chapter 14
Chapter Fourteen
MULTIPLE CHOICE QUIZ

In the box write the letter of the choice that is the definition of the term or best answers the question. There is only one correct answer for each question.

1. **Formation of lymph:**
   A. Lymphocytopenia
   B. Lymphadenitis
   C. Lymphedema
   D. Lymphopoiesis
   E. Lymphoid

2. **Interstitial fluid contains or is:**
   A. Antibodies produced by white blood cells
   B. Red and white blood cells
   C. Found in the spaces between cells and becomes lymph when it enters lymph capillaries
   D. Connective tissue
   E. Blood clotting factors

3. **All of the following are part of the immune system EXCEPT:**
   A. Lymphocytes
   B. Platelets
   C. Monocytes
   D. Phagocytes
   E. Antibodies

4. **All of the following describe areas of lymph node concentration EXCEPT:**
   A. inguinal
   B. axillary
   C. bone marrow
   D. mediastinal
   E. cervical

5. **B cells, plasma cells, and antibodies are part of:**
   A. Lymphocytosis
   B. Cytotoxic immunity
   C. Growth factor biology
   D. Cell-mediated immunity
   E. Humoral immunity

6. **Helper or suppressor cells are types of:**
   A. B cells
   B. T cells
   C. Platelets
   D. Antigens
   E. Antibiotics

7. **Examples of immunoglobulins:**
   A. IgA, IgG, IgE
   B. Monocytes
   C. Lymphocytes
   D. Hepatocytes
   E. Clotting factors

8. **Oropharyngeal lymph tissue:**
   A. Spleen
   B. Thymus
   C. Bone marrow
   D. Tonsils
   E. Adenoids

9. **Mediastinal T cell producer:**
   A. Spleen
   B. Thymus
   C. Bone marrow
   D. Tonsils
   E. Adenoids

10. **Nasopharyngeal lymph tissue:**
    A. Spleen
    B. Thymus
    C. Bone marrow
    D. Tonsils
    E. Adenoids

11. **Abdominal organ that filters erythrocytes and activates lymphocytes:**
    A. Spleen
    B. Thymus
    C. Bone marrow
    D. Tonsils
    E. Adenoids

12. **Produces lymphocytes and monocytes and all other blood cells:**
    A. Spleen
    B. Thymus
    C. Bone marrow
    D. Tonsils
    E. Adenoids
Chapter 14  ■  MULTIPLE CHOICE QUIZ

13. Cytotoxic cells are: ............................
   A. B cell lymphocytes
   B. T cell lymphocytes
   C. Platelets
   D. Thrombocytes
   E. Eosinophils

14. Interferons and interleukins are:...........
   A. Gamma globulins
   B. Interstitial fluid
   C. Antiviral proteins produced by T cell lymphocytes
   D. Produced by B cell lymphocytes
   E. Helper cells

15. Slight increase in numbers of lymphocytes: ......................................
   A. Lymphocytopenia
   B. Lymphopoiesis
   C. Lymphoid
   D. Lymphocytosis
   E. Lymphedema

16. Pertaining to poison: ......................
   A. Necrotic
   B. Hypoxic
   C. Cyanotic
   D. Toxic
   E. Stenotic

17. Computerized x-ray imaging in the transverse plane: ..........................
   A. CT scan
   B. Lymphangiogram
   C. Ultrasonography
   D. MRI
   E. Lymphadenectomy

18. HIV is: ............................................
   A. A malignancy associated with AIDS
   B. A drug used to treat AIDS
   C. The virus that causes AIDS
   D. The test used to detect AIDS
   E. A type of lymphoma

19. Malignant tumor of lymph nodes: ....
   A. Sarcoidosis
   B. Lymphedema
   C. Hodgkin disease
   D. Hypersplenism
   E. Lymphocytopenia

20. Viral infection causing blisters on skin of lips, nose, or genitals: ........
   A. Kaposi sarcoma
   B. Herpes simplex
   C. Cryptococcus
   D. Toxoplasmosis
   E. Pneumocystis carinii pneumonia

21. Cancer arising from the lining cells of capillaries, producing bluish-red skin nodules: ......................
   A. Kaposi sarcoma
   B. Herpes simplex
   C. Cryptococcus
   D. Toxoplasmosis
   E. Pneumocystis carinii pneumonia

22. Major lung infection with fever, cough, chest pain, and sputum. Treatment is with Bactrim: ......................
   A. Kaposi sarcoma
   B. Herpes simplex
   C. Cryptococcus
   D. Toxoplasmosis
   E. Pneumocystis carinii pneumonia

23. Protozoan (parasitic) infection associated with AIDS. Produces pneumonitis, hepatitis, and encephalitis: ......................
   A. Kaposi sarcoma
   B. Herpes simplex
   C. Cryptococcus
   D. Toxoplasmosis
   E. Pneumocystis carinii pneumonia

24. Fungal infection associated with AIDS. Involves brain and meninges, lungs, and skin: ......................
   A. Kaposi sarcoma
   B. Herpes simplex
   C. Cryptococcus
   D. Toxoplasmosis
   E. Pneumocystis carinii pneumonia

25. Atopy is:........................................
   A. An early stage of AIDS
   B. A hypersensitivity or allergic state
   C. A type of lymphoma
   D. A disease found in tropical areas
   E. Acute infectious disease caused by Epstein-Barr virus
Chapter Fourteen

EXERCISE QUIZ

Name: ______________________________

The questions on this quiz have all been taken from the exercises at the end of this chapter.

A. Give the name of the structure or fluid from its meaning below:

1. Stationary lymph tissue along the path of lymph vessels _____________________________
2. Large thoracic lymph vessel draining lymph from lower and left side of the body ______________
3. Organ near the stomach that produces, stores, and eliminates blood cells ________________
4. Mass of lymph tissue in the nasopharynx _____________________________________________
5. Organ in the mediastinum that produces T cell lymphocytes ___________________________
6. Tiniest of lymph vessels ___________________________________________________________
7. Large lymph vessel in the chest that drains lymph from right upper part of the body __________
8. Fluid that lies between cells and becomes lymph as it enters lymph capillaries ______________

B. Give the locations of the following lymph nodes:

9. inguinal nodes _______________________ 11. cervical nodes _________________________
10. axillary nodes _______________________ 12. mediastinal nodes _______________________

C. Match the term in Column I with its description in Column II

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. immunoglobulins</td>
<td>A. T-cell lymphocytes that inhibit the activity of B cell lymphocytes.</td>
</tr>
<tr>
<td>14. toxins</td>
<td>B. Antibodies—IgG, IgE, IgM, IgD.</td>
</tr>
<tr>
<td>15. helper T cells</td>
<td>C. T-cell lymphocytes; aid B cells and antibody production; T4 cells.</td>
</tr>
<tr>
<td>16. cytotoxic cells</td>
<td>D. Poisons (antigens).</td>
</tr>
<tr>
<td>17. interferons</td>
<td>E. T-cell lymphocytes that directly kill foreign cells; T8 cells.</td>
</tr>
<tr>
<td>18. plasma cells</td>
<td>F. Anti-viral proteins secreted by T cells.</td>
</tr>
<tr>
<td>19. suppressor T cells</td>
<td>G. Transformed B cells that secrete antibodies.</td>
</tr>
</tbody>
</table>
D. **Build medical terms:**

20. removal of the spleen ________________________________

21. inflammation of lymph glands (nodes) ________________________________

22. tumor of the thymus gland ________________________________

23. disease of lymph glands (nodes) ________________________________

24. formation of lymph ________________________________

25. deficiency of lymph cells ________________________________

26. pertaining to poison ________________________________

27. enlargement of the spleen ________________________________

E. **Match the following terms with their meanings below:**

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS</td>
<td>syndrome marked by enlargement of the spleen and associated with anemia, leukopenia, and anemia</td>
</tr>
<tr>
<td>allergen</td>
<td>an antigen capable of causing allergy (hypersensitivity)</td>
</tr>
<tr>
<td>anaphylaxis</td>
<td>an extraordinary hypersensitivity to a foreign protein; marked by hypotension, shock, respiratory distress</td>
</tr>
<tr>
<td>Hodgkin disease</td>
<td>disorder in which the immune system is suppressed by exposure to HIV</td>
</tr>
<tr>
<td>hypersplenism</td>
<td>removal of a mediastinal organ</td>
</tr>
<tr>
<td>lymphoid organs</td>
<td>malignant tumor of lymph nodes and spleen marked by Reed-Sternberg cell identified in lymph nodes</td>
</tr>
<tr>
<td>lymphedema</td>
<td>tissues that produce lymphocytes—spleen, thymus, tonsils, and adenoids</td>
</tr>
<tr>
<td>thymectomy</td>
<td>swelling of tissues due to interstitial fluid accumulation</td>
</tr>
</tbody>
</table>

F. **Give meanings for the following terms or abbreviations:**

36. HIV ________________________________

37. Histo ________________________________

38. KS ________________________________

39. PCP ________________________________

40. CT scan ________________________________

41. Toxo ________________________________
G. Circle the correct answer in the following sentences:

42. An immune response in which B cells transform into plasma cells and secrete antibodies is known as (cell-mediated, humoral) immunity.

43. Lymphocytes, formed in the thymus gland, that act on antigens are (B cells, T cells, macrophages).

44. An immune response in which T cells destroy antigens is called (cell-mediated, humoral) immunity.

45. Lymphocytes that transform into plasma cells and secrete antibodies are called (B cells, T cells).

H. Match the following terms with their meanings below:

<table>
<thead>
<tr>
<th>ELISA</th>
<th>helper T cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>immunoelectrophoresis</td>
<td>zidovudine</td>
</tr>
<tr>
<td>opportunistic infections</td>
<td></td>
</tr>
</tbody>
</table>

46. white blood cells that are destroyed by HIV

47. test to separate immunoglobulins

48. drug used to treat AIDS by blocking the growth of AIDS virus

49. test used to detect anti-HIV antibodies

50. group of infectious diseases associated with AIDS
Chapter Fourteen

Dictation and Comprehension Quiz

Name: __________________

A. Dictation of Terms

1. ____________________________________ 11.  ______________________________________
2. ____________________________________ 12.  ______________________________________
3. ____________________________________ 13.  ______________________________________
4. ____________________________________ 14.  ______________________________________
5. ____________________________________ 15.  ______________________________________
6. ____________________________________ 16.  ______________________________________
7. ____________________________________ 17.  ______________________________________
8. ____________________________________ 18.  ______________________________________
9. ____________________________________ 19.  ______________________________________
10. ____________________________________ 20.  ______________________________________

B. Comprehension of Terms: Match the number of the above term with its meaning below.

_____ Malignant tumor associated with AIDS; appears as bluish-red skin nodules
_____ Hypersensitive or allergic state involving hereditary predisposition
_____ Disease condition of lymph nodes
_____ Enlargement of the spleen
_____ Collection of lymph tissue in the groin
_____ Substance capable of causing a specific hypersensitivity reaction in the body
_____ A drug that is used to treat AIDS by blocking the production of an enzyme
_____ An exaggerated or unusual hypersensitivity to a foreign protein
_____ Immune response in which B cells transform into plasma cells and secrete antibodies
_____ Antiviral proteins secreted by T cells
_____ Malignant tumor of a gland in the chest
_____ Found within lymphatic vessels and surrounding tissues throughout the body
_____ Lymphatic tissue in the oropharynx
_____ Collection of lymph tissue under the arm (armpit)
_____ Immune response involving T-cell lymphocytes
_____ Malignant tumor of lymph nodes and tissue
_____ Antibodies such as IgG, IgA, IgD that are secreted by plasma cells
_____ Introduction of altered antigens to produce an immune response
_____ Repression of the immune response
_____ Fluid collects within the spaces between cells secondary to lymph vessel obstruction
A. Circle the term that is spelled correctly and write its meaning:

1. mackrophage  macrophage
2. lypmh  lymph
3. immunoglobulins  immunoglobins
4. alergy  allergy
5. inguinal nodes  ingiunal nodes
6. anaphylaxis  anaphilaxis
7. Hodgkin disease  Hodgkin disease
8. axilliary nodes  axillary nodes
9. lymphosytopenia  lymphocytopenia
10. splenectomy  spleenectomy

B. Circle the term that is spelled correctly. The meaning of each term is given.

11. organ in the chest that produces T cells  thymus gland
12. fluid in the spaces between cells  intrastitial fluid
13. collection of fluid in tissues  lymphedema
14. proteins that stimulate the growth of T cells  interleukins
15. masses of lymph tissue in the nasopharynx  adenoids
16. introduction of altered antigens to produce an immune response  vaccination
17. inflammation of tonsils  tonsillitis
18. formation of lymph  lymphopoiesis
Chapter Fourteen

PRONUNCIATION QUIZ

Name: ______________________________

A. Underline the accented syllables in the following terms:

1. immunology 4. lymphedema 7. macrophage 10. lymphadenopathy
2. hypersensitivity 5. interstitial fluid 8. anaphylaxis

B. Match the term in Column I with its meaning in Column II:

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. anaphylaxis</td>
<td>A. Mass of lymph tissue in the nasopharynx.</td>
</tr>
<tr>
<td>2. AIDS</td>
<td>B. Syndrome marked by enlargement of the spleen.</td>
</tr>
<tr>
<td>3. cervical nodes</td>
<td>C. Suppression or deficiency of the immune response caused by exposure to HIV.</td>
</tr>
<tr>
<td>4. adenoids</td>
<td>D. A hypersensitivity or allergic state involving an inherited predisposition.</td>
</tr>
<tr>
<td>5. interferons</td>
<td>E. Exaggerated hypersensitivity reaction.</td>
</tr>
<tr>
<td>6. macrophage</td>
<td>F. Antibodies secreted by plasma cells.</td>
</tr>
<tr>
<td>8. hypersplenism</td>
<td>H. Lymph nodes in the neck.</td>
</tr>
<tr>
<td>9. atopy</td>
<td>I. Malignancy of lymph nodes.</td>
</tr>
<tr>
<td>10. immunoglobulins</td>
<td>J. Large phagocyte found in lymph nodes.</td>
</tr>
</tbody>
</table>

C. Complete the following terms using the definitions given:

1. _____________________________ ectomy Removal of the spleen.
2. _____________________________ oma Tumor of the thymus gland.
3. _____________________________ gram Record (x-ray) of lymph vessels.
4. ____________________________ infections Infectious diseases associated with AIDS.
5. lympho ________________________ Formation of lymph.
6. _____________________________ ic Pertaining to poison.
7. ____________________________ immunity Immune response in which B cells transform into plasma cells and secrete antibodies.
8. ____________________________ immunity Immune response involving T-cell lymphocytes.
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ABBREVIATIONS QUIZ

Name: ______________________________

Spell out the abbreviation in Column I and then match each abbreviation with an associated explanation in Column II:

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HD</td>
<td>A. Combination of drugs effective against AIDS.</td>
</tr>
<tr>
<td>2. HIV</td>
<td>B. Lymphocytes that recognize and destroy foreign antigens.</td>
</tr>
<tr>
<td>3. MOAB</td>
<td>C. Causes small blisters on skin, lips, and genitals and is an opportunistic infection associated with AIDS.</td>
</tr>
<tr>
<td>4. RTI</td>
<td>D. Malignancy associated with AIDS.</td>
</tr>
<tr>
<td>5. NK cells</td>
<td>E. Malignancy of lymph nodes and spleen; Reed-Sternberg cell is identified in bone marrow.</td>
</tr>
<tr>
<td>6. HSV</td>
<td>F. Proteins (cytokines) that stimulate growth of B- or T-cell lymphocytes.</td>
</tr>
<tr>
<td>7. HAART</td>
<td>G. Virus that causes AIDS.</td>
</tr>
<tr>
<td>8. IgE</td>
<td>H. Drug that destroys an enzyme necessary for the AIDS virus to replicate.</td>
</tr>
<tr>
<td>9. IL 1–15</td>
<td>I. Proteins produced in a laboratory by cloning techniques; can be toxic to tumor cells.</td>
</tr>
<tr>
<td>10. KS</td>
<td>J. Proteins produced naturally by B-cell lymphocytes in response to antigen stimulation.</td>
</tr>
</tbody>
</table>
Label the diagram below using the terms listed below:

Axillary region
Cervical region
Inguinal region
Large veins in the neck
Lymph capillaries
Lymph nodes
Lymph vessels
Mediastinal region
Right lymphatic duct
Thoracic duct

Area drained by right lymphatic duct
Area drained by thoracic duct
A. Match the following terms with their meanings below:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>acquired immunity</td>
<td>axillary node</td>
</tr>
<tr>
<td>adenoids</td>
<td>B cell</td>
</tr>
<tr>
<td>antibody</td>
<td>cell-mediated immunity</td>
</tr>
<tr>
<td>antigen</td>
<td>cytokine</td>
</tr>
<tr>
<td></td>
<td>cytotoxic cell</td>
</tr>
<tr>
<td></td>
<td>cervical node</td>
</tr>
</tbody>
</table>

1. Lymph node in the neck region __________________________________________________________
2. Masses of lymphatic tissue in the nasopharynx __________________________________________
3. Lymph node in the armpit (underarm) __________________________________________________
4. Immune response involving T-cell lymphocytes __________________________________________
5. Formation of antibodies and lymphocytes after exposure to an antigen; type of immunity _________
6. T-cell lymphocyte that directly kills foreign cells _______________________________________
7. Substance that the body recognizes as foreign; evokes an immune response _________________
8. Protein made by T-cell lymphocytes to destroy foreign substances; interleukins and interferons _______________________________________________________________________
9. Lymphocyte that originates in bone marrow and transforms into a plasma cell to secrete antibodies _______________________________________________________________
10. Protein produced by B-cell lymphocytes to destroy antigens ______________________________

B. Match the following terms with their meanings below:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>dendritic cell</td>
<td>immunoglobulins</td>
</tr>
<tr>
<td>helper T cell</td>
<td>immunotherapy</td>
</tr>
<tr>
<td>humoral immunity</td>
<td>inguinal node</td>
</tr>
<tr>
<td>immune response</td>
<td>interferons</td>
</tr>
<tr>
<td></td>
<td>interstitial fluid</td>
</tr>
<tr>
<td></td>
<td>lymph capillaries</td>
</tr>
</tbody>
</table>

1. Body's capacity to resist foreign organisms and toxins; humoral and cell-mediated immunity are examples __________________________________________________________
2. Found in spaces between cells; forms lymph ________________________________________________
3. Antibodies such as IgA, IgM, IgG, IgE, IgD _________________________________________________
4. Use of immunologic knowledge and techniques to treat disease; vaccines and monoclonal antibodies ____________________________________________
5. Cell that ingests antigens and presents them to other cells; specialized macrophage ________________________________________________________________
6. Antiviral proteins (cytokines) secreted by T cells
7. Lymph node in the groin region
8. Immune response in which B cells transform into plasma cells and secrete antibodies
9. Tiniest lymphatic vessels
10. Lymphocyte that aids B cells in recognizing antigens and stimulating antibody production

C. Match the following terms with their meanings below:

macrophage  natural killer (NK) cell  T cell
mediastinal node  plasma cell  thoracic duct
monoclonal antibody  spleen  thymus gland
natural immunity

1. Lymphocyte formed in the thymus gland; acts directly on antigens or produces chemicals that destroy antigens
2. Large phagocyte found in lymph nodes and other tissues of the body
3. Lymphocyte that recognizes and destroys foreign cells by releasing cytotoxins
4. An individual’s own genetic ability to fight off disease
5. Organ that produces, stores, and eliminates blood cells
6. Lymphoid cell that secretes an antibody and originates from B-cell lymphocytes
7. Large lymphatic vessel in the chest; empties lymph into veins in the upper chest
8. Lymph node in the area between the lungs in the chest
9. Organ in the mediastinum that produces T-cell lymphocytes and aids in the immune response
10. Antibody produced in a laboratory to attack antigens; used in cancer treatment and immunotherapy
Chapter 14

REVIEW SHEET QUIZ

Name: ______________________________

A. Give meanings for the following combining forms:

1. inguin/o ________________________  5. tox/o  ___________________________________
2. thym/o _________________________  6. immun/o  ________________________________
3. axill/o __________________________  7. splen/o  __________________________________
4. cervic/o ________________________  8. lymphaden/o  _____________________________

B. Give meanings for the following suffixes and prefixes:

1. -edema _________________________  6. -oid  ____________________________________
2. -megaly ________________________  7. -pathy  ________________________________
3. -poiesis _________________________  8. inter-  ______________________________
4. -penia __________________________  9. hyper-  _____________________________
5. -phylaxis _______________________  10. retro-  _____________________________
Chapter Fourteen

OPPORTUNISTIC INFECTIONS QUIZ

Name: ___________________________

A. Match the following opportunistic infections associated with AIDS with their descriptions below:

<table>
<thead>
<tr>
<th>Opportunistic Infection</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candidiasis</td>
<td>Yeast-like fungal infection causing small blisters on the lips, nose, or genitals; (HSV).</td>
</tr>
<tr>
<td>Cryptosporidiosis</td>
<td>Yeast-like fungal infection overgrows in the mouth (thrush), respiratory tract, and skin.</td>
</tr>
<tr>
<td>Herpes simplex</td>
<td>Bacterial disease predominant in the lungs. Symptoms include fever, weight loss, anorexia, and low energy; (TB).</td>
</tr>
<tr>
<td>Mycobacterium avium intracellulare</td>
<td>Yeast-like fungal infection causes lung, brain, and blood infections; found in pigeon droppings, air, water, soil; (Crypto).</td>
</tr>
<tr>
<td>Histoplasmosis</td>
<td>Fungal infection caused by inhalation of dust contaminated with histoplasma capsulatum; symptoms include fever, chills and lung infection; (Histo).</td>
</tr>
<tr>
<td>Pneumocystis carinii pneumonia</td>
<td>One-celled organism causes lung infection with fever, cough, and chest pain; (PCP).</td>
</tr>
<tr>
<td>Toxoplasmosis</td>
<td>Parasitic infection involving the CNS and causing fever, chills, confusion, hemiparesis, and seizures; parasite is found in uncooked pork, raw eggs, and vegetables; (Toxo).</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>One-celled parasitic infection of the gastrointestinal tract, brain, and spinal cord.</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>Bacterial disease with fever, malaise, night sweats, diarrhea, lung, and blood infections; (MAI).</td>
</tr>
<tr>
<td>Mycobacterium avium intracellulare</td>
<td>Virus causes enteritis and retinitis; found in semen, saliva, urine, feces, blood, and breast milk; (CMV).</td>
</tr>
</tbody>
</table>
Chapter Fourteen
CROSSWORD PUZZLE

Name: ______________________________

Fill in the crossword puzzle below using the clues listed underneath it.

Across Clues
2. Record of lymph vessels after contrast is injected in the foot, and x-rays are taken to show the path of lymph.
5. Organ near the stomach that produces, stores, and eliminates blood cells.
6. Hypersensitivity or allergic state with an inherited predisposition. From a Greek word meaning “strangeness.”
7. Malignant tumor of the thymus gland.
9. Tox/o means _____.
10. An exaggerated or unusual hypersensitivity to foreign protein or other substance.
12. Fluid found within lymphatic vessels.
14. Immun/o means _____.
15. Masses of lymph tissue in the oropharynx.

Down Clues
1. Enzyme-linked immunosorbent assay (abbrev.).
3. An RNA virus that makes copies of itself by using the host cell’s DNA.
8. A state of abnormal hypersensitivity acquired through exposure to a particular allergen.
10. Substance capable of causing specific hypersensitivity in the body; pollen, dust.
11. A poison; a protein produced by certain bacteria, animals, and plants.
13. A large phagocyte found in lymph nodes and other tissues of the body.

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A. Case Report

This 48-year-old woman had an unexplained anemia with low-grade fever 4 years before her death. Six months before, bronchopneumonia developed, followed by return of severe anemia and continued pyrexia (fever). She was febrile (feverish), appeared pale, and had slight hepatomegaly and splenomegaly. Lymph nodes were palpated in the axillary and inguinal areas, and ascites developed. The chronic anemia did not respond to iron therapy. There was no evidence of blood loss or hemolysis. Diagnosis of lymphoma was confirmed by autopsy.

1. What two organs were enlarged in the patient? A. Liver and lungs  
   B. Lungs and spleen  
   C. Liver and spleen  
   D. Spleen and bone marrow

2. Where were lymph nodes felt? A. Groin and armpit  
   B. Armpit and chest  
   C. Groin and abdomen  
   D. Abdomen and armpit

3. What is ascites? A. Blockage of the intestine  
   B. Edema in the extremities  
   C. Collection of fluid in the chest  
   D. Collection of fluid in the abdomen

4. What was the probable cause of the patient's anemia? A. Chronic blood loss  
   B. Destruction of blood  
   C. Malignant tumor of lymph nodes  
   D. Iron deficiency

B. Symptoms of Hodgkin Disease

The most common initial feature of Hodgkin disease is painless, asymmetrical enlargement of cervical lymph nodes. Symptoms may also originate from compression of neighboring structures by growing tumor masses. For example, cough, dyspnea, dysphagia, and upper extremity edema may result from a mediastinal mass impinging on the tracheobronchial tree, esophagus, or superior vena cava. Edema of lower extremities and urinary or gastrointestinal disturbances may result from retroperitoneal lymphatic involvement. Splenomegaly is present in about half the cases.

1. How do most patients present with Hodgkin disease? A. Lymph nodes enlarged under the arm  
   B. Enlargement of the spleen  
   C. Compression of the trachea  
   D. Lymphadenopathy in the neck

2. How could upper extremity edema occur? A. Tumor pressing on the esophagus  
   B. Tumor blocking the main vein bringing blood to the heart  
   C. Because of dysphagia  
   D. Because of dyspnea

3. What could cause bladder problems? A. Tumor behind the abdomen  
   B. Tumor pressing on the bronchial tubes  
   C. Enlargement of the spleen  
   D. Upper extremity edema
Chapter 14  ●  ANSWERS TO THE QUIZZES

Chapter Fourteen

ANSWERS TO THE QUIZZES

Multiple Choice Quiz


Exercise Quiz

A
1. lymph nodes
2. thoracic duct
3. spleen
4. adenoids
5. thymus
6. lymph capillaries
7. right lymphatic duct
8. interstitial fluid

B
9. groin
10. armpit
11. neck
12. chest

C
13. B
14. D
15. C
16. E
17. F
18. G
19. A

D
20. splenectomy
21. lymphadenitis
22. thymoma
23. lymphadenopathy
24. lymphopoiesis
25. lymphocytopenia
26. toxic
27. splenomegaly

E
28. hypersplenism
29. anaphylaxis
30. allergen
31. AIDS
32. thymectomy
33. Hodgkin disease
34. lymphoid organs
35. lymphedema

F
36. human immunodeficiency virus
37. histoplasmosis
38. Kaposi sarcoma
39. *Pneumocystis carinii* pneumonia
40. computed tomography
41. toxoplasmosis

G
42. humoral
43. T cells
44. cell-mediated
45. B cells

H
46. helper T cells
47. immunoelectrophoresis
48. zidovudine
49. ELISA
50. opportunistic infections

Dictation and Comprehension Quiz

A
1. allergen
2. anaphylaxis
3. atopy
4. axillary nodes
5. cell-mediated immunity
6. humoral immunity
7. immunoglobulins
8. immunosuppression
9. inguinal nodes
10. interferons
11. interstitial fluid
12. Kaposi sarcoma
13. lymphadenopathy
14. lymphedema
15. lymphoma
16. protease inhibitor
17. splenomegaly
18. tonsils
19. vaccination

B
12. Malignant tumor associated with AIDS; appears as bluish-red skin nodules
13. Hypersensitive or allergic state involving hereditary predisposition
14. Disease condition of lymph nodes
17. Enlargement of the spleen
19. Collection of lymph tissue in the groin
1. Substance capable of causing a specific hypersensitivity reaction in the body
2. An exaggerated or unusual hypersensitivity to a foreign protein
6. Immune response in which B cells transform into plasma cells and secrete antibodies
10. Antiviral proteins secreted by T cells
18. Malignant tumor of a gland in the chest
11. Found within lymphatic vessels and surrounding tissues throughout the body
19. Lymphatic tissue in the oropharynx
4. Collection of lymph tissue under the arm (armpit)
5. Immune response involving T-cell lymphocytes
15. Malignant tumor of lymph nodes and tissue
7. Antibodies such as IgG, IgA, IgD that are secreted by plasma cells
20. Introduction of altered antigens to produce an immune response
8. Repression of the immune response
14. Fluid collects within the spaces between cells secondary to lymph vessel obstruction
Spelling Quiz

A
1. macrophage—large phagocyte found in lymph nodes and other tissue
2. lymph—fluid found in lymph vessels
3. immunoglobulin—antibody secreted by plasma cells
4. allergy—hypersensitivity reaction
5. inguinal nodes—lymph nodes in the groin
6. anaphylaxis—extraordinary hypersensitivity reaction
7. Hodgkin disease—malignant tumor of lymph nodes
8. axillary nodes—lymph nodes in the armpit
9. lymphocytopenia—decrease in lymphocytes
10. splenectomy—removal of the spleen

B
11. thymus gland
12. interstitial fluid
13. lymphedema
14. interleukins
15. adenoids
16. vaccination
17. tonsillitis
18. lymphopoiesis

Pronunciation Quiz

A
1. immunology
2. hypersensitivity
3. inguinal nodes
4. lymphedema
5. interstitial fluid
6. Kaposi sarcoma
7. macrophage
8. anaphylaxis
9. thoracic duct
10. lymphadenopathy

B
1. E
2. C
3. H
4. A
5. G
6. J
7. I
8. B
9. D
10. F

Abbreviations Quiz

C
1. splenectomy
2. thymoma
3. lymphangiogram
4. opportunistic
5. lymphopoiesis
6. toxic
7. humoral
8. cell-mediated

Diagram Quiz

1. Lymph capillaries
2. Lymph vessels
3. Lymph nodes
4. Cervical region
5. Axillary region
6. Mediastinal region
7. Inguinal region
8. Right lymphatic duct
9. Thoracic duct
10. Large veins in the neck

Vocabulary Quiz

A
1. cervical node
2. adenoids
3. axillary node
4. cell-mediated immunity
5. acquired immunity
6. cytotoxic cell
7. antigen
8. cytokine
9. B cell
10. antibody

B
1. immune response
2. interstitial fluid
3. immunoglobulins
4. immunotherapy
5. dendritic cell
6. interferons
7. inguinal node
8. humoral immunity
9. lymph capillaries
10. helper T cell

C
1. T cell
2. macrophage
3. natural killer (NK) cell
4. natural immunity
5. spleen
6. plasma cell
7. thoracic duct
8. mediastinal node
9. thymus gland
10. monoclonal antibody

Review Sheet Quiz

A
1. groin
2. thymus gland
3. armpit
4. neck
5. poison
6. protection
7. spleen
8. lymph node (gland)

B
1. swelling
2. enlargement
3. formation
4. deficiency
5. protection
6. resembling, derived from
7. disease
8. between
9. excessive
10. backward

Opportunistic Infections Quiz

A
1. herpes simplex
2. candidiasis
3. tuberculosis
4. cryptococcus
5. histoplasmosis
6. Pneumocystis carinii pneumonia
7. toxoplasmosis
8. cryptosporidiosis
9. Mycobacterium avium intracellulare
10. cytomegalovirus

B
1. E
2. C
3. H
4. A
5. G
6. J
7. I
8. B
9. D
10. F
Chapter 14  ■  ANSWERS TO THE QUIZZES

Crossword Puzzle

Practical Applications

A
1. C
2. A
3. D
4. C

B
1. D
2. B
3. A
### Terminology

<table>
<thead>
<tr>
<th>Terminology</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>autoimmune disease</td>
<td>Chronic, disabling disease in which the body produces antibodies against its own tissues. Examples are rheumatoid arthritis and lupus erythematosus.</td>
</tr>
<tr>
<td>immunoglobulin</td>
<td>Protein (antibody produced by plasma cells) that acts to protect the body by destroying antigens.</td>
</tr>
<tr>
<td>immunosuppression</td>
<td>Suppression (stopping) of the immune response.</td>
</tr>
<tr>
<td>lymphopoiesis</td>
<td>Formation of lymph.</td>
</tr>
<tr>
<td>lymphedema</td>
<td>Swelling of tissue due to accumulation of lymph fluid in intercellular spaces.</td>
</tr>
<tr>
<td>lymphocytopenia</td>
<td>Deficiency of lymphocytes in the blood.</td>
</tr>
<tr>
<td>lymphocytosis</td>
<td>Abnormal condition of increase in lymphocytes.</td>
</tr>
<tr>
<td>lymphoid</td>
<td>Derived from lymph tissue.</td>
</tr>
<tr>
<td>lymphadenopathy</td>
<td>Disease of lymph glands (nodes).</td>
</tr>
<tr>
<td>lymphadenitis</td>
<td>Inflammation of lymph glands (nodes).</td>
</tr>
<tr>
<td>splenomegaly</td>
<td>Enlargement of the spleen.</td>
</tr>
<tr>
<td>splenectomy</td>
<td>Removal of the spleen.</td>
</tr>
<tr>
<td>hypersplenism</td>
<td>A syndrome marked by splenomegaly (associated with anemia, leukopenia, and thrombocytopenia).</td>
</tr>
<tr>
<td>thymoma</td>
<td>Tumor (malignant) of the thymus gland.</td>
</tr>
<tr>
<td>thymectomy</td>
<td>Removal of the thymus gland.</td>
</tr>
<tr>
<td>toxic</td>
<td>Pertaining to poison.</td>
</tr>
</tbody>
</table>

### Prefix

<table>
<thead>
<tr>
<th>Prefix</th>
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</thead>
<tbody>
<tr>
<td>anaphylaxis</td>
<td>An exaggerated hypersensitivity reaction to foreign proteins.</td>
</tr>
<tr>
<td>interstitial fluid</td>
<td>Pertaining to fluid that lies between body cells and eventually becomes lymph fluid.</td>
</tr>
</tbody>
</table>