OVERVIEW of the LYMPHATIC SYSTEM

The lymphatic system is a series of vessels, structures, and organs that collect fluid throughout the body and return it to the main circulation for redistribution. The system also contains cells known as lymphocytes, which function in the immune process. In this plate, we examine the anatomy of the lymphatic system and its presence throughout the body. The plate also serves as an introduction to the following plates that detail portions of the system.

This plate is a diagram of the lymphatic system's distribution throughout the body. We point out the major structures and organs of the system, while noting their diverse locations. We also illustrate the two main body regions drained by the two major vessels of the lymphatic system. Spots of color will be most useful, since the lymph nodes are pockets of tissue that make up the bulk of the system. As you encounter anatomical structures in the following paragraphs, locate their titles and locations on the diagram. Use light colors in this plate. Color the main title Overview Of The Lymphatic System.

The fluid draining through the lymphatic system is lymph. It is a clear fluid somewhat similar to the plasma portion of the blood but without many of the larger proteins. The lymphatic system returns lymph to the circulation by means of two major vessels. The first is the left lymphatic duct, also known as the **thoracic duct (A)**. It can be seen near the midline as well as in the mediastinum in the plate. The left lymphatic duct begins as dilations called the **cisterna chyli (A_1)**, which are close to the second lumbar vertebra.

The left lymphatic (thoracic) duct receives blood from the left side of the head as well as the left portion of the neck and chest, the left upper limb, and the entire body below the level of the ribs. The thoracic duct empties into the **left subclavian vein (b_2)** (near the internal jugular vein). Color this portion in the small diagram to note the area drained.

The second major duct of the lymphatic system is the **right lymphatic duct (B)**. The right lymphatic duct empties its contents into the right subclavian vein (near the right internal jugular vein) to return the lymph to the circulation. The left lymphatic duct, by comparison, empties its lymph into the **left subclavian vein (b_2)**.

Having noted the main drainage areas for the two main lymphatic vessels, we now focus on the lymph nodes, which are pockets of lymphatic tissue. Note that these organs are found in numerous areas of the body. Continue your reading, and use spots of color to denote the various lymph nodes. In addition, color the titles as you read about the structures.

The vessels of the lymphatic system pass through small lymphatic structures known as lymph nodes. These oval organs contain the cells of the immune system and have phagocytes for engulfing foreign organisms and debris in the lymph. In the pharyngeal area, the tonsils are considered lymph node. The **palatine tonsil (C)** is shown in the plate. Other tonsils are the lingual tonsils.

Various lymph nodes can be found along lymphatic vessels. The **submandibular lymph nodes (D_1)** are located beneath the mandible. The **cervical lymph nodes (D_2)**, found in the neck region, drain the head area. **Axillary lymph nodes (D_3)** are in the armpit region, and the **mammary lymph nodes (D_4)** are located close to the mammary glands in the female.

Many thoracic lymph nodes are found close to the thoracic duct, and a collection of lymph nodes called **Peyer's patches (D_5)** are located in the wall of the **small intestine (c)**. Also in the abdomen, near the major blood vessels are the **iliac lymph nodes (D_6)**, which drain lymph coming from the legs. The **inguinal lymph nodes (D_7)** are located near the groin area to drain the perineum area, and **intestinal lymph nodes (D_8)** are found near the **large intestine (d)**. These organs receive lymph through the numerous **lymphatic vessels (E)** which are shown in the leg in the plate. Other **lymphatic vessels (E)** are shown in the arm.

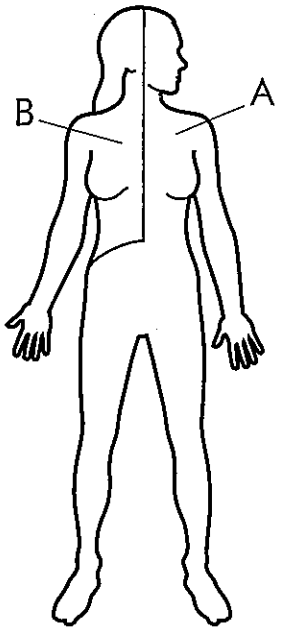
There are many other organs of the lymphatic system in addition to those mentioned. These organs all contain the immune system cells and phagocytes. As the organs are mentioned briefly, use color to indicate their presence in the plate. Continue reading as you color.

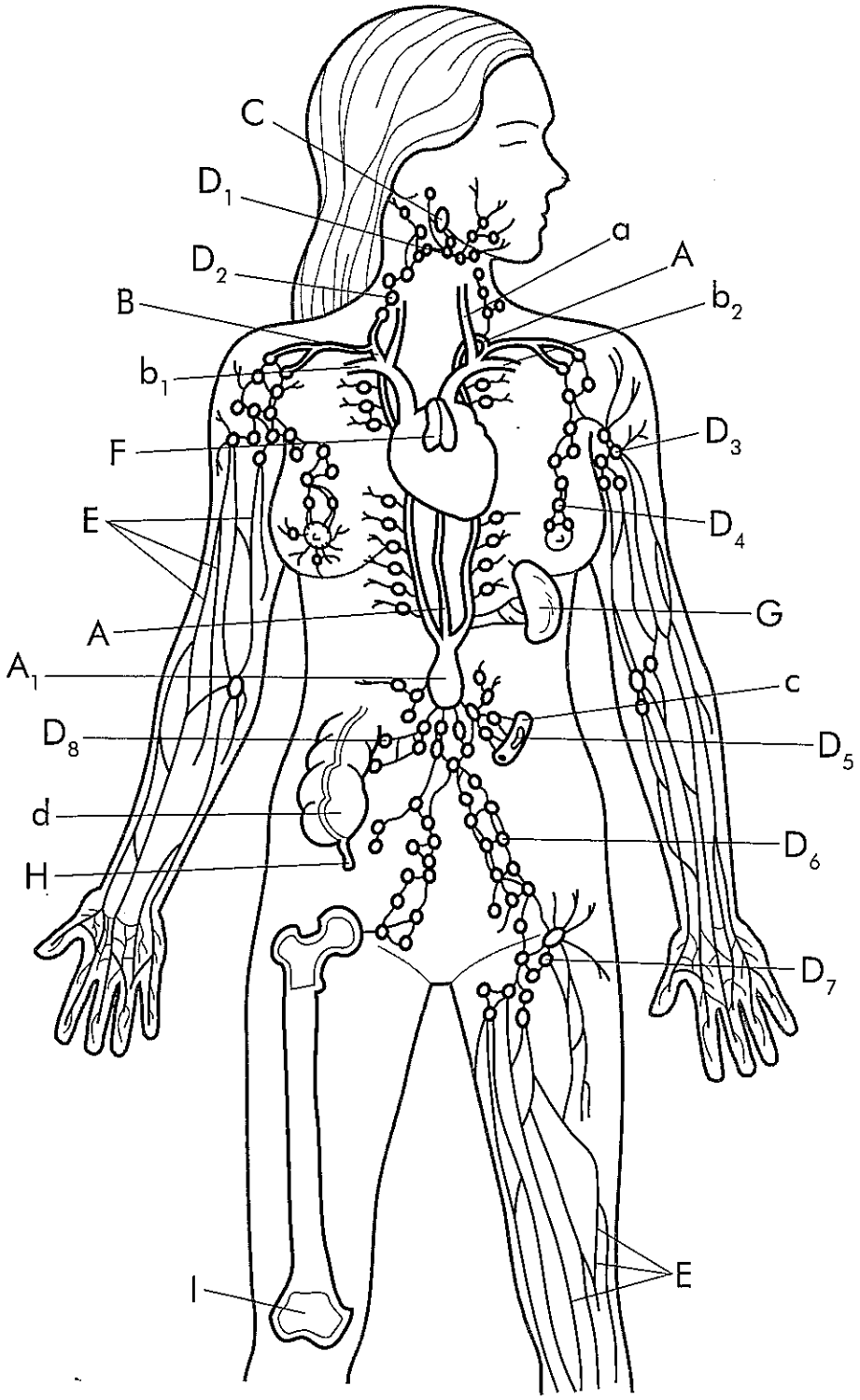
In the very young individual, the **thymus gland (F)** is prominent in the mediastinum. Within this organ, the T-lymphocytes of the immune system mature before moving to the lymph nodes. The gland atrophies in the teenage years and is quite small in the adult.

Near the stomach and pancreas on the left side of the body is the **spleen (G)**. Also a lymphatic organ, the spleen contains the B-lymphocytes and T-lymphocytes of the immune system discussed in an upcoming plate. The **appendix (H)** is associated with the lymphatic system because many phagocytic white blood cells remain here and engulf debris in the digestive contents. The **bone marrow (I)** is associated with the lymphatic system because lymphocytes originate here before later moving to the lymph nodes.

OVERVIEW OF THE LYMPHATIC SYSTEM

Thoracic duct	A	O
Cisterna chyli	A_1	O
Right lymphatic duct	B	O
Palatine tonsil	C	O
Submandibular lymph nodes	D_1	O
Cervical lymph nodes	D_2	O
Axillary lymph nodes	D_3	O
Mammary lymph nodes	D_4	O





Peyer's patches	D_5	O
Iliac lymph nodes	D_6	O
Inguinal lymph nodes	D_7	O
Intestinal lymph nodes	D_8	O
Lymphatic vessels	E	O
Thymus gland	F	O
Spleen	G	O
Appendix	H	O
Bone marrow	I	O
Internal jugular vein	a	O
Right subclavian vein	b_1	O
Left subclavian vein	b_2	O
Small intestine	c	O
Large intestine	d	O