

MODULE 6 L06

Lymphoid Organs

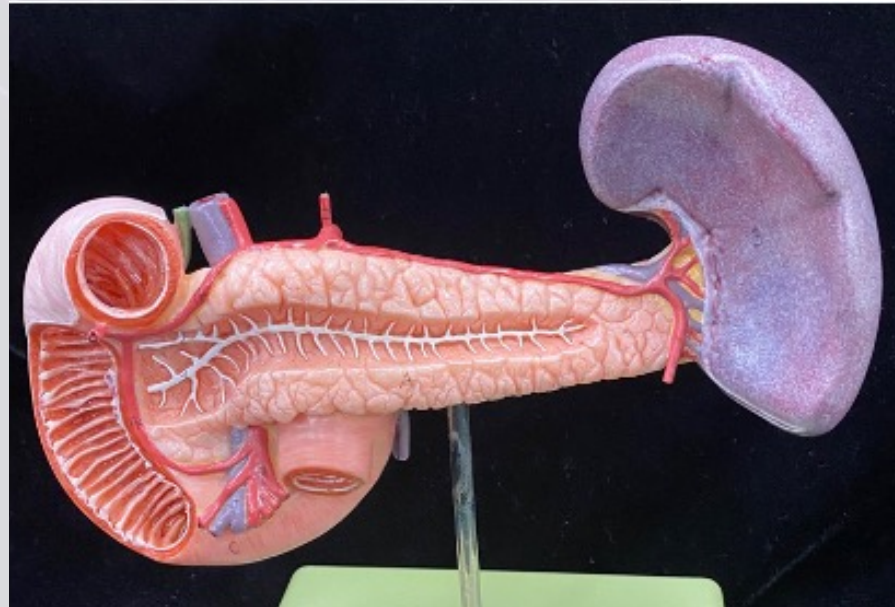
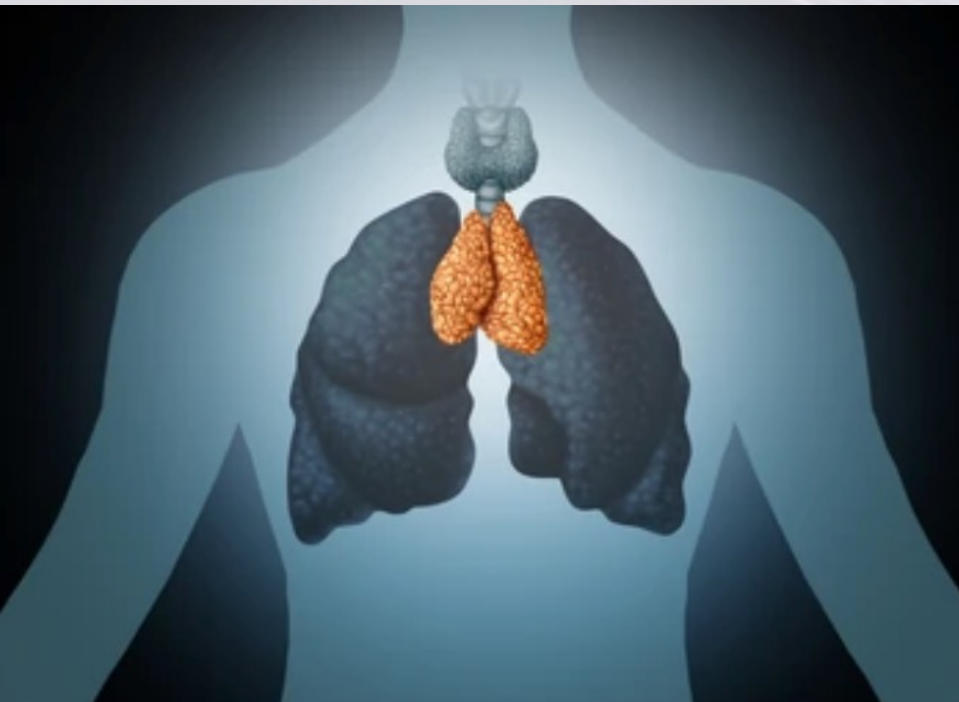
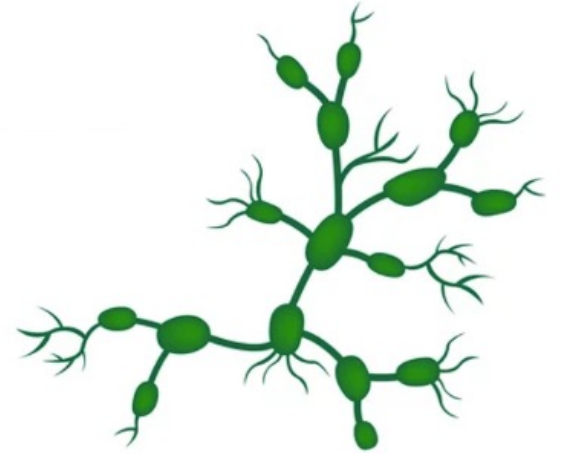
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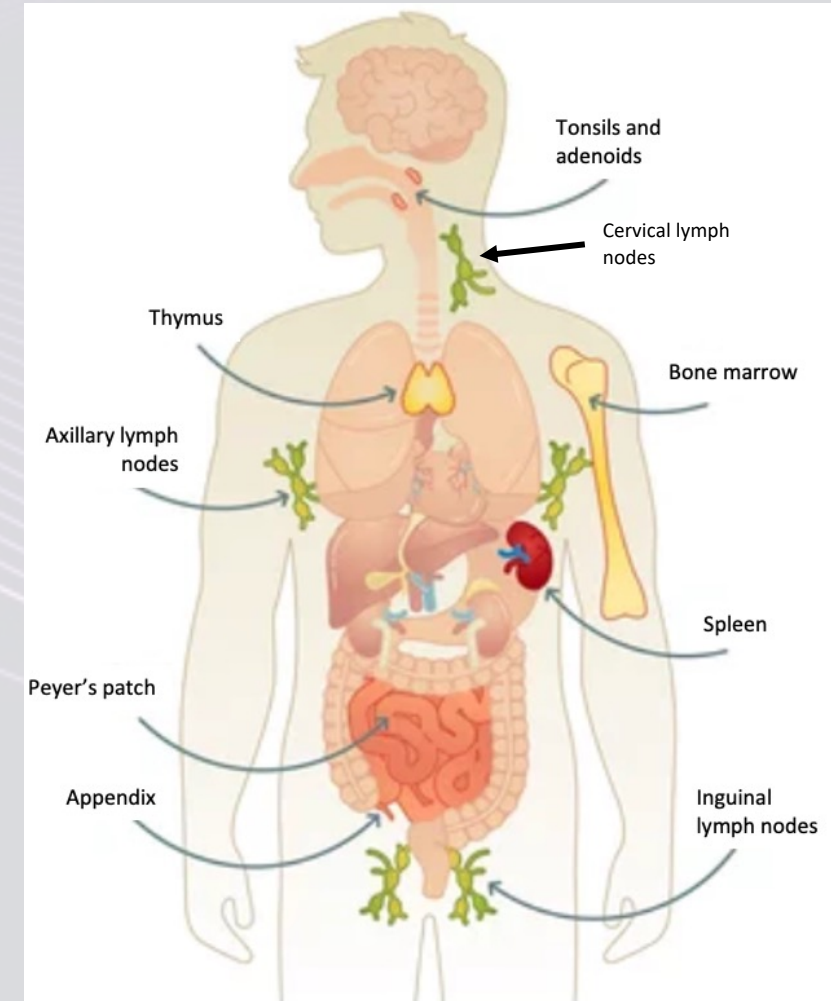
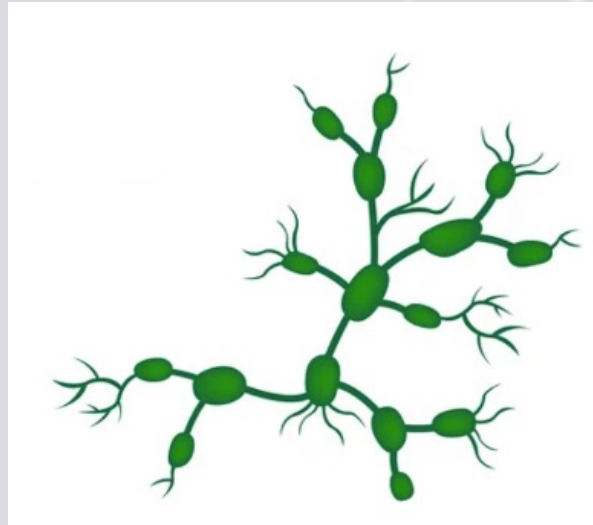
6. Lymphoid Organs

- Separated by fibrous connective tissue capsule
- Include:
 - a) Lymph nodes
 - b) Thymus
 - c) Spleen



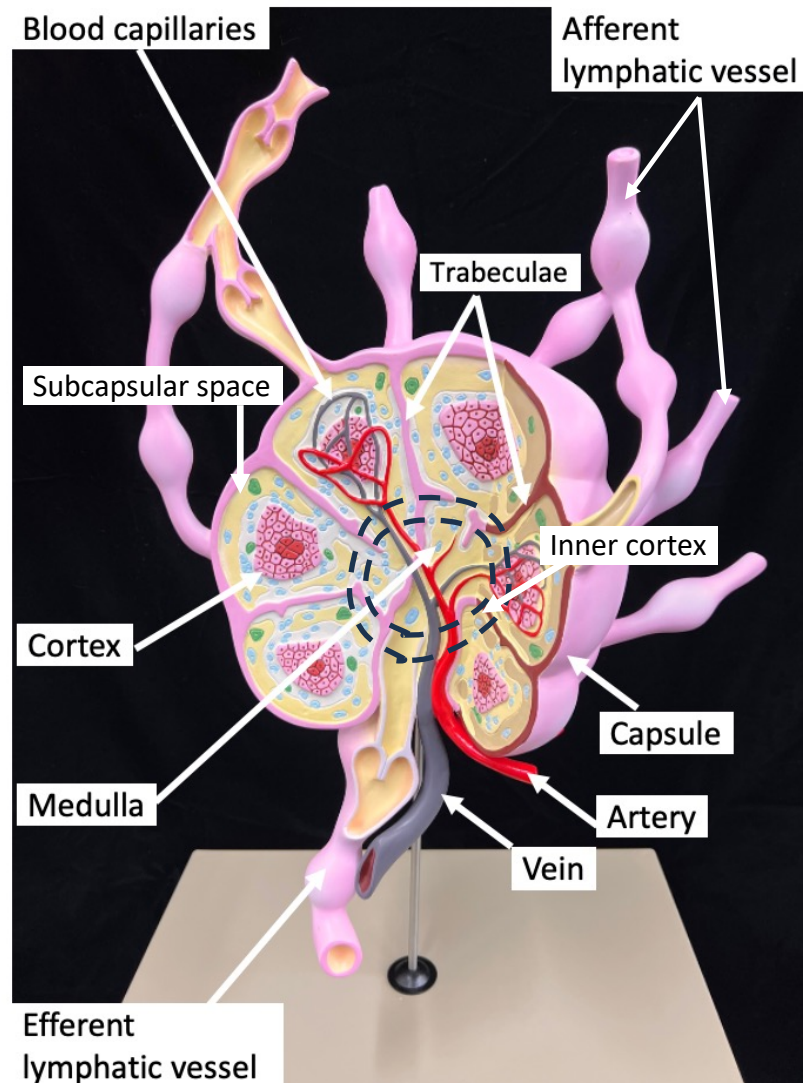
a) Lymph Node

- Small, oval lymphoid organs
- Distribution:
 - ❖ Cervical lymph nodes
 - ❖ Axillary lymph nodes
 - ❖ Inguinal lymph nodes



Lymph Node Structures

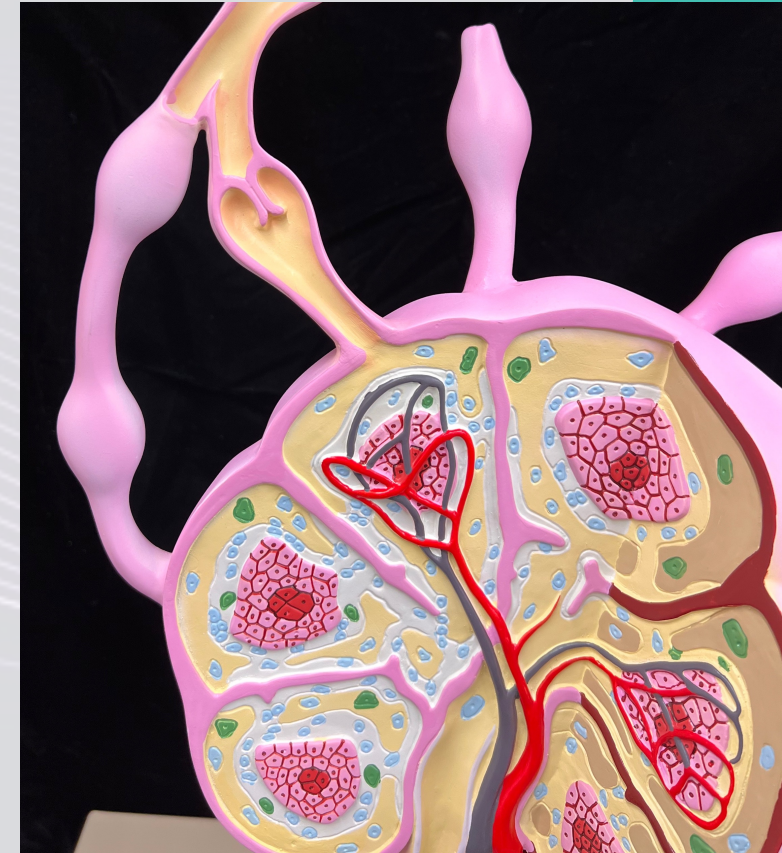
- Capsule
 - ❖ Trabeculae
- Hilum
 - ❖ Blood vessels
 - ❖ Nerves
 - ❖ Efferent lymphatic vessel
- Afferent lymphatic vessel
 - ❖ Brings lymph to node
- Lymph route:
 - ❖ Subcapsular space
 - Reticular fibers
 - Macrophages
 - Dendritic cells
 - ❖ Outer cortex
 - Inactivated B-cells
 - Germinal centers
 - ❖ Deep cortex
 - Leave blood vessels
 - T-cells



- ❖ Medulla
 - B-cells
 - Macrophages
 - Plasmacytes
- ❖ Efferent lymphatic vessel

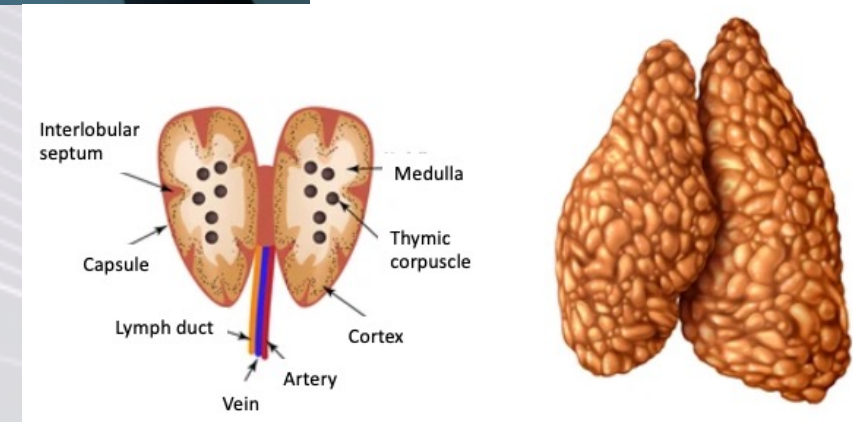
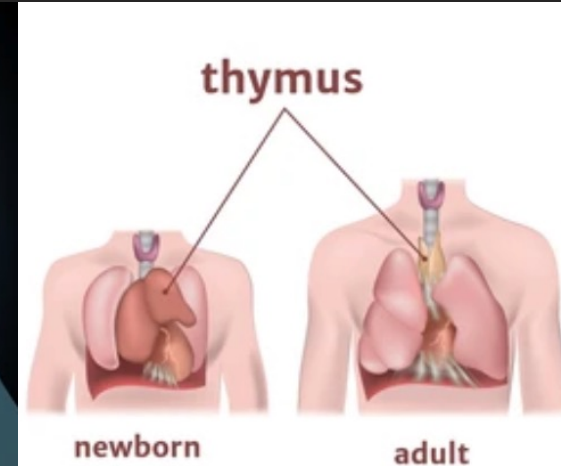
Lymph Node Functions

- Purifies lymph before it reaches the venous system
- 99% of antigens are removed
- Macrophages
 - ❖ Engulf debris or pathogens
 - ❖ Present antigens to nearby T-cells
- Dendritic cells and macrophages
 - ❖ Present antigens to nearby T-cells
- Antigens stick to reticular fibers
 - ❖ Makes it easier to be captured by macrophages and dendritic cells



b) Thymus

- Location:
 - ❖ Posterior to sternum
- Size
 - ❖ 1-2 years after birth (relative to body size)
 - ❖ Puberty (absolute size)
 - 30-40g
- Thymus involution
 - ❖ Gradual decrease in size
 - ❖ Functional cells replaced by connective tissue fibers
- Structures
 - ❖ Capsule
 - Two thymic lobes
 - ❖ Septa
 - Fibrous partitions
 - Interlobular septum
 - ❖ Cortex
 - Lymphoid stem cells – daughter cells – mature T cells
 - ❖ Medulla
- Blood-thymus barrier - prevents premature stimulation of developing T cells by circulating antigens



c) Spleen

- Largest lymphoid organ
- Lies posterior to stomach
- Deep red color (blood)
- Functions
 - ❖ Removal of abnormal blood cells
 - Phagocytosis
 - ❖ Storage of iron
 - Recycled from broken RBCs
 - ❖ Initiates immune response
 - B and T cells
- Structures
 - ❖ Hilum – arteries, veins, lymphatics
 - ❖ Capsule – collagen and elastic fibers
 - ❖ Trabeculae
 - ❖ Pulp – cellular component
 - Red pulp – RBCs, lymphocytes + fixed and free macrophages
 - White pulp – lymphoid nodules + macrophages

