Spleen Histophysiology Encyclopedia Article

Spleen Histophysiology

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Spleen Histophysiology

The spleen is not only a lymphoid organ, but is also the largest one in which lymphocytes and **plasma** cells are formed. The spleen belongs to the **reticulo-endothelial system** that removes from the circulation old red **blood** cells and other impurities in the blood. The spleen is located below the **diaphragm** on the left side of the **abdomen**, almost completed surrounded by the stomach and the **peritoneum**. The splenetic structure is similar to that of the lymph nodes, and is covered by a serous membrane containing a fibromuscular capsule with central elongations known as pulp trabeculae that radiate from the hilus through the organ, forming a mesh of fibrous bands. The splenic pulp is constituted by the white and red pulps. Between the trabeculae, there are islands of the white pulp, composed of white blood cells and the ramifications of the splenic artery that supply the spleen with blood. The red pulp consists of the sustaining reticulum and a dense web of venous **capillaries** surrounded by venous sinuses.

The spleen functions as a blood reservoir that admits more blood into circulation by contraction under adrenergetic stimulation, and stores blood in two different locations: the venous sinuses and the red pulp. The venous sinuses receive blood directly from the capillaries, swelling as they are filled up while the red pulp is supplied via the trabeculae that trap the blood that oozes out the highly permeable capillary walls. In the red pulp, the red blood cells (**erythrocytes**) are retained as the plasma flows into the venous sinuses, and are returned to circulation. Phagocytic cells of the reticulo-endothelial system line the venous sinuses and are also present inside the pulp, where they remove from the blood damaged red blood cells, **bacteria**, and other pathogens, as well as cellular debris.

Like the lymph glands, the spleen can also enlarge in order to gain function in the presence of **infection**. The spleen is one of the lymphogenous **organs** where lymphocytes and plasma cells are formed. The other lymphogenous organs are: the thymus, the lymph glands, the **tonsils**, as well as the many islands of lymphoid **tissue** present in the bone marrow and under the intestinal epithelial walls.