**Lymph system**

**The lymphoid system includes all the cells , tissue and organ**s **in the body that contain aggregates of immune cells ,called lymphocytes . Cells of the immune system especially lymphocytes are distributed throughout the body as a single cells , as isolated accumulations of cells , as a distinct non encapsulated lymphatic nodules in the loose connective tissue of different organs ,or as encapsulated individual lymphoid organs .**

**The major lymphoid organs in the body are the :-**

**- Lymph node ,Spleen ,Tonsils , Thymus and Bone marrow(Because of bone marrow produce lymphocytes )**

**Lymph node**

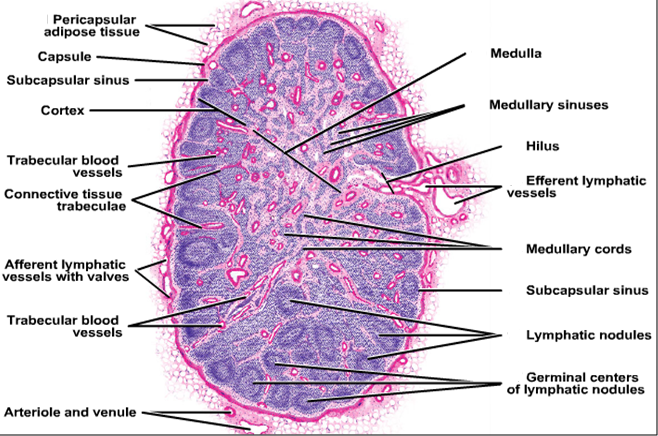
**A lymph node is an organ composed of aggregations of lymphocytes intermeshed with lymphatic sinuses ,supported in a framework of reticular fibers and encased in a connective tissue capsule .**

**The cortex of the node contain lymphocytes aggregate into lymphatic nodules in many of cortical nodules ,the centers are lightly stained . These lighter areas represent the germinal centers and are the active sites of lymphocytes proliferation**

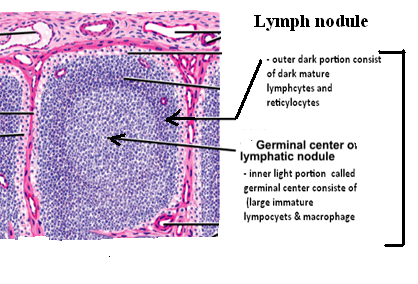
**In the medulla of a lymph node , the lymphocytes are arranged as irregular cords of lymphatic tissue , the medullary cords . .**

**The capsule of the lymph node is surrounded by connective tissue and fat . From the capsule , connective tissue trabeculae extend into the node , initially between the cortical nodules and then ramifying throughout the medulla between medullary cords and sinuses , in the trabeculae are found major blood vessels . Lymph enter the lymph node via afferent lymphatic vessels that penetrate the capsule on the convex surface .**

**Lymph node s are important components of the defense mechanism .They are distributed throughout the body along the paths of lymphatic vessels . their main functions are produce the lymphocytes and also lymph filtration and phagocytosis of bacteria or foreign substance from the lymph.**

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**Lymph node**

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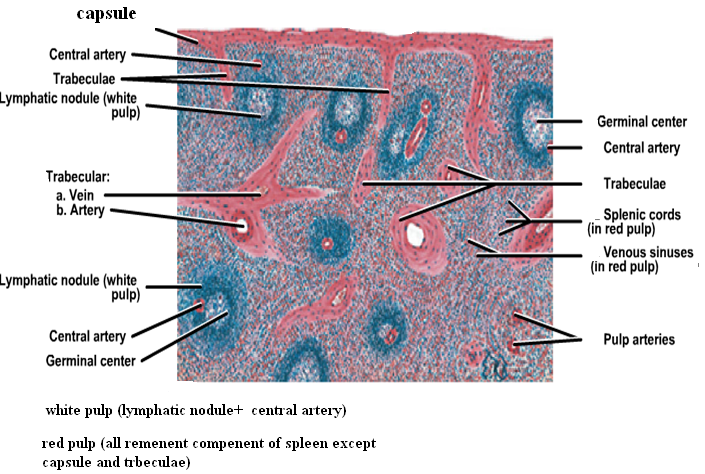
**Lymph nodule**

**Spleen**

**The spleen is a large lymphoid organ with a rich blood supply . A dense connective tissue capsule**

**. enclosed the spleen . From the capsule connective tissue trabeculae extend deep into interior of the spleen and divides into incomplete compartment ,called the splenic pulp . White pulp consists of dark- staining lymphoid aggregations ,or lymphatic nodules ,that surround a blood vessels ,called the central artery. White pulp is located within the blood –rich red pulp ,which in turn consists of splenic cord and splenic sinusoids . Splenic cords contain net works of the reticular fibers in which macrophages ,lymphocytes ,plasma cells are found .Splenic sinusoids are interconnected blood channels that drain splenic blood into larger sinuses that eventually leave the spleen via the splenic vein .**

**the spleen dose not have a cortex and a medulla as seen in the lymph nodes ,however ,lymphatic nodules are found throughout the spleen . The spleen contains venous sinuses , in contrast to lymphatic sinuses in lymph nodes .Both the capsule and trabeculae in the spleen are thicker than in the lymph nods and contain some smooth muscle cells .**

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**Spleen**