بسم الله الرحمن الرحيم

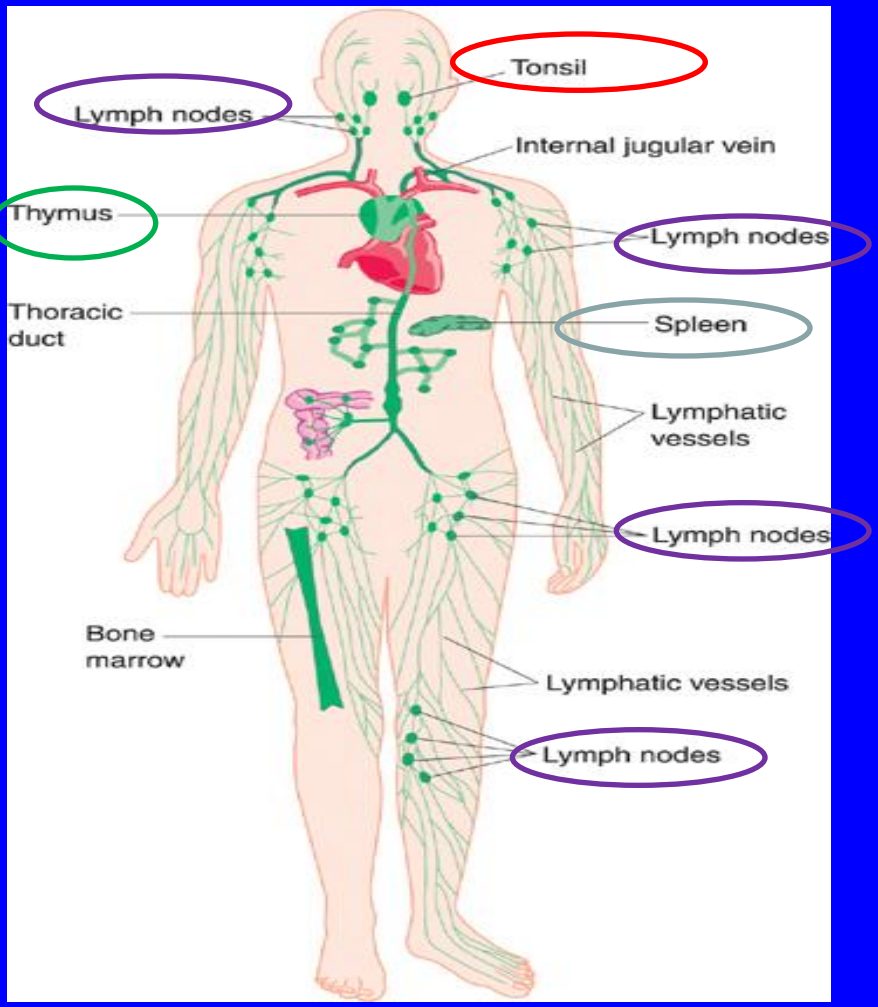
LYMPHOID TISSUE

Objectives:

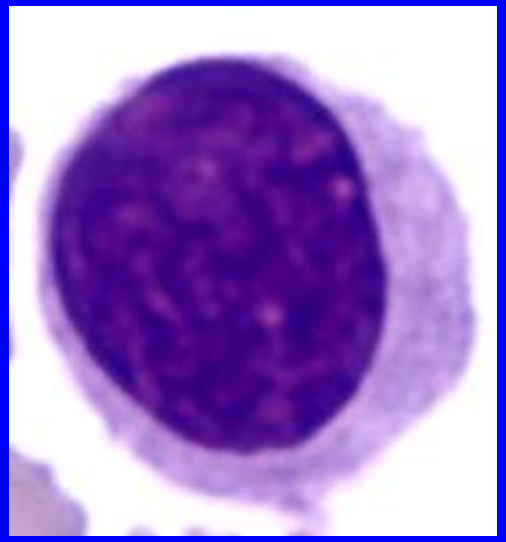
By the end of the lecture, the student should describe the microscopic structure of the following organs in correlation with their functions:

1- Lymph nodes.
2- Spleen.
3- Tonsils.
4- Thymus.

LYMPHOID TISSUE



Lymphocyte



LYMPHOID TISSUE

A) Diffuse lymphoid tissue.

B) Encapsulated lymphoid organs:

1- Lymph nodes.

2- Spleen.

3- Tonsils (are incompletely encapsulated)

4- Thymus.

N.B. Both red bone marrow & thymus are considered 1ry lymphoid organs.

LYMPH NODES (L.N.)

(A) Stroma:

1- Capsule

2- Trabeculae (septa)

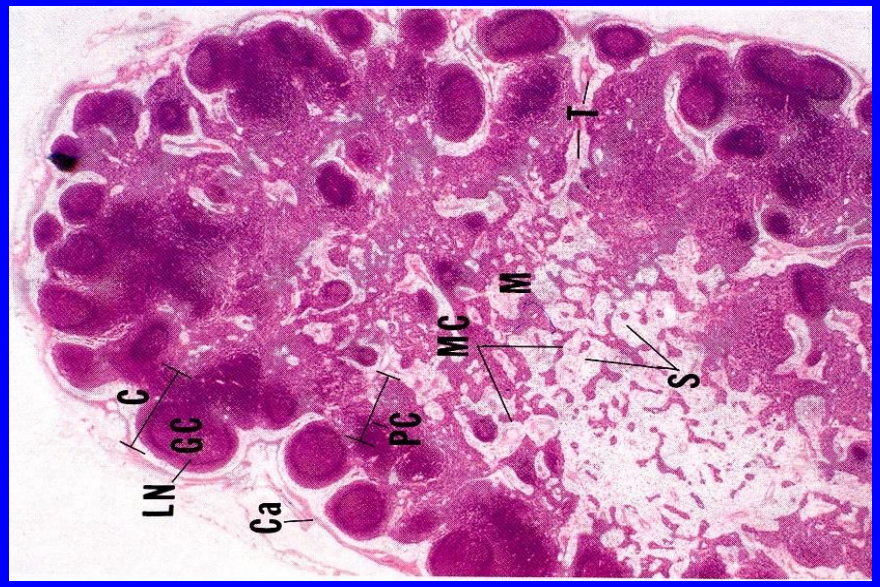
3- Reticular C.T.

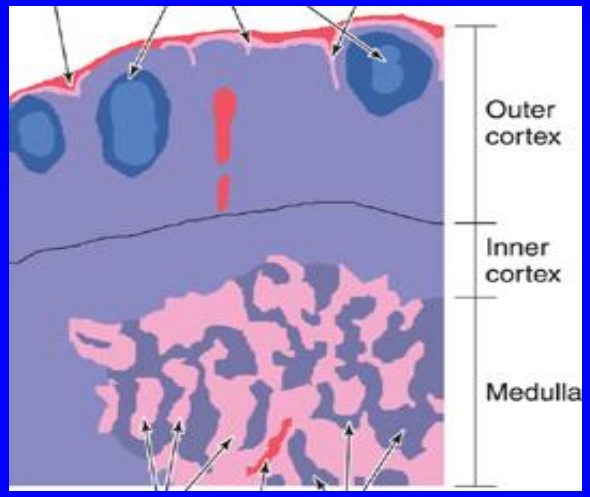
(B) Parenchyma: (lymphoid tissue + lymph sinuses)

1- Cortex

2- Paracortex

3- Medulla





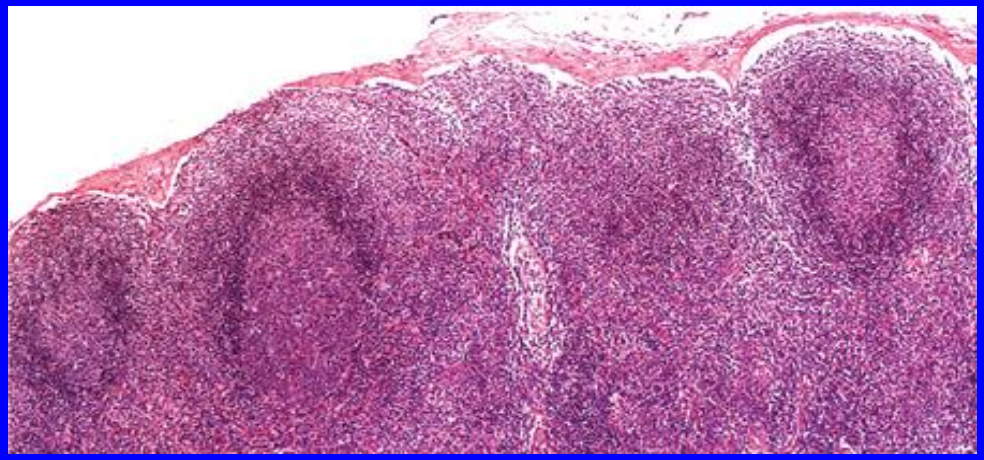
1. Cortex of L.N.

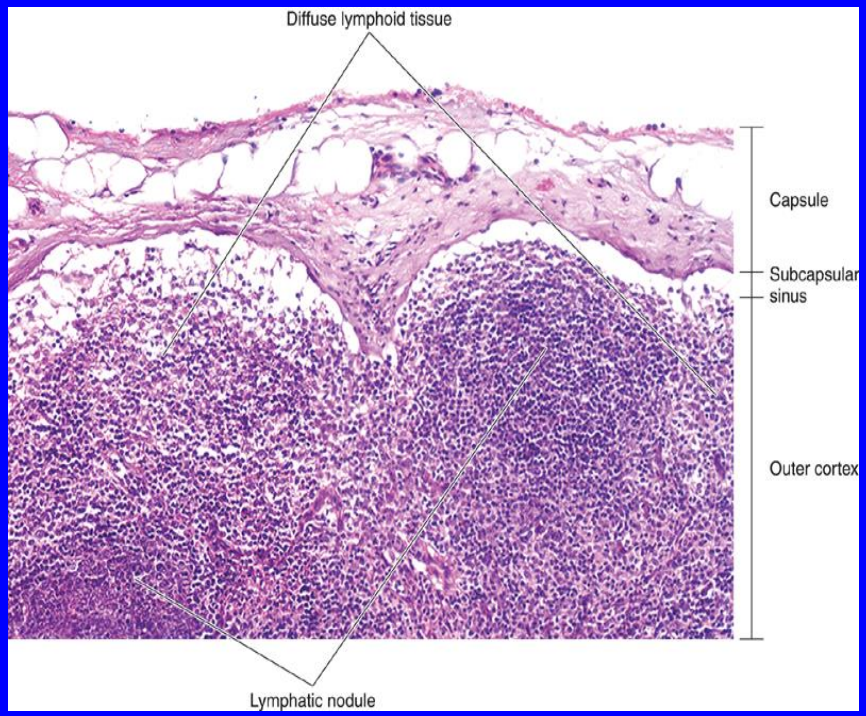
1- Lymphatic nodules (follicles):

a- 1ry: without germinal center

b- 2ry: with germinal center: Lighter

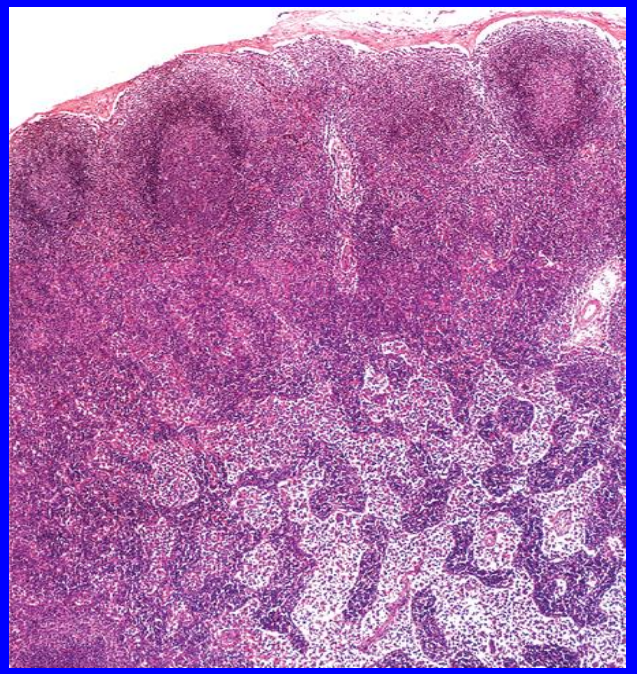
2- Cortical lymph sinuses.





2. Paracortex of L.N.

- It is the thymus-dependent zone of L.N.
- It is composed mostly of T-lymphocytes.



3. Medulla of L.N.

(1) Medullary cords: are formed of lymphoid cells (B & T lymphocytes, plasma cells, macrophages).

(2) Medullary lymph sinuses.

Functions of L.N.

1- Production of immunocompetent cells.

2- Filtration of lymph.

SPLEEN

A. Stroma:

1- Capsule.

2- Trabeculae.

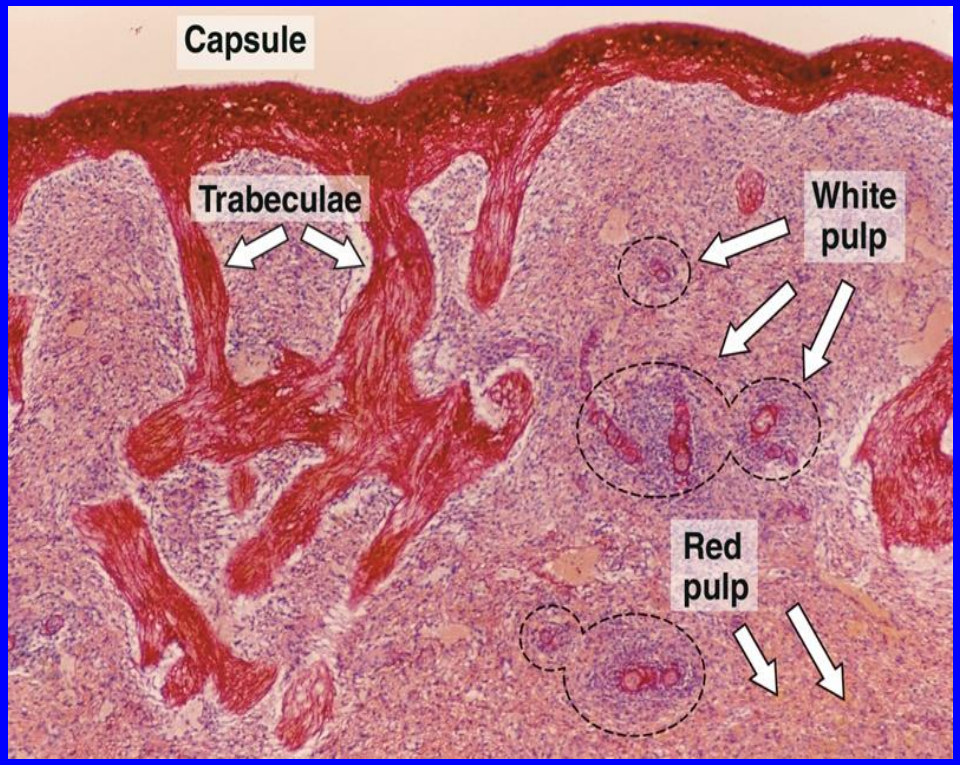
3- Reticular C.T.

B. PARENCHYMA:

(A) White pulp.

(B) RED PULP.

N.B. **No** cortex, **No** medulla.



Functions of Spleen

1- Filtration of blood.

2- Phagocytosis of old RBCs &

old blood platelets & invading

microorganisms.

3- Production & proliferation of

immunocompetent B & T lymphocytes.

4- Production of antibodies.

TONSILS

(1) Palatine Tonsils.

(2) Pharyngeal Tonsil.

(3) Lingual Tonsils.

PALATINE TONSILS

Structure:

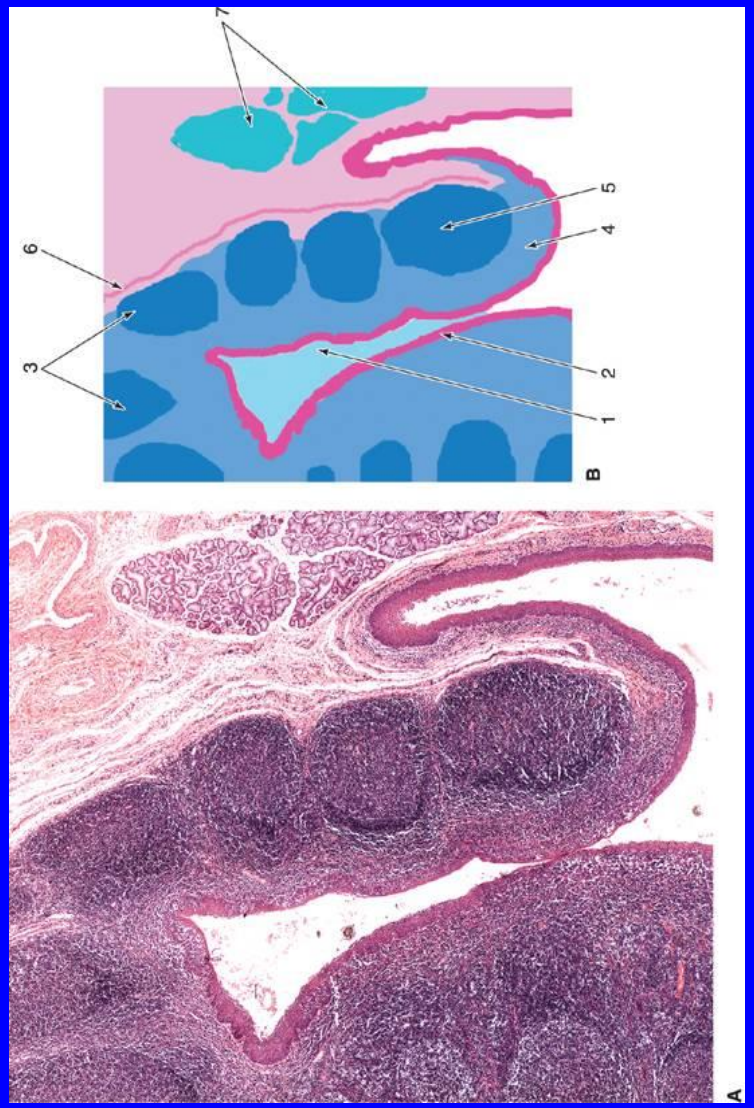
1- Epithelium:

non-keratinized stratified squamous.

2- Tonsilar crypts.

3- Lymphatic nodules.

4- Capsule: partial.



Function of Tonsils

Production of antibodies.

THYMUS

A) Stroma:

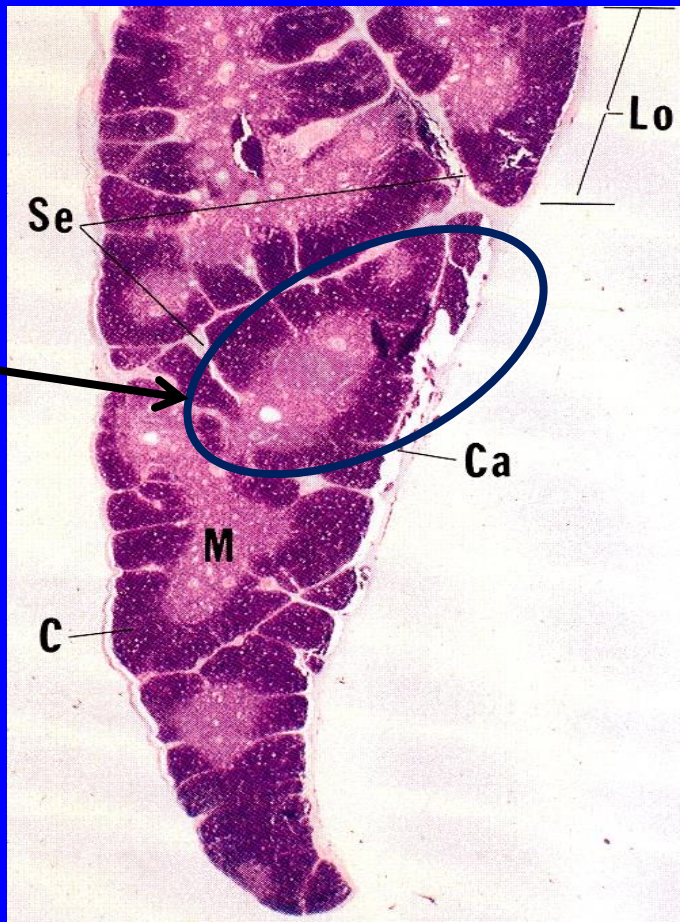
1- Capsule

2- Interlobular trabeculae: incomplete

B) Thymic lobule:

1- Cortex

2- Medulla

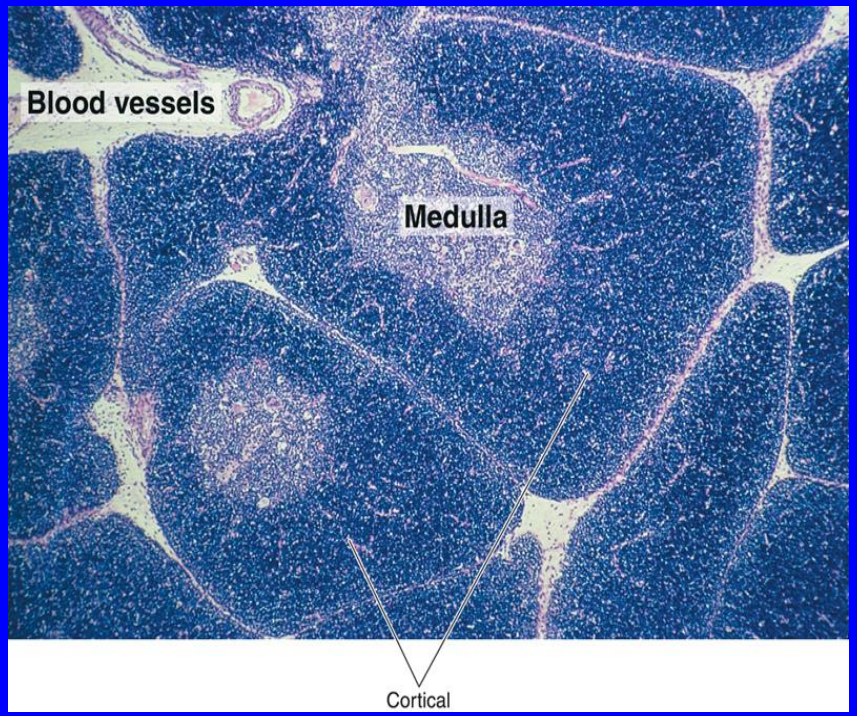


Cortex of Thymic Lobule

A) It contains developing **(immature) T-lymphocytes** (thymocytes). 98% of thymocytes die?

B) **Epithelial reticular cells**

C) **Macrophages.**



N.B. No lymphatic nodules

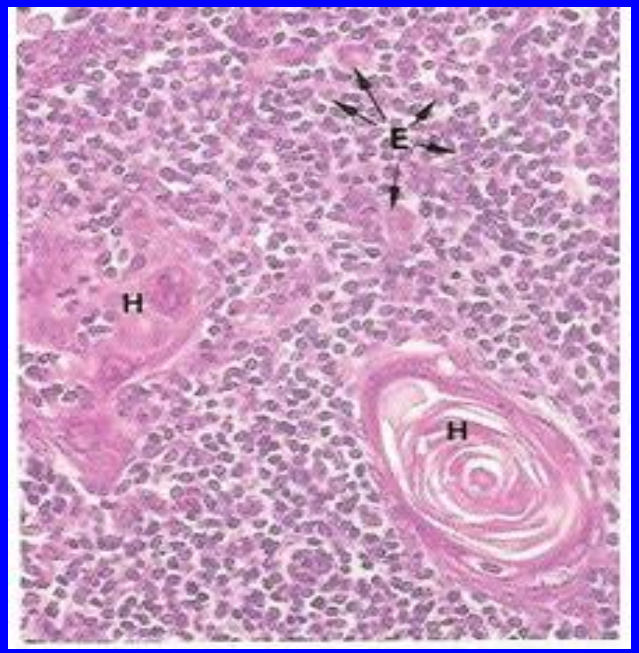
No plasma cells

No B-lymphocytes

Medulla of Thymic Lobule

1- Hassall's (thymic) corpuscles:

Concentrically arranged epithelial reticular cells in the medulla.



2- Mature small T lymphocytes

3- Macrophages.

4- Epithelial reticular cells.

N.B. Medulla of adjacent thymic lobules are interconnected - Why? Incomplete trabeculae

Function of Thymus

- Maturation of T lymphocytes.
  (Immunoincompetent T cells
  → Immunocompetent T cells).

General notes about thymus

- No lymphoid nodules
- No reticular fibers
- No sinuses or sinusoids

Clinical Applications

Palpable lymph node

- The presence of antigen or bacteria leads to rapid proliferation of lymphocytes of the lymph node (L.N), leading to increase of L.N. to several times of its normal size, so the L.N. becomes enlarged and palpable to the touch.

Clinical Applications
Rupture of the Spleen

- Spleen is a fragile or friable organ, so major trauma to the upper left abdominal quadrant usually leads to rupture of the spleen. Surgical removal of that ruptured spleen is essential.

THANK YOU