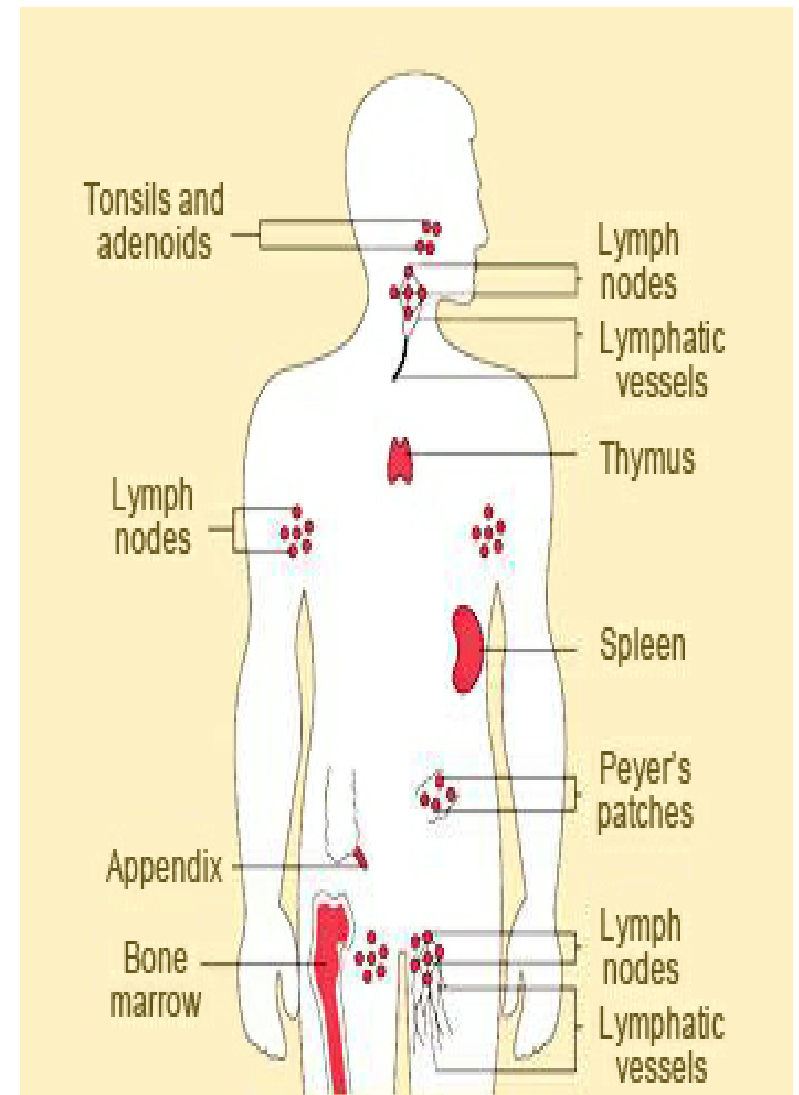


Lymphoid organs & Lymphatic system

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The Immune System - includes all parts of the body that help in the recognition and destruction of foreign materials.

Organs

Bone marrow, lymph nodes, tonsils, thymus, and your spleen

Cells

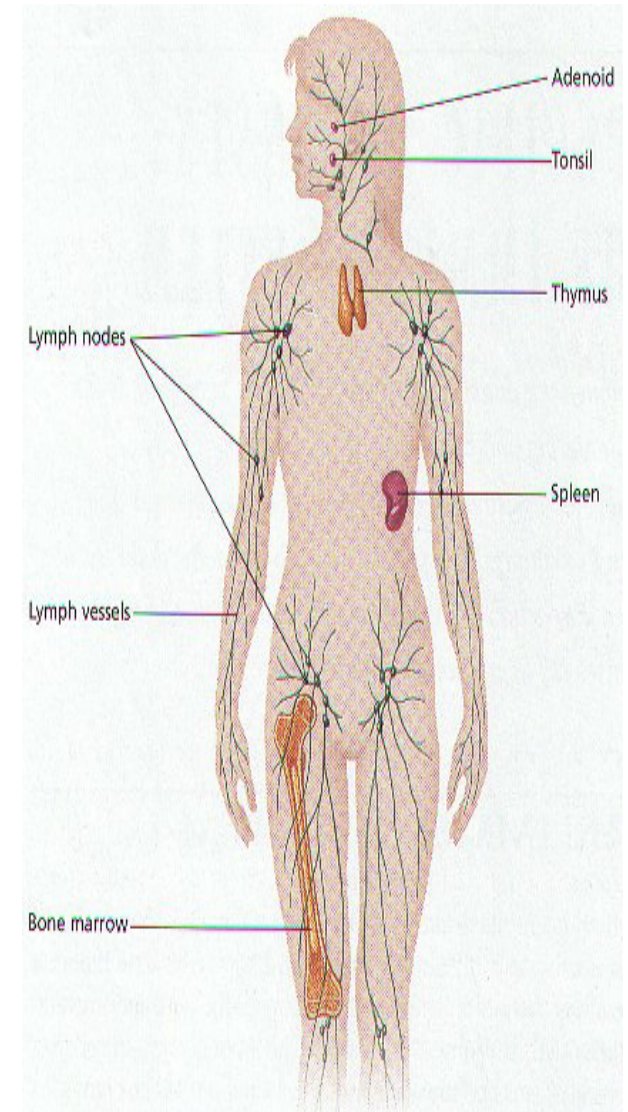
White blood cells, phagocytes and lymphocytes

The primary lymphoid organs

Provide appropriate microenvironments for the development and maturation of lymphocytes

The secondary lymphoid organs

Trap antigen from defined tissues or vascular spaces and are sites where mature lymphocytes can interact effectively with that antigen



Primary lymphoid organ- Bone marrow

Site of B cell maturation & Hematopoiesis

The production of blood cells in bone marrow begins roughly **4-5 months after conception**

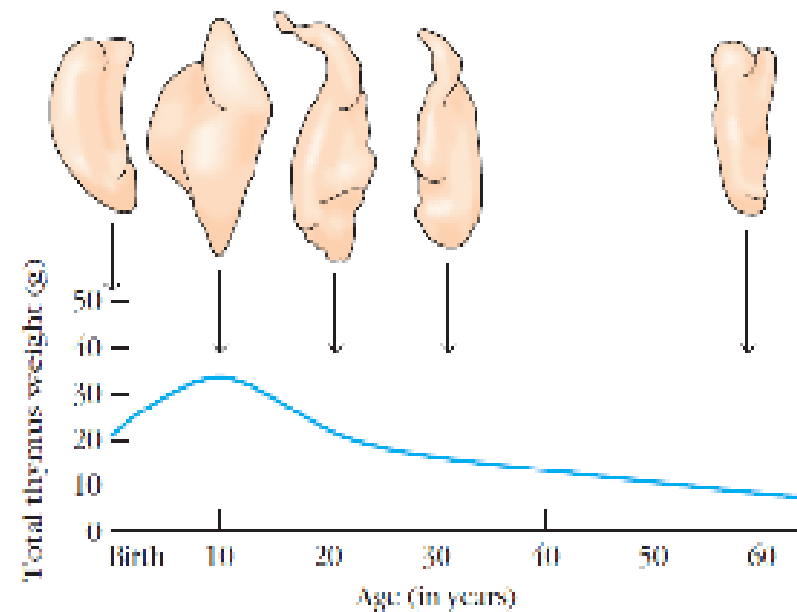
After puberty Hematopoiesis is largely confined to the axial skeletal bones (such as pelvis, sternum, ribs, vertebrae, and skull).

Primary lymphoid organ- Thymus

Bilateral organ located in the mediastinum

Attains its peak development during youth and shrink its size as ageing progresses

Site of T cell development



Secondary lymphoid organ –Lymph nodes

Bean shaped

Encapsulated structures distributed throughout the body along the course of lymphatic vessels

Comprises of B cells, T cells, macrophages and dendritic cells

They filter tissue borne antigens before allowing the lymph to return to circulation

Secondary lymphoid organ – Spleen

Large, ovoid organ situated high in the left abdominal cavity.

Comprises T cells , B cells NK cells, macrophages DCs & RBCs

Filters the blood borne foreign antigens (It can respond to systemic infections

Not supplied by lymphatic vessels.

Secondary lymphoid organs - MUCOSAL-ASSOCIATED LYMPHOID TISSUES

The mucous membranes lining the digestive, respiratory, and urogenital systems -group of lymphoid tissues

→ **loose, SIMPLY** organized clusters of lymphoid cells -lamina propria of intestinal villi

→ well-organized structures - **tonsils** and **appendix**;

→ well-organized structures - Peyer's patches (found within the submucosal layer of the intestinal lining)

Large population of antibody-producing plasma cells

Lymphatic system

Mature lymphocytes generated in the primary lymphoid organs, circulate in the blood and **lymphatic system**

The lymphatic system consists of lymphatic organs, a conducting network of lymphatic vessels, and the circulating lymph

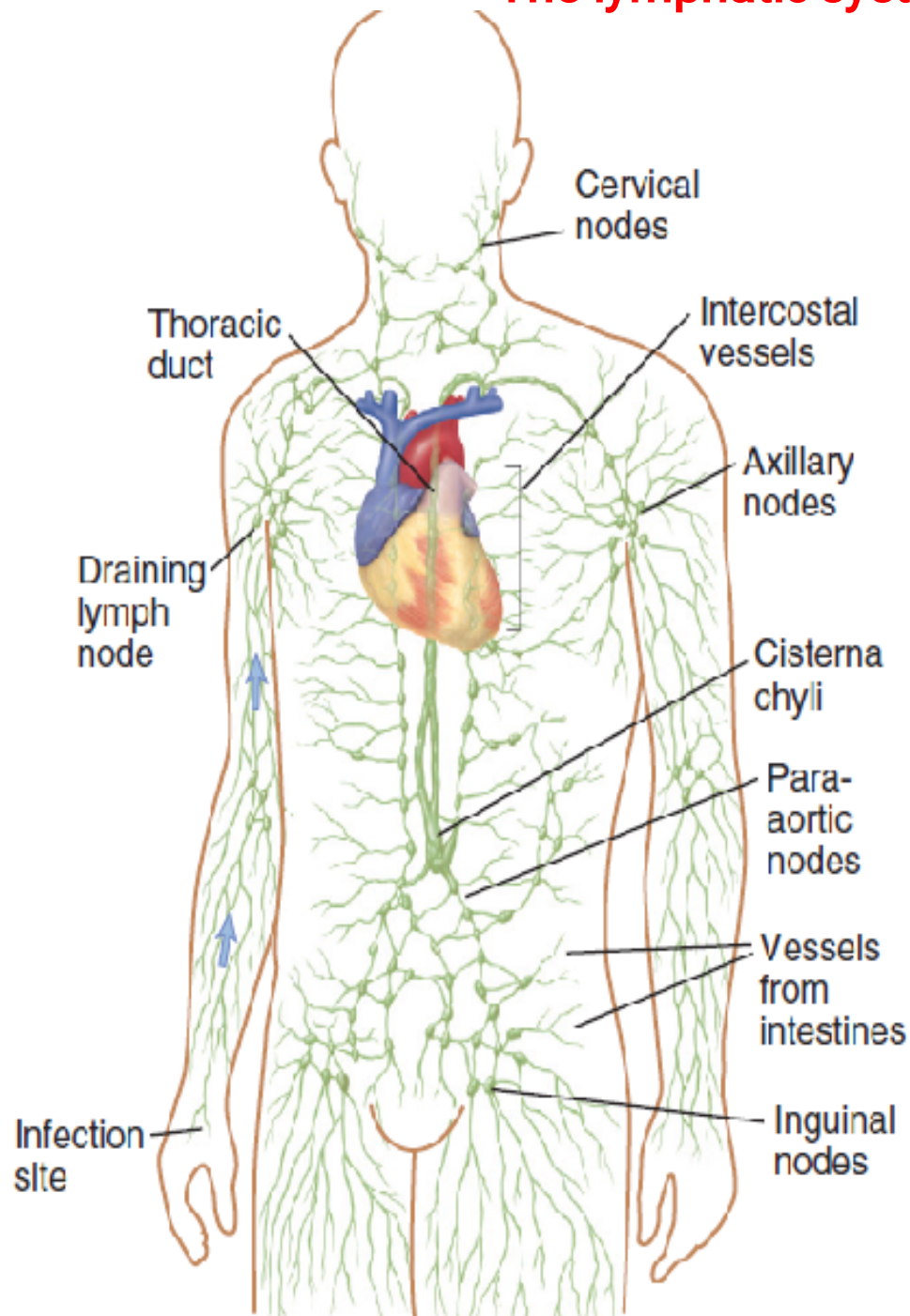
The lymphatic vessels drain fluid from tissues into and out of lymph nodes and then into the blood

Afferent lymphatic vessels – Drain fluid from tissue in to lymph nodes

Efferent lymphatic vessels - Drain fluid from lymph nodes in to the blood

It collects almost all of the lymph that circulates throughout the body

The lymphatic system



LN's are connected in series by lymphatics (an efferent lymphatic exiting one node may serve as the afferent vessel for another)

The efferent lymph vessel at the end of a LN chain joins other lymph vessels, eventually ending in a large lymphatic vessel

The thoracic duct, or the left lymphatic duct, is the largest of the body's lymphatic ducts.

Lymphatics from the right upper trunk, right arm, and right side of the head drain into the right lymphatic duct

From right lymphatic duct, the lymph is emptied into the superior vena cava thus returning the fluid to the