

Lymphadenitis

In this essay I will cover the lymphatic system and relate it to the course objectives from Unit 10: “Identify the key structures of the lymphatic system” and “Relate how the lymphatic system can indicate disease”.

The lymphatic system is a network of vessels that weave in between capillary beds and pick up leaked fluids. Capillary beds are where arterioles meet venioles and exchange bodily fluid. However, of the 20 liters that our body exchanges every day, only 17 liters make it through the capillary beds. About three liters get leaked and picked back up by the lymphatic system (Green, H. *Lymphatic System Crash Course* (2015)). The lymphatic system’s job is to filter this fluid (now called lymph), and return it to the circulatory system, functioning to maintain a balance of fluids in the body (Sawdon, M., & Kirkman, E. *Capillary dynamics and the interstitial fluid–lymphatic system* (2020)). The lymphatic system also has immune functions, including the production of a white blood cell called lymphocytes (Liao, S., & Padera, T. P. *Lymphatic function and immune regulation in health and disease* (2013)).

The lymphatic system consists of the spleen, thymus, lymph nodes, lymph vessels, and tonsils. The thymus is responsible for helping develop the immune system. The spleen cleans the blood of antigens and removes old red blood cells. The tonsils protect against pathogens entering the pharynx and further into the body. The lymph vessels are responsible for transporting the fluids of the system called lymph. The lymph nodes have the most important job in the system. There are around 600 nodes in the body, and they are responsible for filtering lymph to remove the bacteria/foreign cells from the lymph, and to produce lymphocytes to fight diseases (Limmer, D., O’Keefe, M.F., & Dickinson, E.T. *Emergency Care* (2021)).

The immune capabilities of the lymphatic system can be extremely helpful in targeting bacteria and viruses in the bodily fluid that passes through, and triggering the full immune response if the issue can't be taken care of by smaller measures. However, when the lymph nodes are overwhelmed, they become irritated and inflamed. This condition is called Lymphadenitis, or the swelling of lymph nodes due to bacterial/viral infections or sometimes even cancer (Johns Hopkins Medicine. *Lymphadenitis* (2019)). Swollen lymph nodes often present in the armpits, neck, and groin, where most of the lymph nodes are located (See figure 1).



Figure 1: Display of the lymphatic system layout on a human body. Left side is the appearance of regular sized lymph nodes, right side represents swollen nodes and their location. Purple represents the spleen, yellow represents the thymus.

Lymphadenitis, especially simple cases, are typically treated with healing over time. More severe cases caused by infection may be treated by antibiotics or other prescribed medications, as well as potential surgery to drain excess lymphatic fluid. Lymphadenitis presents with swollen lymph nodes, tenderness in the area, redness around the infected sites, and excess fluid buildup (Johns Hopkins Medicine. *Lymphadenitis* (2019)).

Overall, lymphadenitis is not deadly, but the disease that follows suit may be. It is important to be aware of changes in the lymphatic. Once a disease has reached the lymphatic system, it is possible that it will spread quickly and cause a severe reaction with detrimental consequences.

Sources

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