

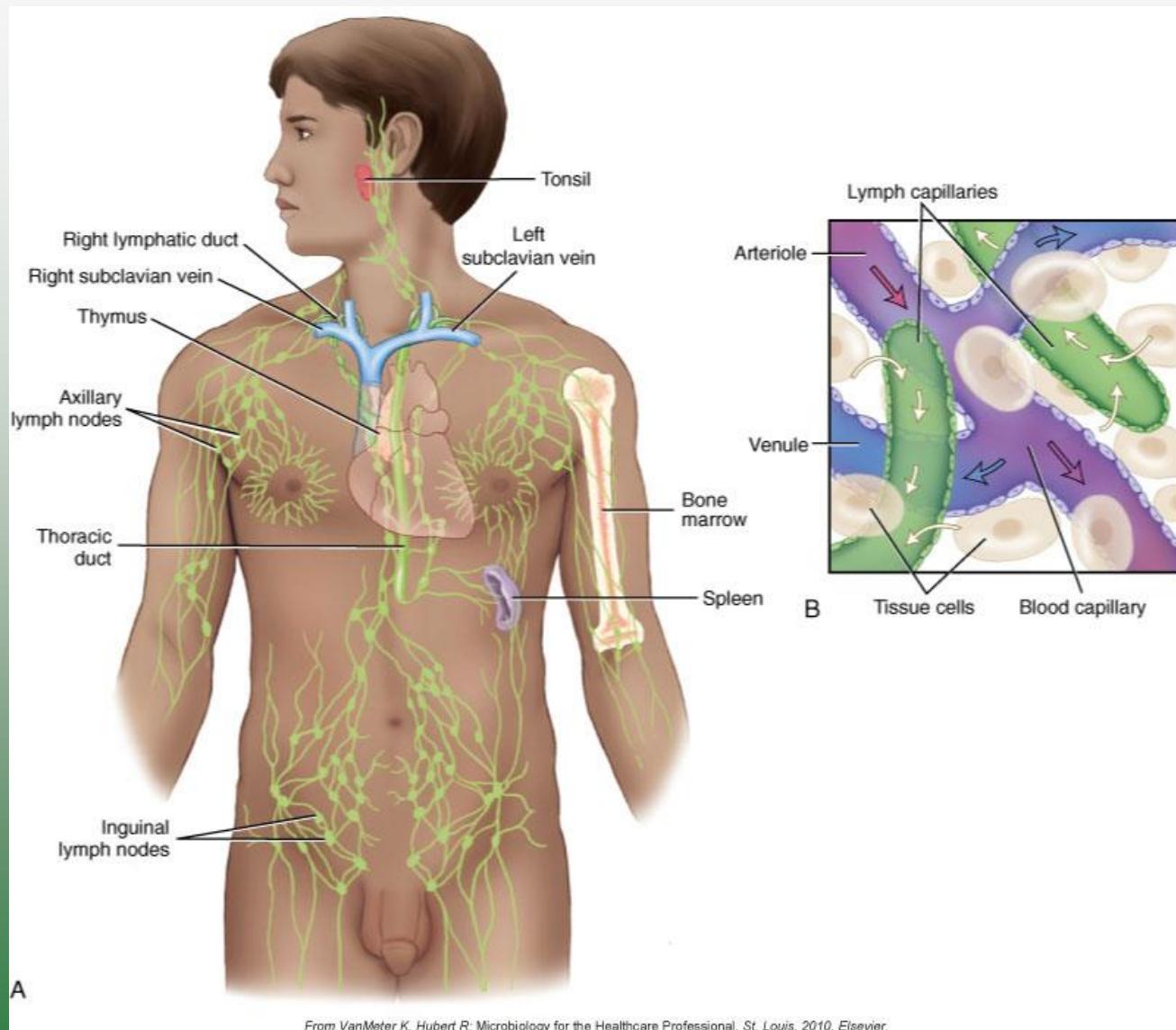
Chapter 11

Lymphatic System Disorders

Review of the Lymphatic System

Structures

- Lymphatic vessels
- Lymphoid tissue
- Lymphatic nodules
- Tonsils
- Lymph nodes
- Spleen
- Thymus gland
- Red bone marrow



From VanMeter K, Hubert R: *Microbiology for the Healthcare Professional*, St. Louis, 2010, Elsevier.

Function

- Return of excess interstitial fluid to the cardiovascular system
 - Vessels empty into the subclavian veins.
- Filter and destroy foreign material
 - Initiate the immune response
- Absorb lipids from the GI tract

Lymphatic Vessels

- Originate as capillaries in contact with blood capillary bed in tissues
- Lymph collected by lymphatic trunks
- Lymphatic trunks empty into ducts
 - Left side bigger and known as “thoracic duct”
- Ducts empty into the subclavian veins

Lymph

- Clear, watery, isotonic fluid
- Circulates in lymphatic vessels
- Resembles blood plasma, with a lower protein content
- Returned to the cardiovascular system

Lymphatic Disorders

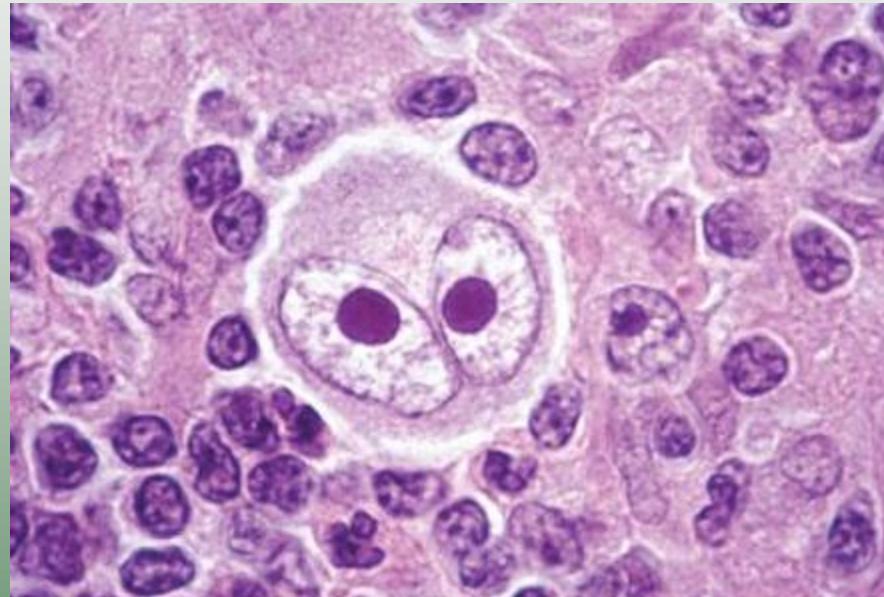
Lymphomas

- Malignant neoplasms involving lymphocyte proliferation in lymph nodes
- Specific causes not identified
 - Higher risk in adults who received radiation during childhood
- Two main disorders
 - Hodgkin's lymphoma
 - Non-Hodgkin's lymphoma
 - Distinguished by multiple node involvement
 - Nonorganized, with widespread metastases

Hodgkin's Lymphoma

- Initially involves a single lymph node
- Cancer spreads to adjacent nodes
 - To organs via lymphatics
 - T lymphocytes seem to be defective; lymphocyte count decreased
 - Presence of Reed-Sternberg cells
 - Giant cells present in lymph node
 - Four subtypes
 - Based on cell found at biopsy

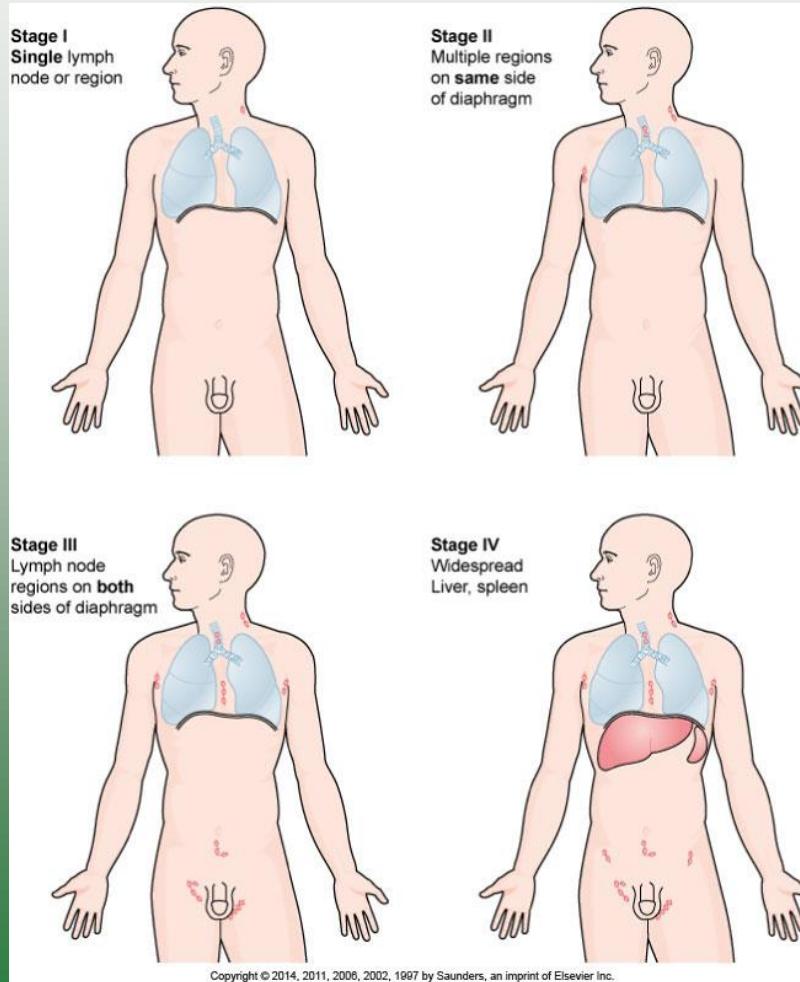
Reed-Sternberg Cell



Hodgkin's Lymphoma (Cont.)

- Symptoms
 - First indicator—usually a painless enlarged lymph node
 - Later—splenomegaly and enlarged lymph nodes
 - General signs of cancer
 - Weight loss, anemia, low-grade fever, night sweats; fatigue may develop.
- Treatment
 - Radiation, chemotherapy, surgery

Hodgkin's Lymphoma (Cont.)



Hodgkin's Lymphoma (Cont.)

- Staging and prognosis dependent on:
 - Number of nodes involved
 - Location of nodes involved

Non-Hodgkin's Lymphoma

- Complex collection of many types of lymphoma (very detailed classification).
- Highly technical diagnostic procedures.
 - Flow cytometry an important tool.
- Individualized treatments.
- Chemotherapy, Radiation, Bone marrow transplant.

Lymphedema

- Obstruction of lymphatic vessels
- Most common form is congenital
- Extremities swell because of lymph accumulation
- Treatment:
 - Diuretics
 - Bed rest
 - Massage of affected area
 - Elevation of affected extremity

Elephantiasis

- Lymphedema
 - Caused by blockage because of parasitic infection
- Significant swelling of affected extremity
 - Extreme swelling of legs, breast, and/or genitalia
 - Thickening of subcutaneous tissue
 - Frequent infections
 - Skin ulcerations
 - Fever
- Treatment—medication regimen to kill parasite





Elephantiasis of the scrotum.

