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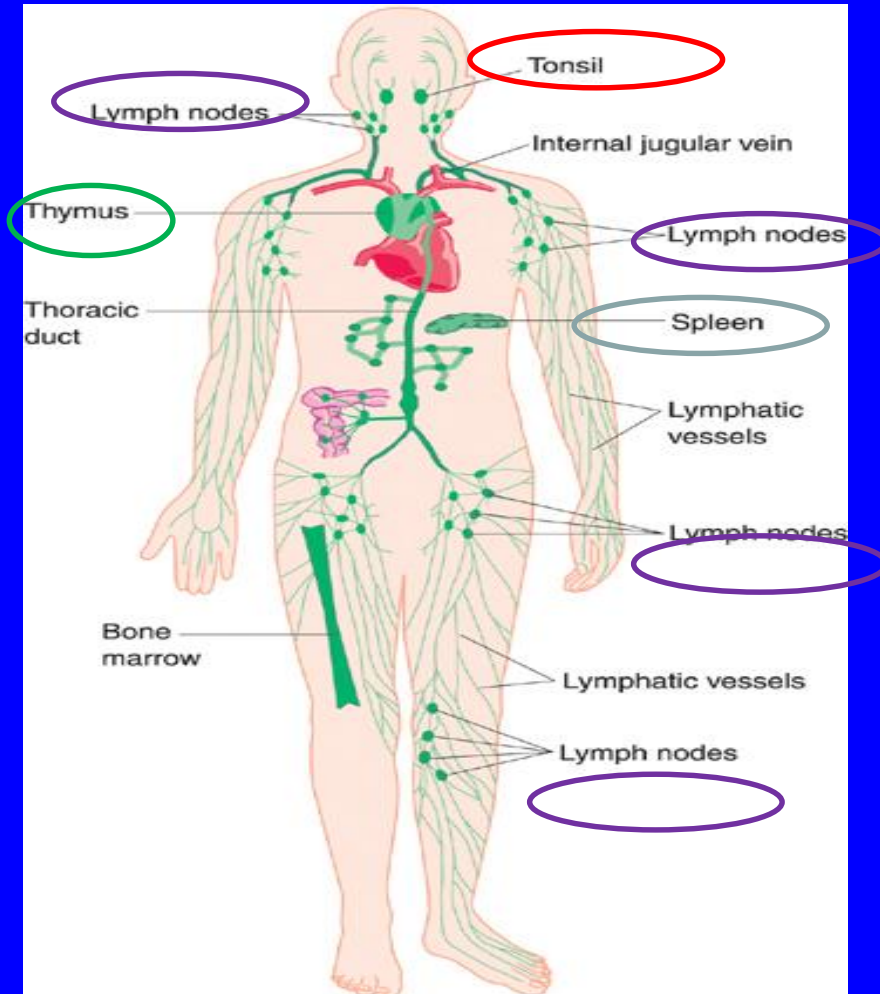
# LYMPHOID TISSUE

## Objectives:

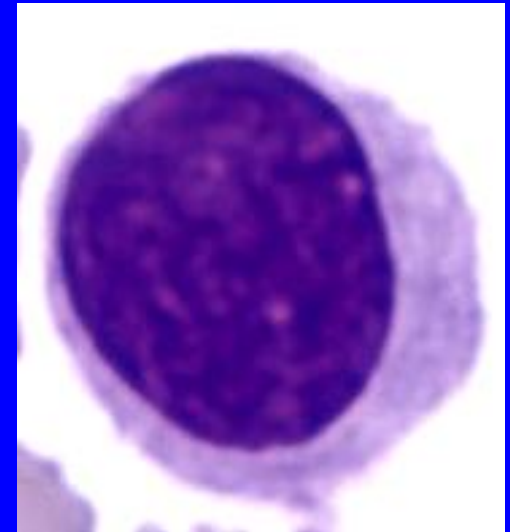
By the end of the lecture, the student should describe the microscopic structure of the following organs in correlation with their functions:

- 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.

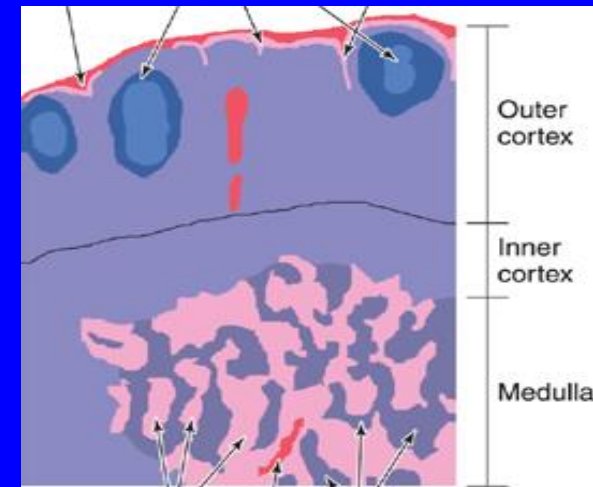
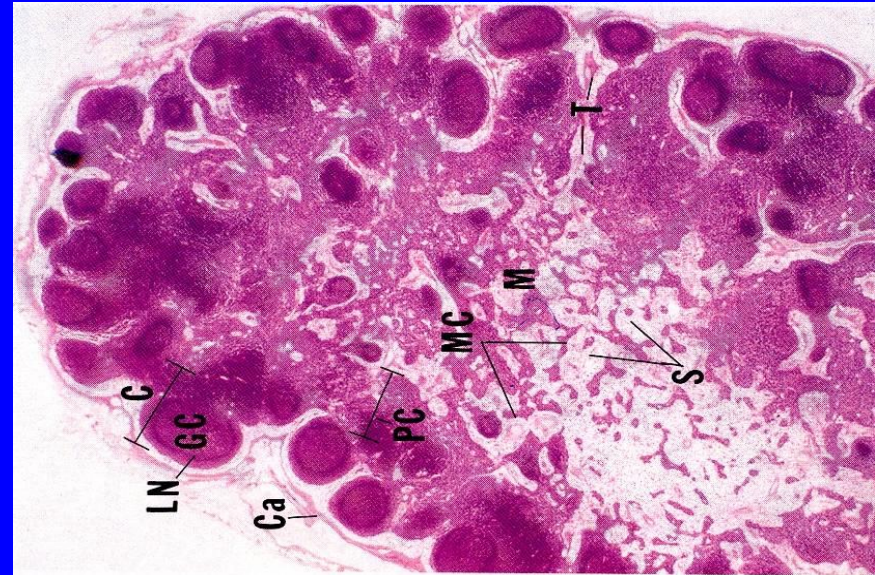
# LYMPH NODES (L.N.)

## (A) Stroma:

- 1- Capsule
- 2- Trabeculae (septa)
- 3- Reticular C.T.

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

- 1- Cortex
- 2- Paracortex
- 3- Medulla



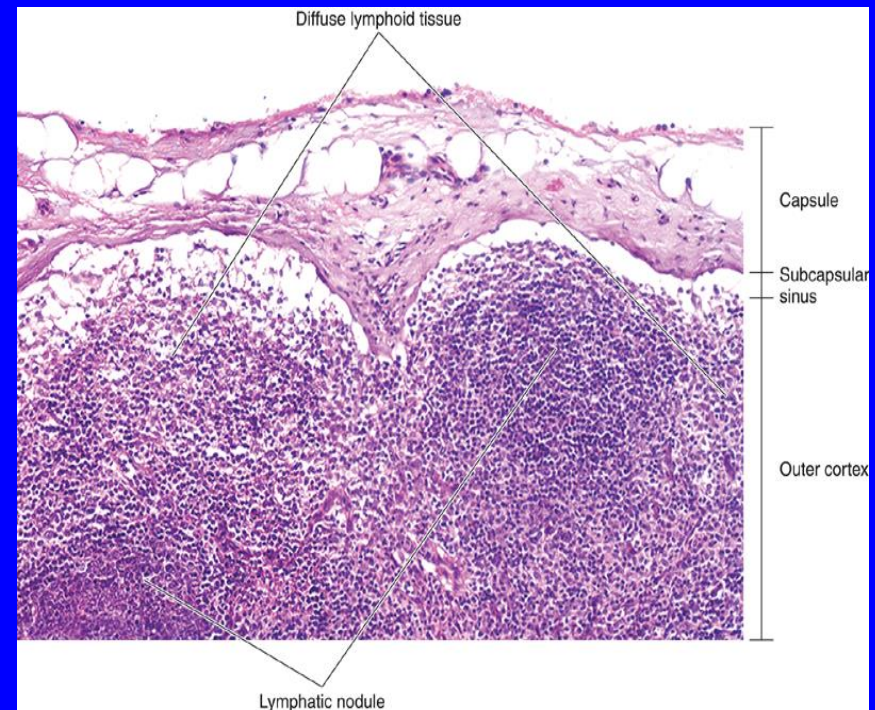
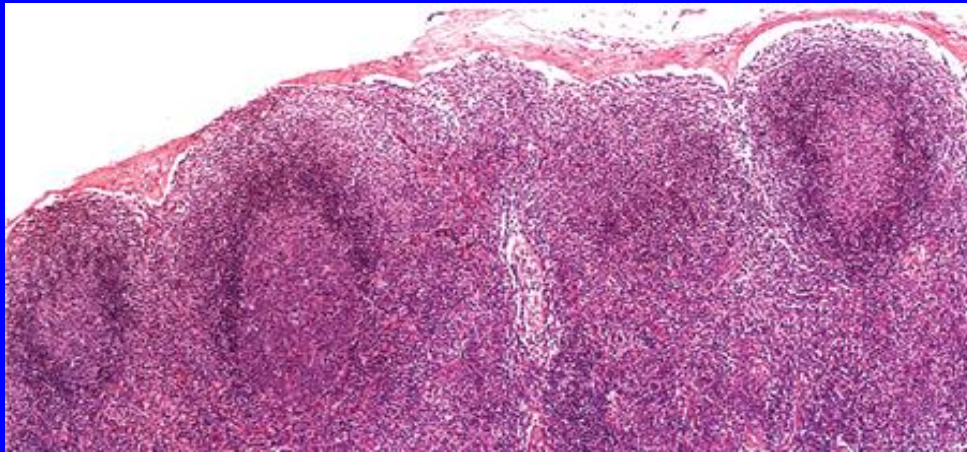
# 1. Cortex of L.N.

1- Lymphatic nodules (follicles):

a- 1ry: without germinal center

b- 2ry: with germinal center: Lighter

2- Cortical lymph sinuses.



## 2. Paracortex of L.N.

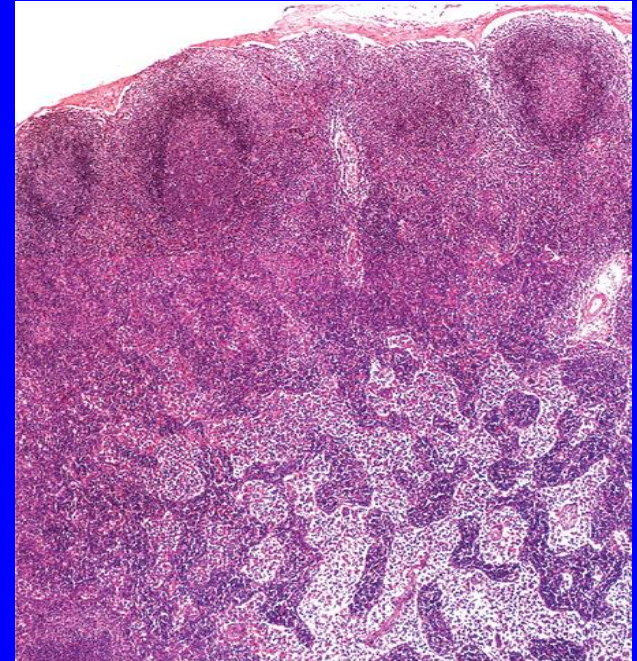
- It is the thymus-dependent zone of L.N.
- It is composed mostly of T-lymphocytes.

## 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

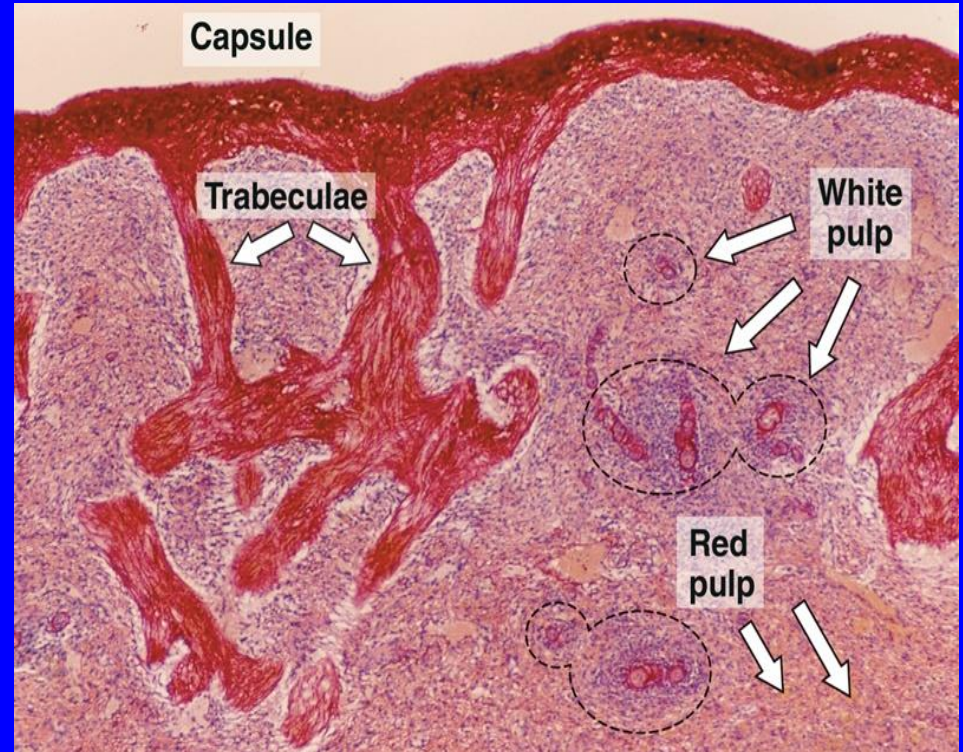
## A. Stroma:

- 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.

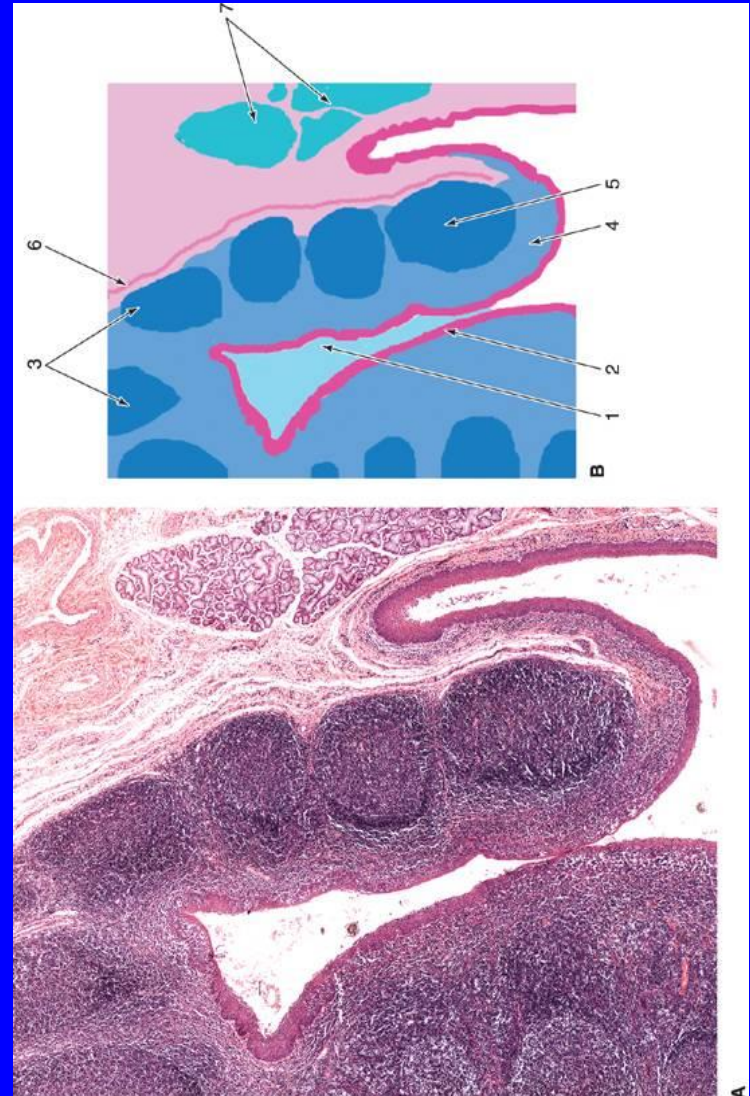
# PALATINE TONSILS

## Structure:

- 1- Epithelium:  
non-keratinized stratified squamous.
- 2- Tonsillar crypts.
- 3- Lymphatic nodules.
- 4- Capsule: partial.

## Function of Tonsils

Production of antibodies.



# THYMUS

## A) Stroma:

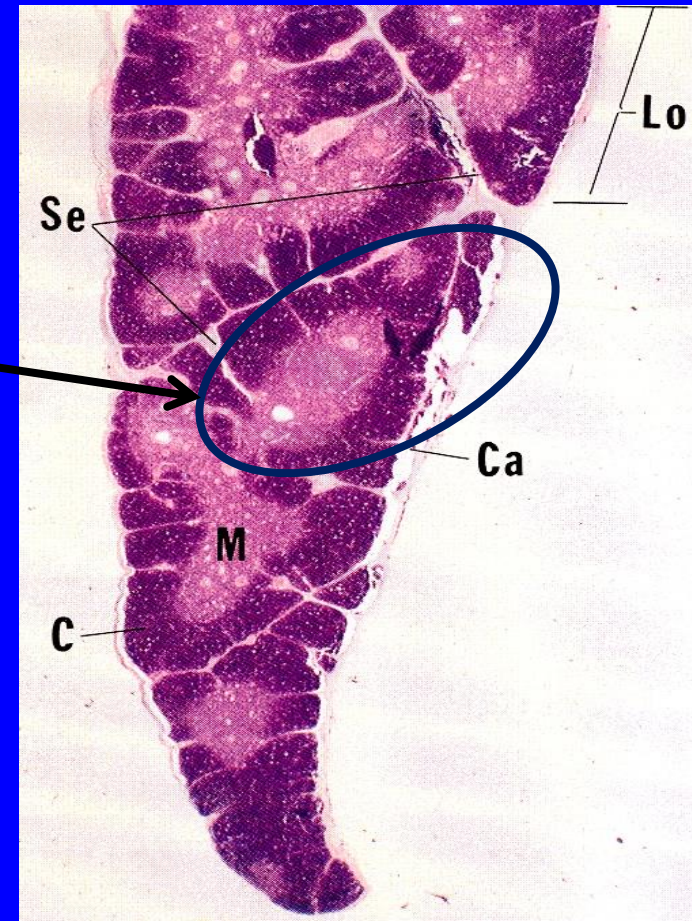
1- Capsule

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?

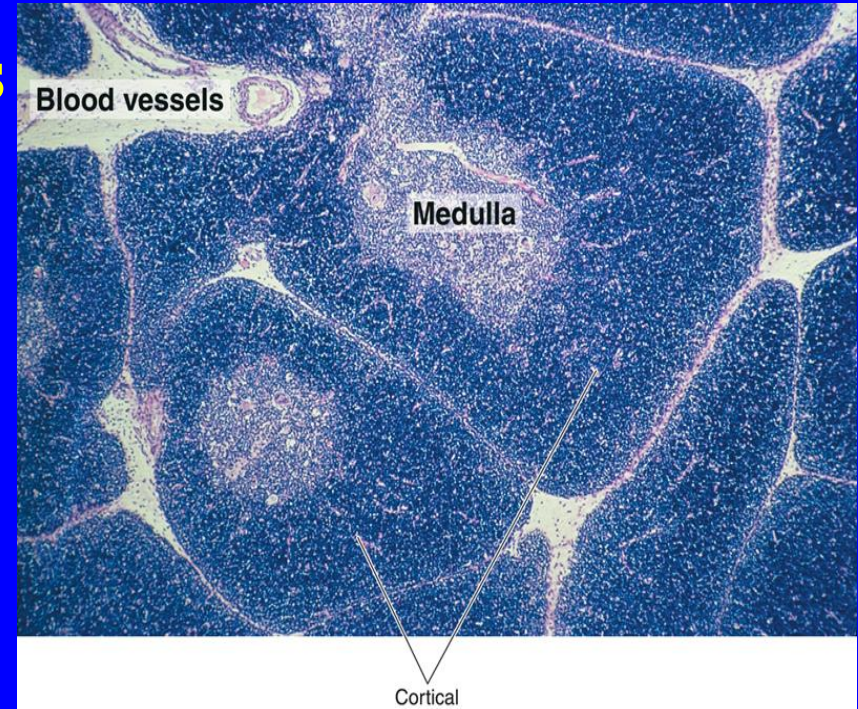
B) **Epithelial reticular cells**

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.

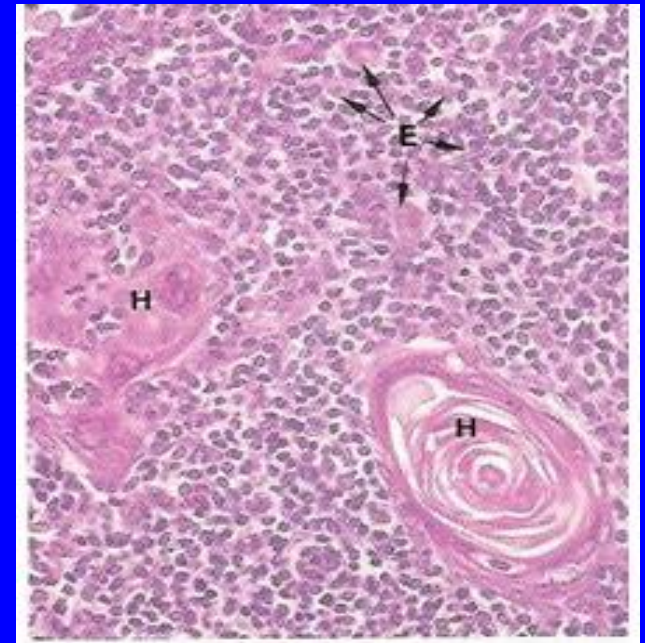
## 2- Mature small T lymphocytes

## 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***