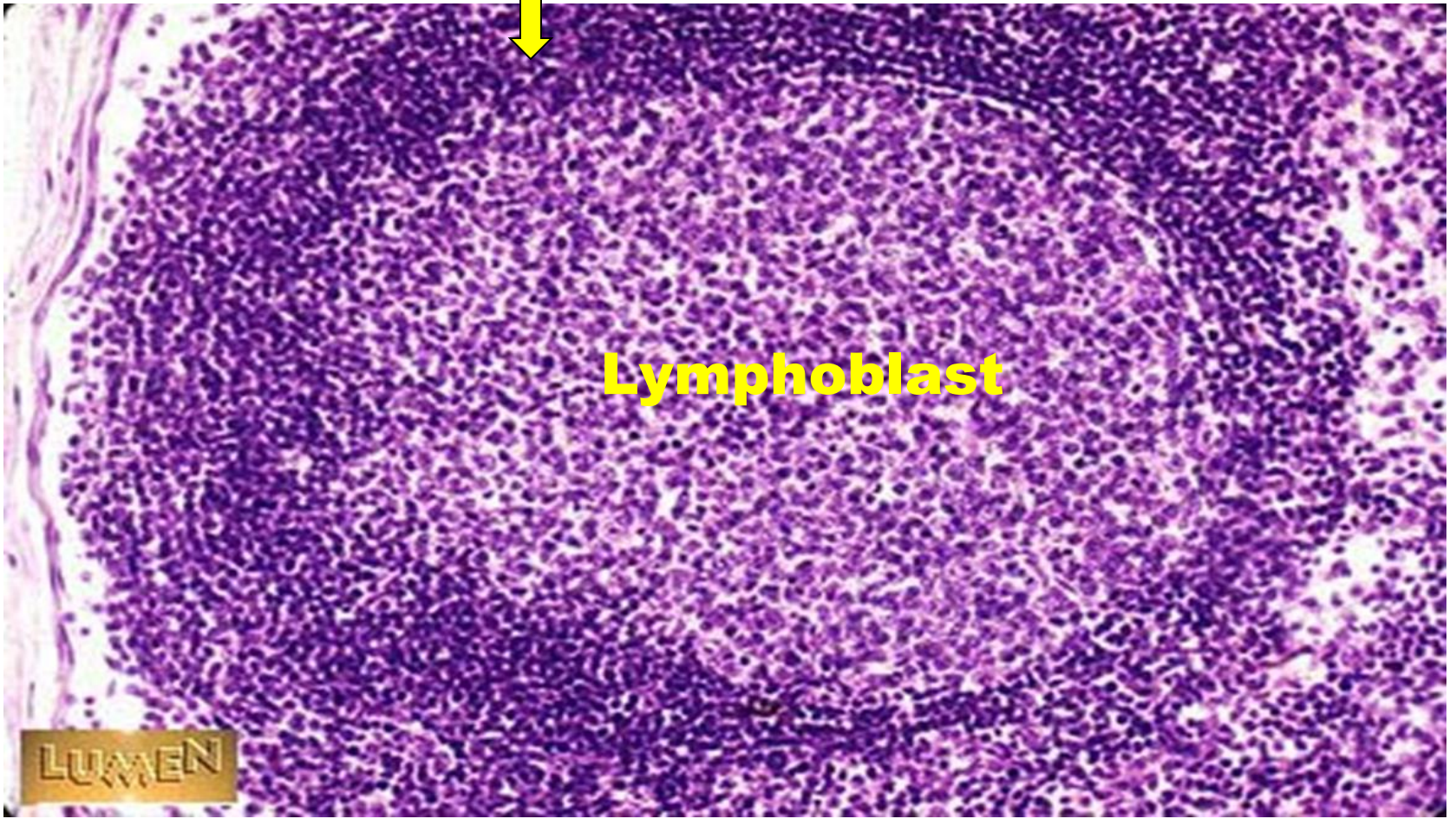
Small B lymphocytes +macrophages

Small B lymphocytes

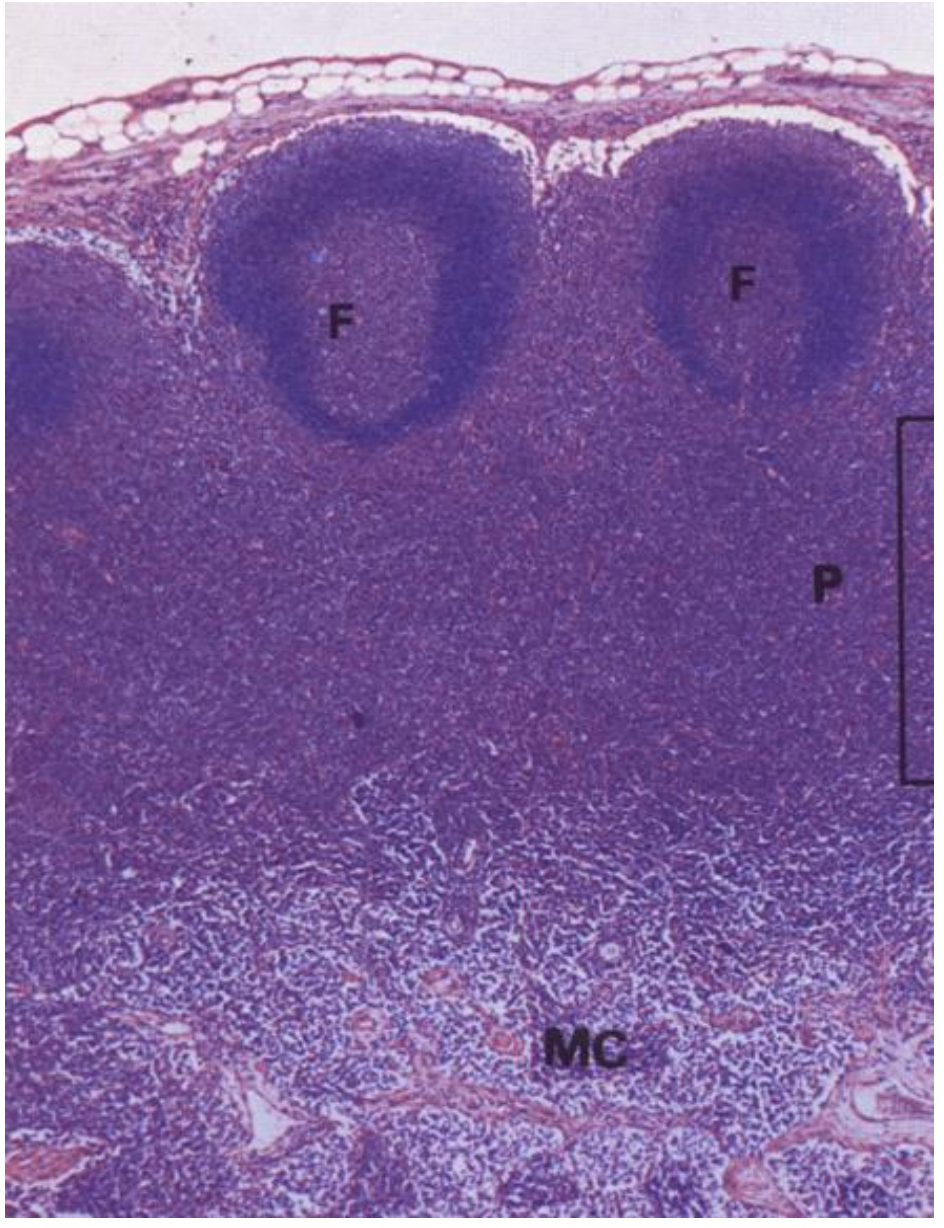
Lymphoblast (Germinal center) + macrophages

Secondary Lymphatic nodules

Small B lymphocytes



Inner cortex (thymus dependant area)



Paracortical area is Formed of

- **T lymphocytes**
- **Macrophages**

Medulla

Medulla formed of :

1.Medullary cord rich cells separated by medullary sinuses

2. medullary sinuses, large BV & supporting trabeculae

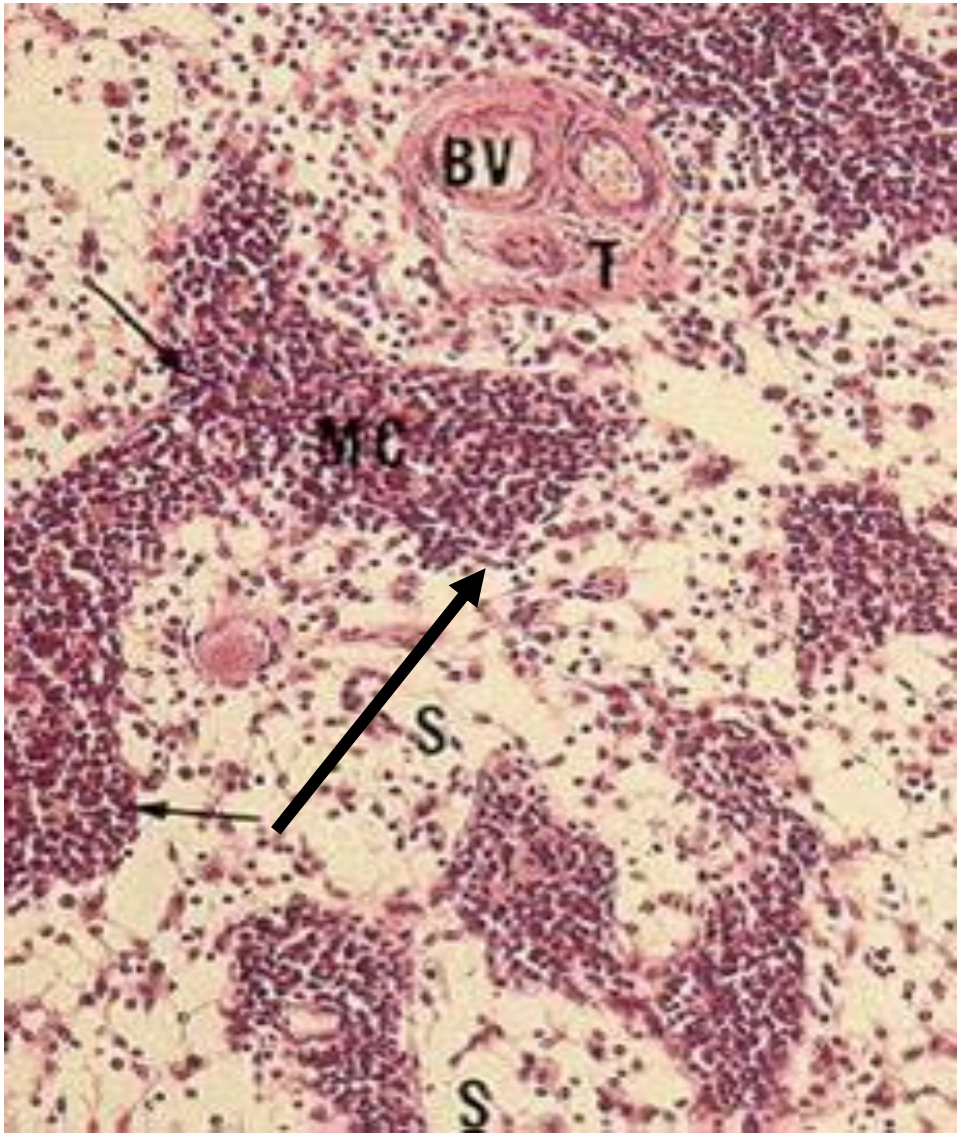
3.all are present in a framwork of reticular fiber

Cells of medullary cord

1. plasma cell most common

2.Macrophages

3.Some B lymphocytes



spleen

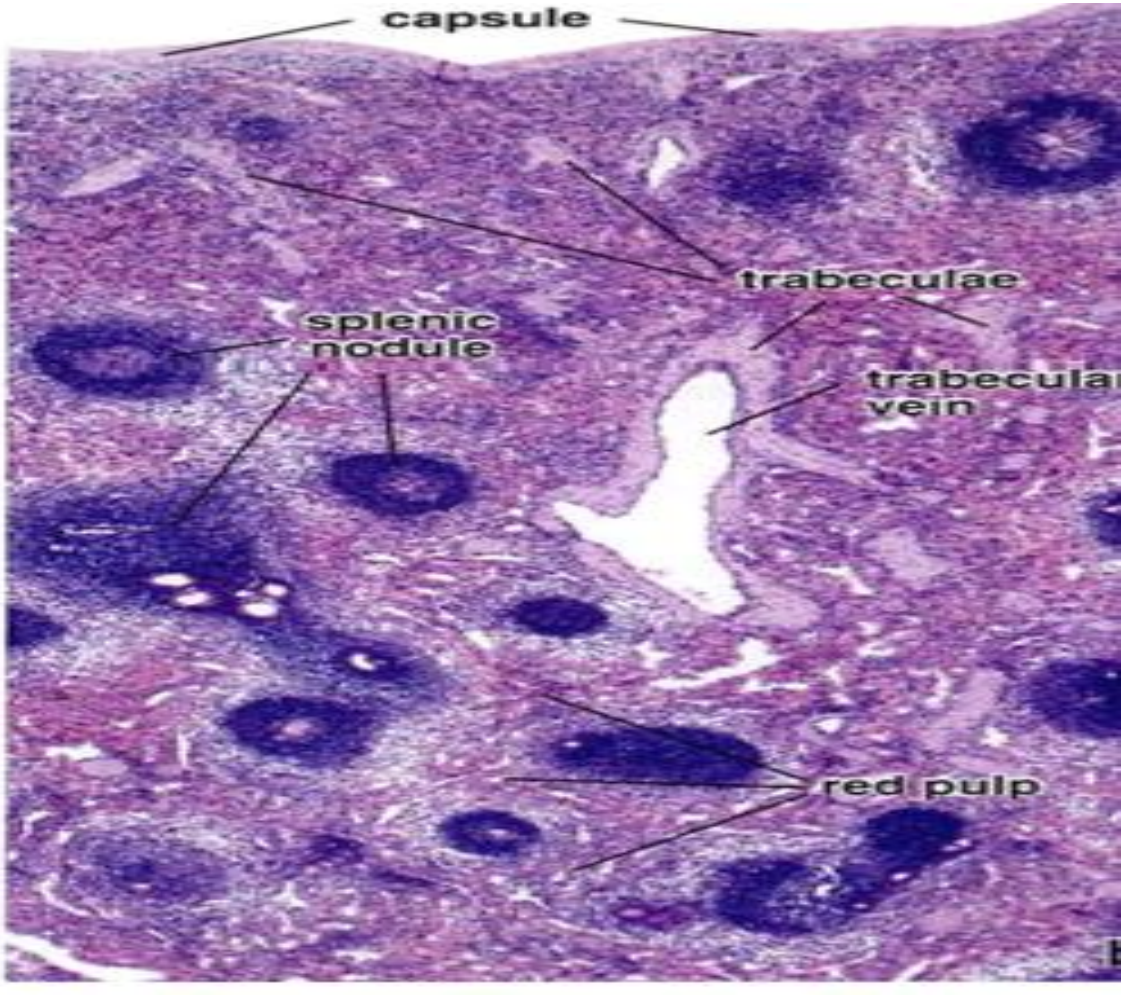
Organization of the spleen:

- **white pulp**
- red pulp

- White pulp: lymphatic aggregations around "central" arteries:periarterial lymphatic sheath (PALS) = T-cells
  lymph nodules: B-cells

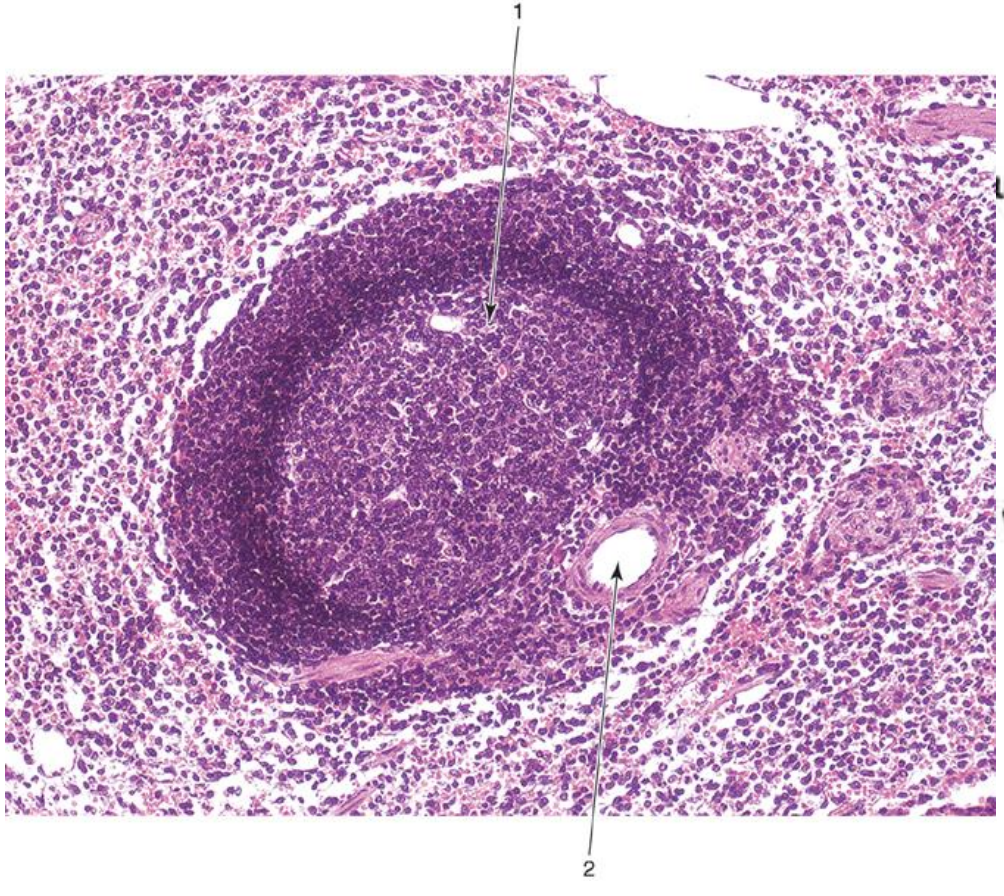
- Red pulp: cords and blood sinuses

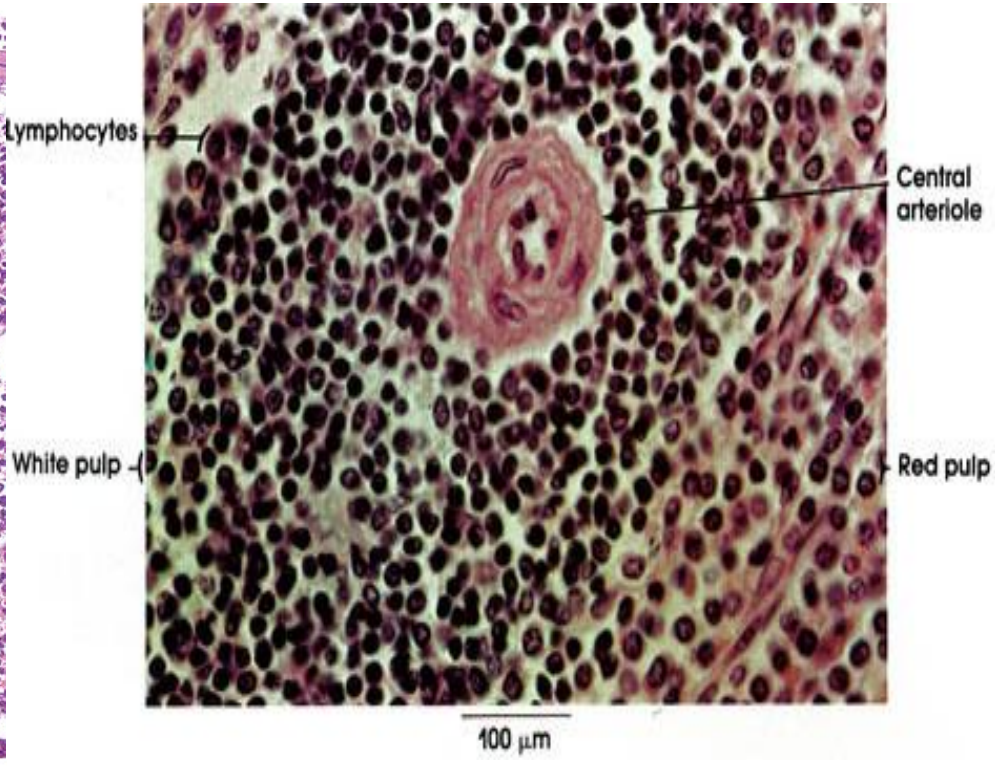
Organization of the spleen: white pulp and red pulp

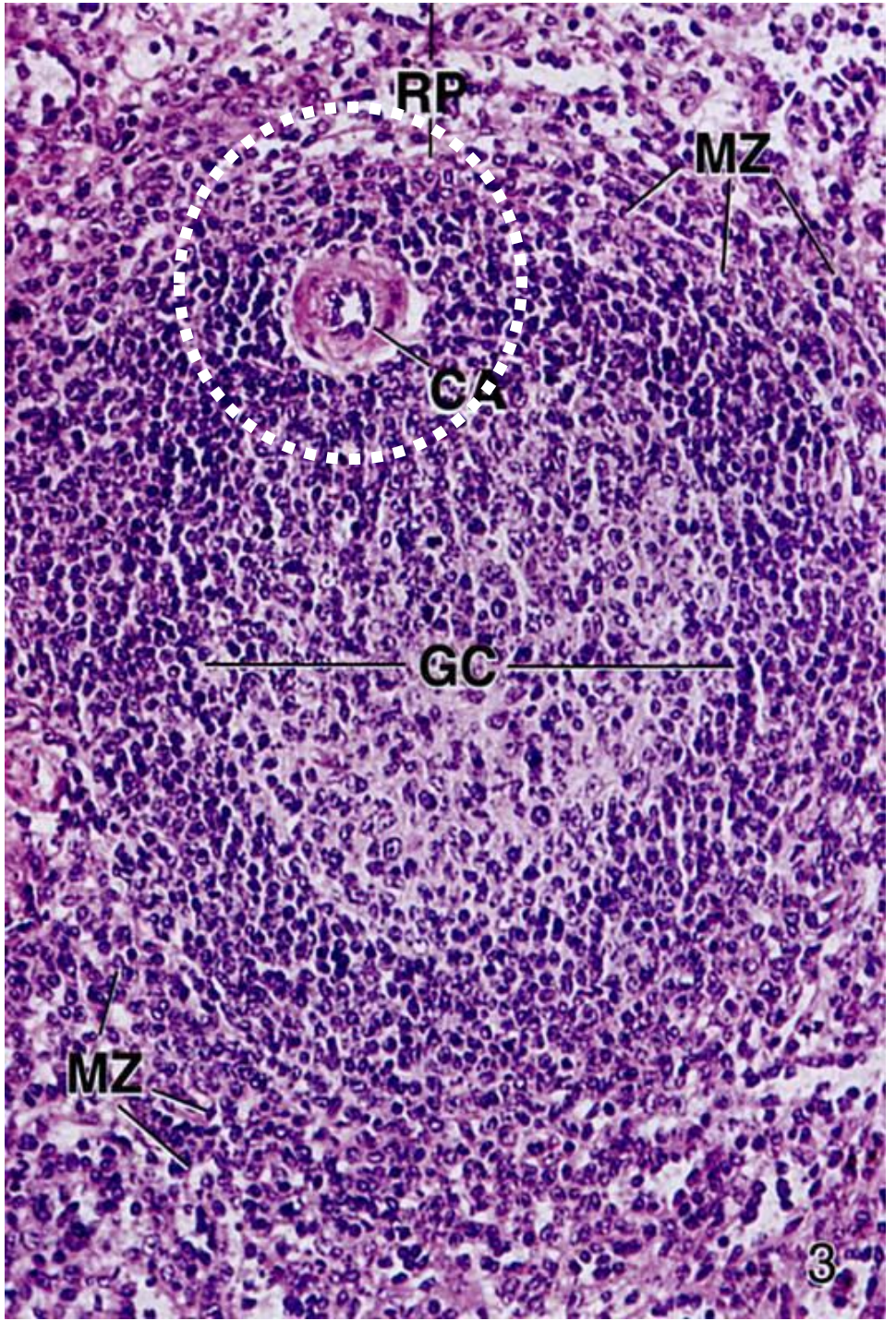


Lymphoid Nodule of the spleen

1. Germinal Center+ mantle zone
2. Central artery







PALS w/ secondary follicle

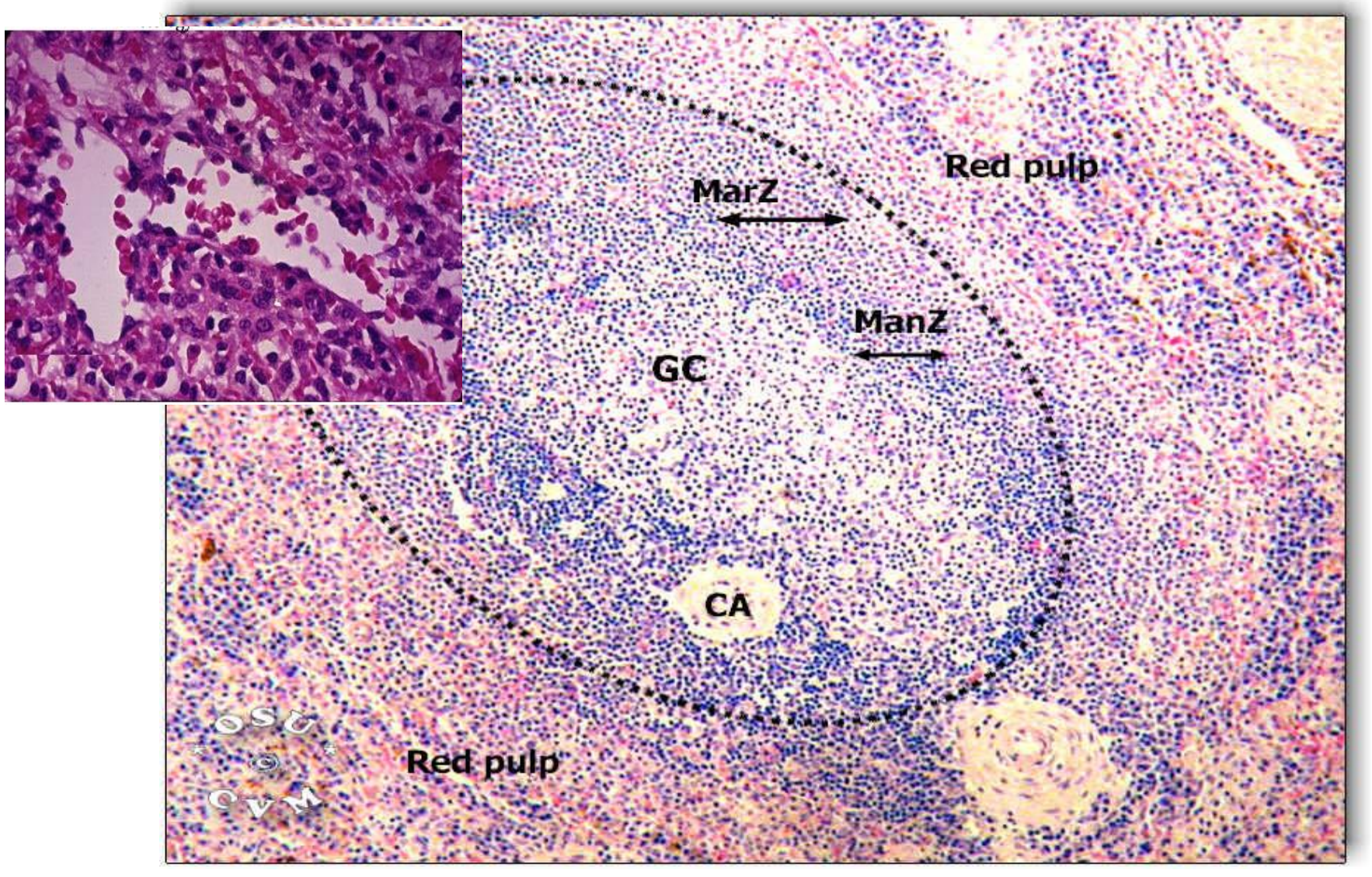
Shown here with “central” artery cut in cross section –note that the CA has been pushed off to the side by the rapid expansion of cells in the germinal center (GC)

RP= red pulp

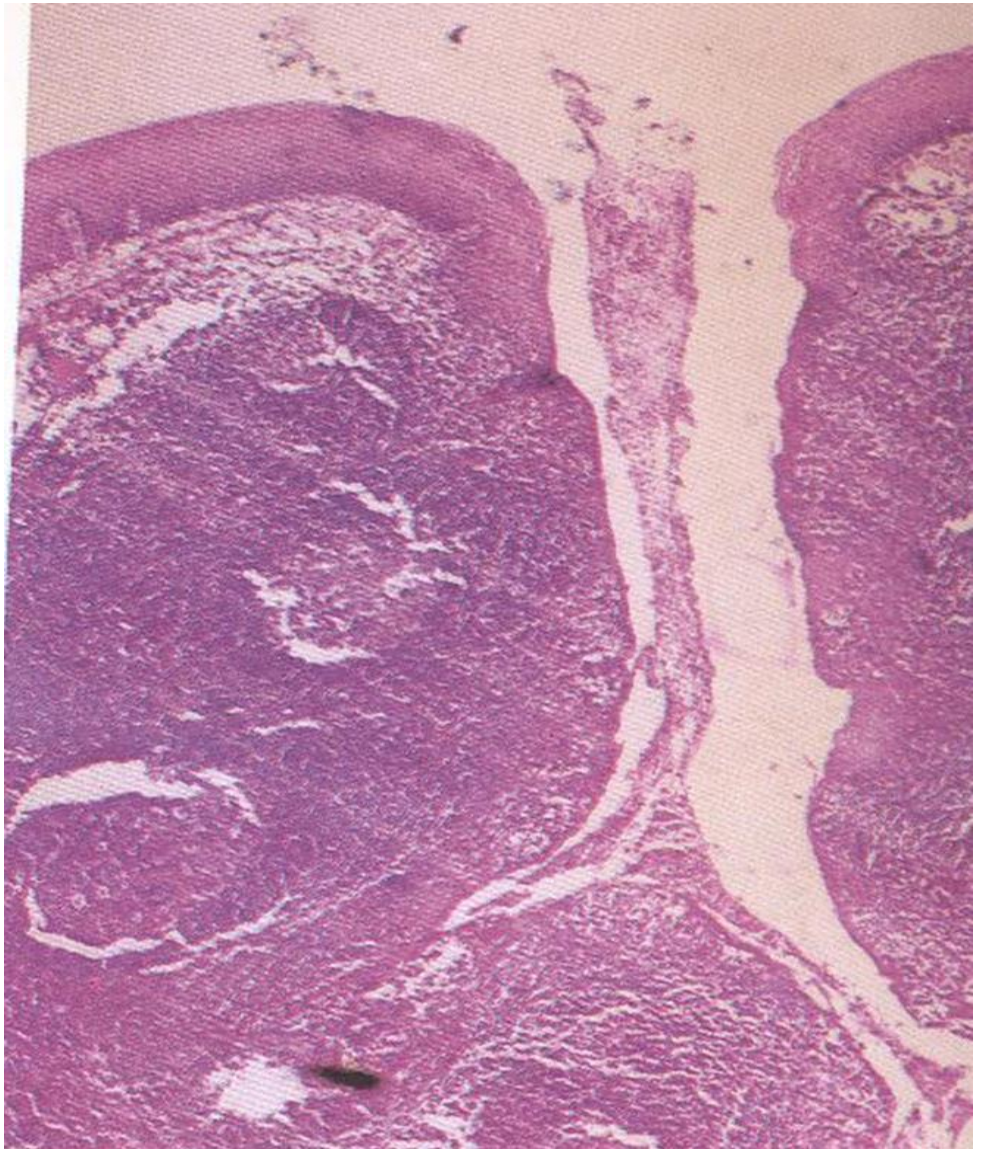
MZ= marginal zone (antigen presentation)

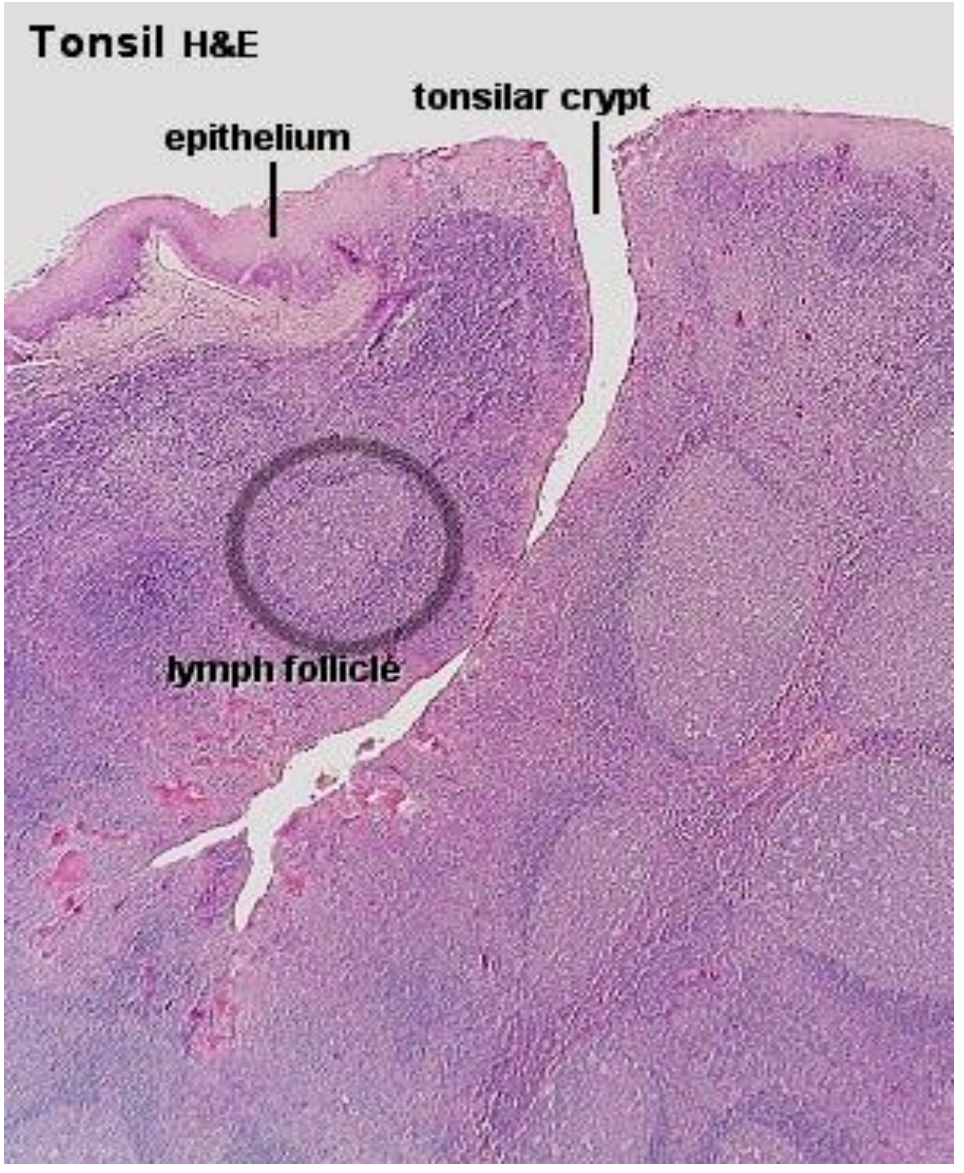
dashed circle = T-cell rich zone

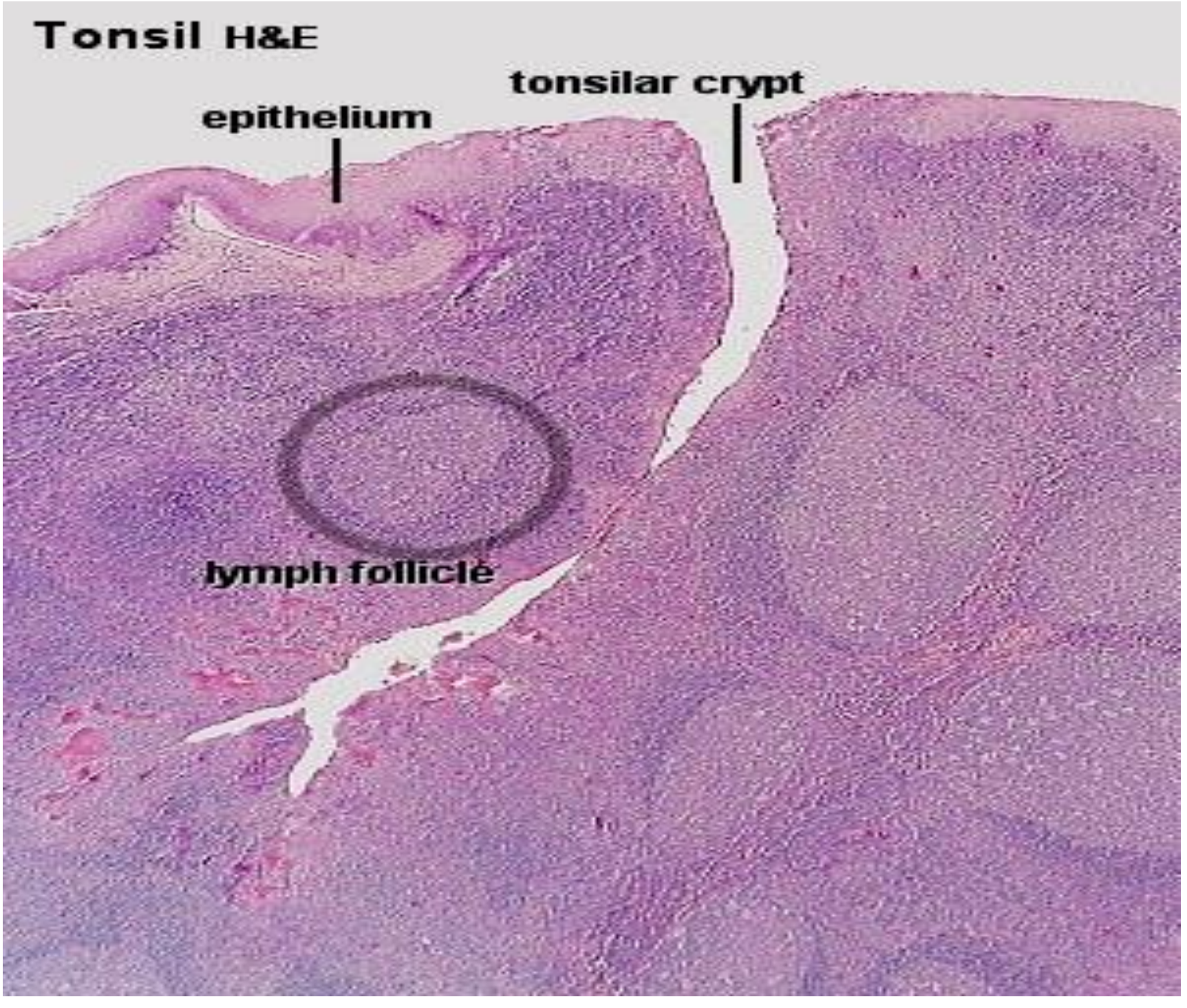
White & red pulps of spleen



Palatine Tonsil (H&E)






Tonsil H&E
tonsilar crypt
epithelium
lymph follicle

	Lymph Node	Splenic White Pulp	Thymus
Follicles	✓	✓	—
Germinal Centers	✓	✓	—
Efferent Lymphatics	✓	✓	✓
Afferent Lymphatics	✓	—	—
Supporting Meshwork	Reticular Cells/Fibers	Reticular Cells/Fibers	Epithelial Reticular Cells