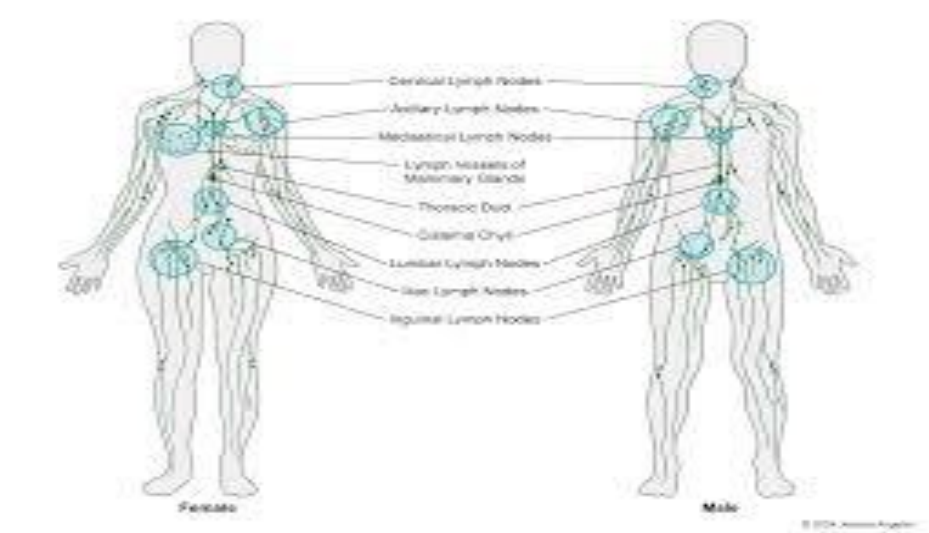
University of Anbar
College of Dentistry
Department of Basic Sciences
Practical Histology (2024-2025)

Lab 8-9

Lymphatic system



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The Lymphatic System

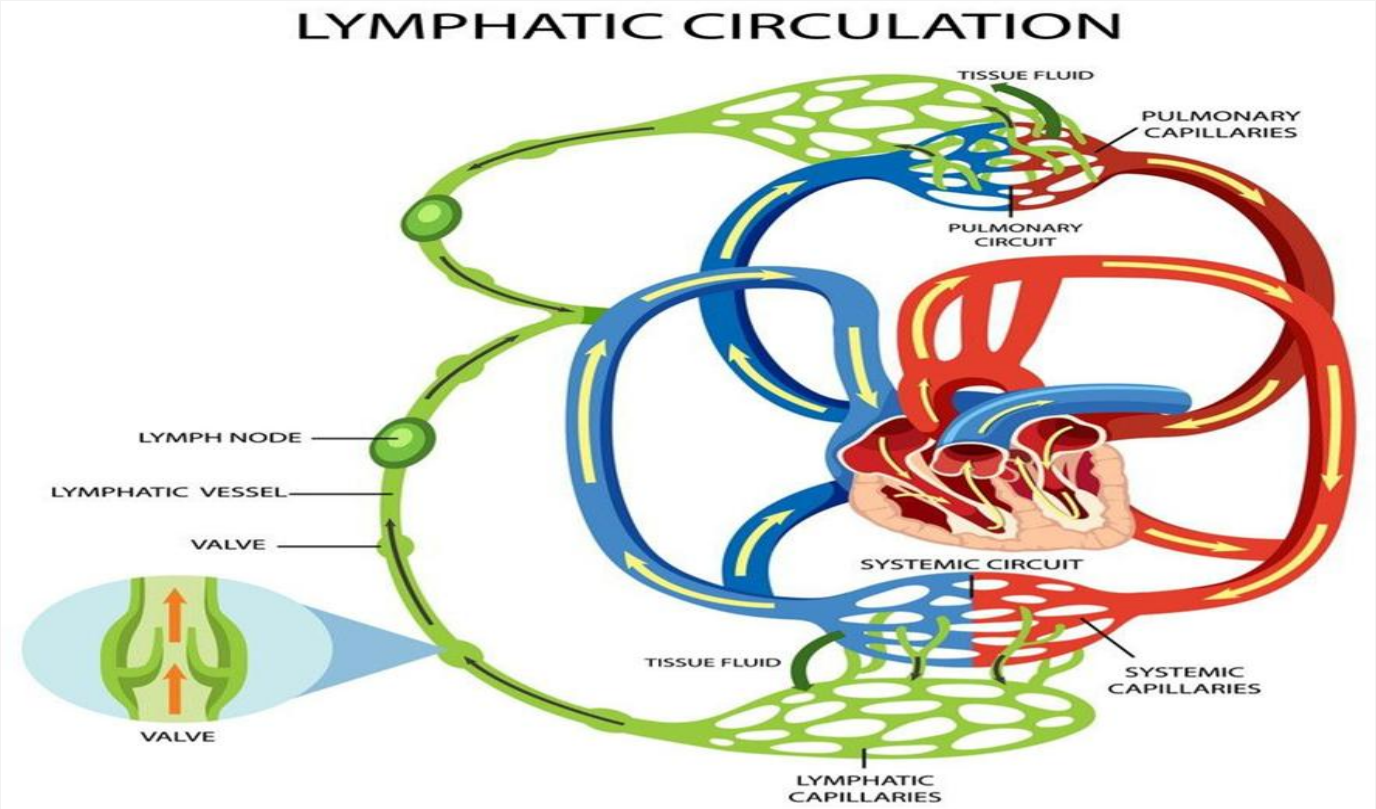
The lymphatic system, also known as the **lymphoid system**, is an integral component of the circulatory system. It is composed of:

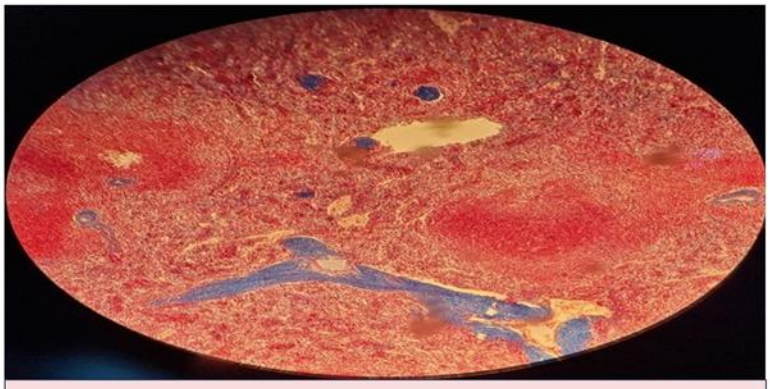
- **Lymph**
- **Lymphatic vessels and plexuses**
- **Lymph nodes**
- **Lymphatic cells**
- **Various lymphoid organs**

In addition to the blood vasculature, the body contains a network of **very thin-walled lymphatic capillaries**. These capillaries collect **excess interstitial fluid** from tissue spaces, forming **lymph**, and return it to the bloodstream.

Lymph is similar in composition to interstitial fluid:

- It is usually rich in **lightly staining proteins**.
- It **does not normally contain red blood cells**.
- It may contain **lymphocytes** and other **white blood cells** under normal conditions.

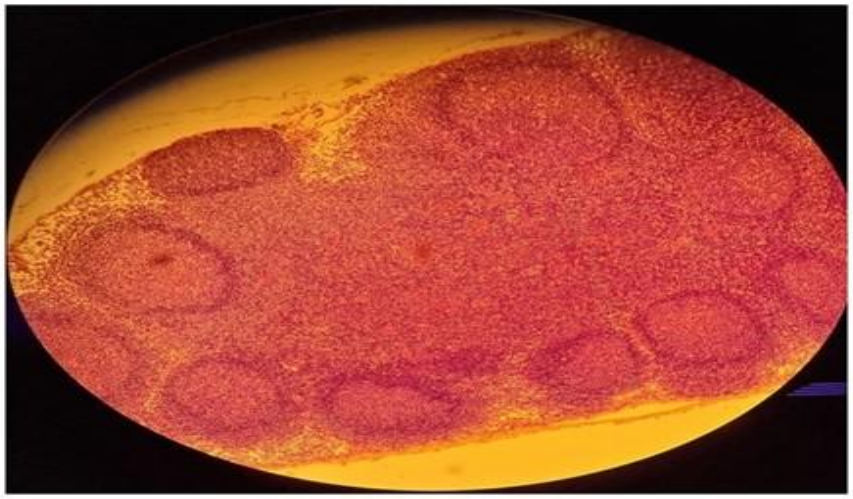




Spleen sec.

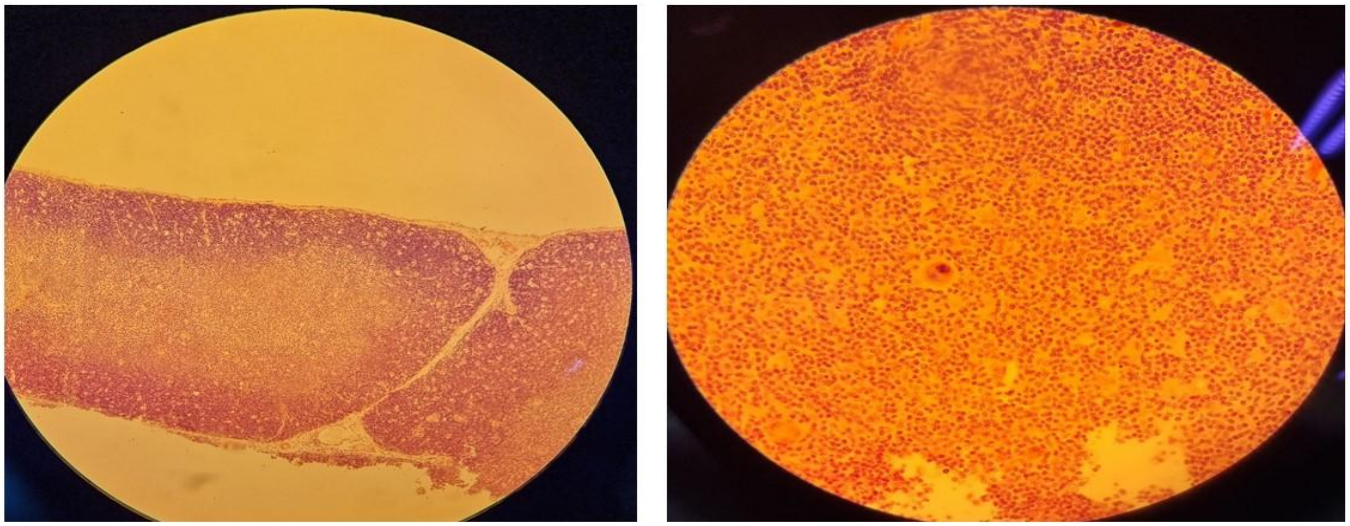
This image shows a histological section of the spleen, featuring distinct **red pulp** and **white pulp** regions.

- The **white pulp** appears as circular or oval lymphoid nodules, primarily composed of lymphocytes around central arteries.
- The **red pulp** surrounds these areas and consists of splenic cords and sinusoids, involved in filtering blood and recycling red blood cells.



Lymphatic stretched preparation

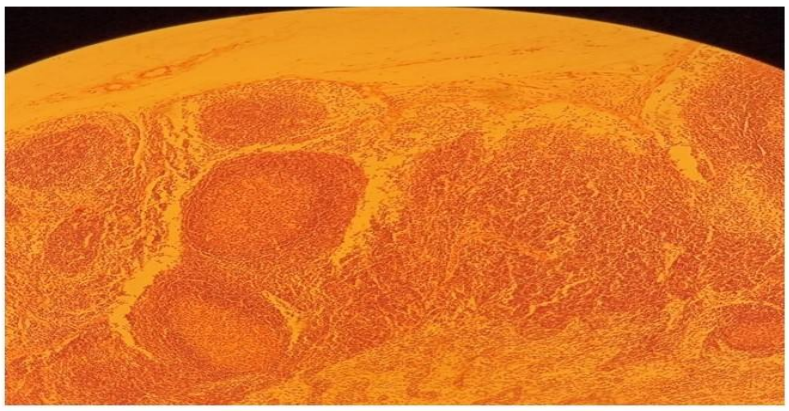
This image shows a stretched preparation of lymphatic tissue, revealing multiple **lymphoid follicles**.
These follicles appear as rounded structures with densely packed lymphocytes, some containing lighter **germinal centers** where active cell proliferation occurs. This arrangement reflects the lymph node's role in immune response and lymph filtration.



Thymus gland

This image shows histological sections of the **thymus gland**.

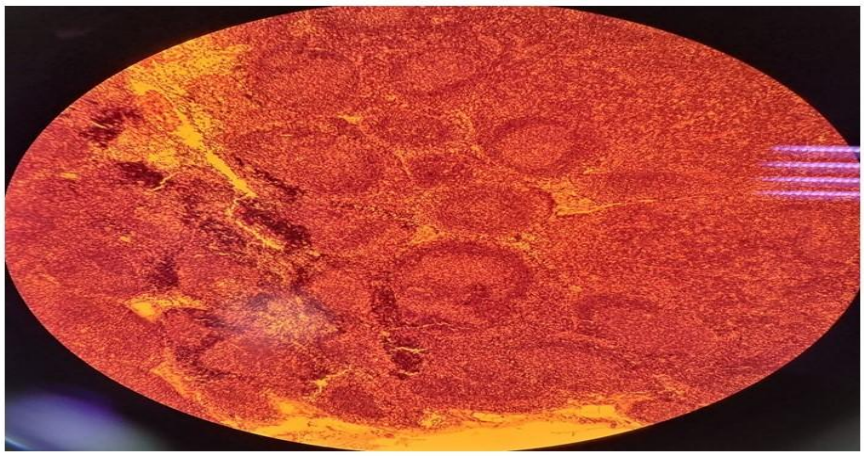
- The section reveals distinct **lobules** separated by connective tissue septa.
- Each lobule has a darker-staining **cortex** rich in immature T-lymphocytes and a lighter **medulla** containing fewer lymphocytes and **Hassall's corpuscles**—concentric epithelial structures unique to the thymus



Lymph node sec.

is image shows a histological section of a **lymph node**.

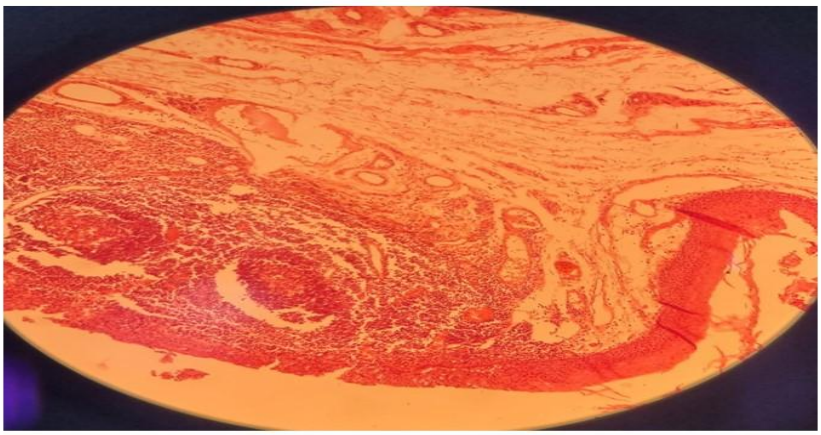
- The outer **cortex** contains multiple **lymphoid follicles**, some with pale **germinal centers** indicating active lymphocyte proliferation.
- The inner **medulla** consists of medullary cords and sinuses, which facilitate the filtration of lymph and the activation of immune responses.
  The lymph node functions as a key site for immune cell activation and pathogen defense



Lymph gland sec.

This image shows a histological section of a **lymph gland (lymph node)**.

- The section displays numerous **lymphoid follicles** with densely packed lymphocytes.
- Some follicles contain lighter **germinal centers**, indicating sites of active immune cell proliferation.
- The surrounding tissue supports lymph filtration and immune surveillance, highlighting the gland's role in defending against pathogens



Palate tonsil sec.

This image shows a histological section of the **palatine tonsil**.

- It features **lymphoid follicles** with prominent germinal centers, indicating active immune cell production.
- The surface is lined by **stratified squamous epithelium**, which may be infiltrated by lymphocytes.
- Deep **tonsillar crypts** are present, increasing the surface area for antigen capture.
  The palatine tonsil plays an essential role in initiating immune responses to inhaled or ingested pathogens.