

Lymph Nodes

Lymph nodes function to remove debris and pathogens from the lymph, and are thus sometimes referred to as the “filters of the lymph” (Figure 21.8). Any bacteria that infect the interstitial fluid are taken up by the lymphatic capillaries and transported to a regional lymph node. Dendritic cells and macrophages within this organ internalize and kill many of the pathogens that pass through, thereby removing them from the body. The lymph node is also the site of adaptive immune responses mediated by T cells, B cells, and accessory cells of the adaptive immune system. Like the thymus, the bean-shaped lymph nodes are surrounded by a tough capsule of connective tissue and are separated into compartments by trabeculae, the extensions of the capsule.

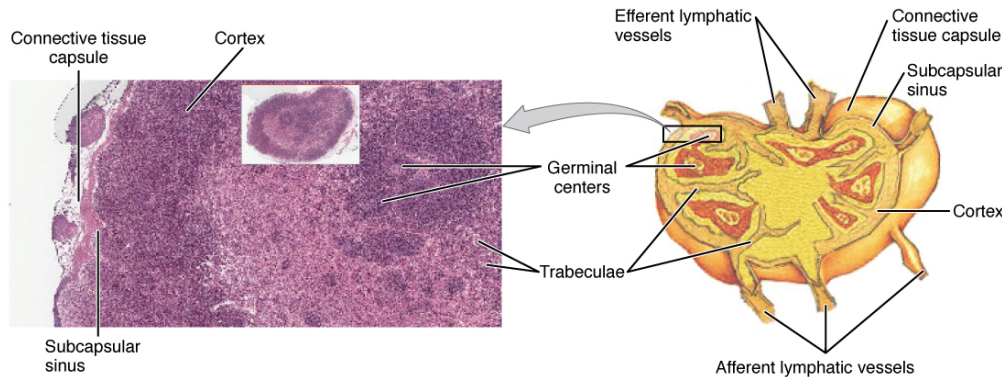


Figure 21.8 Structure and Histology of a Lymph Node Lymph nodes are masses of lymphatic tissue located along the larger lymph vessels. The micrograph of the lymph nodes shows a germinal center, which consists of rapidly dividing B cells surrounded by a layer of T cells and other accessory cells. LM \times 128. (Micrograph provided by the Regents of the University of Michigan Medical School \copyright 2012)

The major routes into the lymph node are via **afferent lymphatic vessels** (see Figure 21.8). Cells and lymph fluid that leave the lymph node may do so by another set of vessels known as the **efferent lymphatic vessels**. The afferent lymph channels bring lymph with either free floating or complement bound antigen into the subcapsular space. The afferent lymph vessels extend to the deeper areas of the lymph node by way of the trabecular extensions of the cortex. The fluid then travels from here to the cortical sinuses; which are branches of the subcapsular sinus. The cortical sinuses are also known as trabecular sinuses because they travel along the trabecular network within the lymph node.

In addition to the structure provided by the capsule and trabeculae, the structural support of the lymph node is provided by a series of reticular fibers laid down by fibroblasts. Within the cortex of the lymph node are lymphoid follicles, which consist of germinal centers of rapidly dividing B cells surrounded by a layer of T cells and other accessory cells. As the lymph continues to flow through the node, it enters the medulla, which consists of medullary cords of B cells and plasma cells, and the medullary sinuses where the lymph collects before leaving the node via the efferent lymphatic vessels.

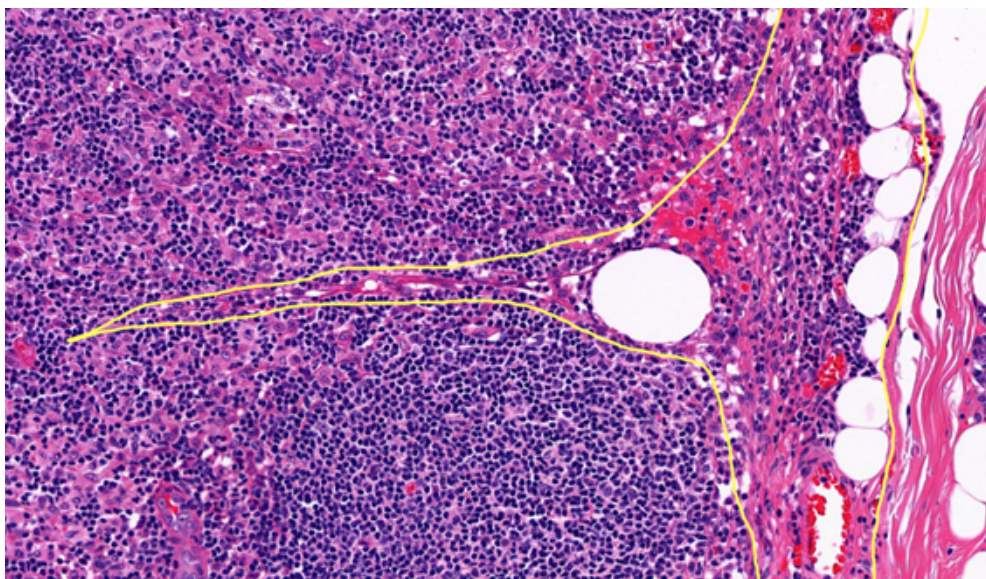


Figure 21.8 cortical or trabecular sinuses the yellow overlay shows a cortical sinuses that extends into the deeper areas of the lymph node.