

Chapter 01: Introduction to Pathology
Eisenberg: Comprehensive Radiographic Pathology, 6th Edition

MULTIPLE CHOICE

1. A disease process caused by physicians or their treatment is
 - a. idiopathic
 - b. iatrogenic
 - c. neoplasia
 - d. community acquired

ANS: B

A disease process caused by physicians or their treatment is iatrogenic.

REF: Page 2

2. A basic reaction of the body to some form of injury is a
 - a. disease process
 - b. pathology
 - c. study of diseases
 - d. idiopathic process

ANS: A

A disease is the pattern of the body's response to some form of injury.

REF: Page 2

3. What term is used to denote a disease in which the underlying cause is unknown?
 - a. Idiopathic.
 - b. Antietiologic.
 - c. Iatrogenic.
 - d. Nosocomial.

ANS: A

Idiopathic diseases are those with an unknown, or as of yet unidentified, cause.

REF: Page 2

4. Alterations of cell growth, specifically an abnormal proliferation of cells, is called
 - a. hyperplasia
 - b. dysplasia
 - c. neoplasia
 - d. aplasia

ANS: C

Alterations in cell growth lead to the development of neoplasms (tumors).

REF: Page 7

5. The initial response of body tissues to local injury is
 - a. infection

- b. ischemia
- c. edema
- d. inflammation

ANS: D

Inflammation is the initial response of body tissues to local injury.

REF: Page 3

6. Heat and redness associated with inflammation is produced by
- a. hyperemia
 - b. scar tissue
 - c. hyperplasia
 - d. infarction

ANS: A

Hyperemia produces the heat and redness associated with inflammation.

REF: Page 3

7. In an injury, the destroyed tissue is replaced with
- a. granulomatous inflammation
 - b. granulation tissue
 - c. phagocytes
 - d. pyogens

ANS: B

A fibrous *scar* replaces the area of destroyed tissue with granulation tissue. Granulation tissue refers to a combination of young, developing capillaries and actively proliferating fibroblasts, which produce connective tissue fibers (collagen) that replace the dead tissue.

REF: Page 3

8. Of the five clinical signs of acute inflammation, the medical term for swelling is
- a. edema
 - b. tumor
 - c. calor
 - d. dolor

ANS: B

The five clinical signs of acute inflammation are rubor (redness), calor (heat), tumor (swelling), dolor (pain), and loss of function.

REF: Page 4

9. Some bacterial organisms produce substances that cause damage to the tissue and incite the inflammatory process known as
- a. toxoids
 - b. pyogens
 - c. toxins
 - d. abscesses

ANS: C

Some bacterial organisms (such as staphylococci and streptococci) produce toxins that damage the tissues and incite an inflammatory response.

REF: Page 4

10. Chronic inflammation in a localized area, which often has centralized necrosis, is called
 - a. an exudate
 - b. a granuloma
 - c. an abscess
 - d. hyperplasia

ANS: B

A granuloma is a localized area of chronic inflammation, often with central necrosis.

REF: Page 4

11. In acute inflammation, the localized heat and redness are a result of the
 - a. migration of circulating white blood cells
 - b. increased blood flow and vascular permeability
 - c. regeneration of normal parenchymal cells
 - d. enzymatic digestion of dead cells

ANS: B

The localized heat and redness result from increased blood flow in the microcirculation at the site of injury.

REF: Page 4

12. In pyogenic infections, the body responds by producing a thick, yellow fluid called
 - a. bacteria
 - b. pus
 - c. edema
 - d. a scar

ANS: B

The presence of pyogenic bacteria leads to the production of a thick, yellow fluid called pus, which contains dead white blood cells, inflammatory exudates, and bacteria.

REF: Page 4

13. All pyogens have the ability to enter the blood circulation causing
 - a. bacteremia
 - b. phagocytosis
 - c. septicemia
 - d. keloid tissue

ANS: A

All pyogens, wherever they become implanted, have the ability to invade blood vessels to produce bacteremia, with the potential involvement of other organs and tissues in the body.

REF: Page 4

14. Connective tissue fibers replacing dead tissue and then contracting in the abdomen are known as
- keloids
 - suppurative inflammation
 - fibrous adhesions
 - hyperemia

ANS: C

Eventually the strong connective tissue contracts to produce a fibrous scar. In the abdomen, such fibrous adhesions can narrow loops of intestine and result in an obstruction.

REF: Page 4

15. An accumulation of abnormal amounts of fluid in the intercellular tissue throughout the body is called
- bacteremia
 - elephantiasis
 - filariasis
 - anasarca

ANS: D

Generalized edema occurs with pronounced swelling of subcutaneous tissues throughout the body (anasarca).

REF: Page 4

16. Localized _____ is produced in an inflammatory reaction as a result of a fluid accumulation.
- filariasis
 - edema
 - elephantiasis
 - fibrous adhesions

ANS: B

Edema is the accumulation of abnormal amounts of fluid in the intercellular tissue spaces or body cavities. Localized edema results from an inflammatory reaction.

REF: Page 4

17. An inflammation associated with pus formation is
- bacteremia
 - phagocytosis
 - suppurative
 - hyperemia

ANS: C

Suppurative inflammation is associated with pus formation.

REF: Page 4

18. The protein-rich fluid associated with swelling in an inflammatory process is
- exudate
 - transudate

- c. pus
- d. permeable

ANS: A

The inflammatory exudate in the tissues results in the swelling associated with inflammation. The protein-rich exudate of inflammation must be differentiated from a transudate, a low-protein fluid, such as that seen in the pulmonary edema that develops in congestive heart failure.

REF: Page 3

19. The low-protein fluid associated with the inflammatory process as seen in pulmonary edema is called
- a. an abscess
 - b. exudate
 - c. transudate
 - d. filariasis

ANS: C

The protein-rich exudate of inflammation must be differentiated from a transudate, a low-protein fluid, such as that seen in the pulmonary edema that develops in congestive heart failure.

REF: Page 3

20. A localized area of ischemic necrosis within a tissue or organ produced by vascular occlusion is a(n)
- a. gangrene
 - b. infarct
 - c. purpura
 - d. ecchymosis

ANS: B

An infarct is a localized area of ischemic necrosis within a tissue or organ produced by occlusion of either its arterial supply or its venous drainage.

REF: Page 5

21. Depriving tissues of oxygen and nutrients caused by an arterial vessel narrowing is referred to as
- a. ischemia
 - b. petechiae
 - c. filariasis
 - d. gangrene

ANS: A

Ischemia refers to an interference with the blood supply to an organ or part of an organ, depriving the organ's cells and tissues of oxygen and nutrients.

REF: Page 5

22. The progression of a loss of oxygen and nutrients resulting in tissue necrosis, especially in the diabetic's foot, is called
- infarction
 - gangrene
 - ischemia
 - hemorrhage

ANS: B

Severe arterial disease of the lower extremities may result in necrosis of several toes or a large segment of the foot, a condition called gangrene. A frequent symptom in diabetic patients is ischemia of the foot, which may progress to infarction and result in gangrene.

REF: Page 5

23. A subcutaneous hematoma greater than 1 to 2 cm is called a(n)
- purpura
 - ecchymosis
 - petechia
 - infarct

ANS: B

A large (>1 to 2 cm) subcutaneous hematoma, or bruise, is called an ecchymosis.

REF: Page 6

24. An accumulation of blood trapped within the body tissues is known as a(an)
- hematoma
 - ecchymosis
 - petechiae
 - pleural effusion

ANS: A

Blood may be trapped within body tissues resulting in an accumulation called a hematoma.

REF: Page 5

25. Bleeding into mucous membranes or serosal surfaces is referred to as
- petechiae
 - hemorrhage
 - purpura
 - ecchymosis

ANS: A

Minimal hemorrhages into the skin, mucous membranes, or serosal surfaces are called petechiae.

REF: Page 6

26. The volume of blood loss, the rate of blood loss, and the site of blood loss will determine the
- patient status
 - clinical significance
 - treatment required

d. all of the above

ANS: D

The significance of hemorrhage depends on the volume of blood loss, the rate of blood loss, and the site of the hemorrhage. Sudden losses of up to 20% of the blood volume or slow losses of even larger amounts may have little clinical significance.

REF: Page 6

27. When a reduction in the size or number of cells in an organ occurs, this results in
- aplasia
 - atrophy
 - hypoplasia
 - dysplasia

ANS: B

Atrophy refers to a reduction in the size or number of cells in an organ or tissue.

REF: Page 6

28. When cells fail to develop and as a result the organ is small, the organ is considered
- hypoplastic
 - dysplastic
 - hyperplastic
 - anaplastic

ANS: A

Failure of normal development accounts for small size in hypoplasia and aplasia.

REF: Page 6

29. Which term is used to describe an increase in the size of an organ or tissue in response to an increase in function?
- Neoplastic.
 - Hypotrophy.
 - Hyperplasia.
 - Hypertrophy.

ANS: D

Hypertrophy refers to an increase in the size of the cells of a tissue or organ in response to a demand for increased function.

REF: Page 6

30. The proliferation of granulation tissue to repair an injury is an example of
- hypertrophy
 - anaplasia
 - hyperplasia
 - dysplasia

ANS: C

Hyperplasia is an increase in the number of cells in a tissue or organ. Proliferation of granulation tissue in the repair of injury is an example.

REF: Page 6

31. The Latin word for “new growth” is
- tumor
 - seeding
 - neoplasia
 - ecchymosis

ANS: C

Neoplasia, from the Latin word for new growth, refers to an abnormal proliferation of cells that are no longer controlled by the factors that govern the growth of normal cells.

REF: Page 7

32. New growths that invade and destroy adjacent structures and have the ability to spread are considered
- neoplastic
 - benign
 - cachexia
 - malignant

ANS: D

Malignant neoplasms invade and destroy adjacent structures and spread to distant sites (metastasize).

REF: Page 7

33. A polyp is a
- projecting mass from an inner mucous membrane
 - malignant epithelial neoplasm
 - benign cartilaginous tumor
 - cancer

ANS: A

An epithelial tumor that grows as a projecting mass on the skin or from an inner mucous membrane (such as the gastrointestinal tract) is termed a papilloma or a polyp.

REF: Page 8

34. A malignancy of glandular tissue, such as breast or liver, is referred to as a(n)
- adenoma
 - adenocarcinoma
 - cystadenoma
 - dysplasia

ANS: B

Adenocarcinoma refers to malignancies of glandular tissues, such as the breast, liver, and pancreas, and of the cells lining the gastrointestinal tract.

REF: Page 8

35. The term derived from the Latin term for “crab” is
- benign
 - oncology
 - neoplasia
 - cancer

ANS: D

Malignant neoplasms of epithelial cell origin are called carcinomas, from the Greek word *karbinos*, meaning “crab.”

REF: Page 7

36. The study of neoplasms or tumors is called
- pathology
 - radiology
 - oncology
 - etiology

ANS: C

Neoplasms are commonly referred to as tumors; the study of neoplasms is called oncology, derived from the Greek word *oncos*, meaning “tumor.”

REF: Page 7

37. Tumors closely resembling their cells of origin in structure and function are called
- malignant
 - benign
 - cancerous
 - dysplastic

ANS: B

Benign tumors closely resemble their cells of origin in structure and function.

REF: Page 7

38. When tumor cells flourish, causing the patient to become weak and emaciated, this condition is referred to as
- cachexia
 - petechiae
 - anorexia
 - anaplastic

ANS: A

Neoplastic cells act as parasites, competing with normal cells and tissues for their metabolic needs. Thus tumor cells may flourish, and the patient becomes weak and emaciated, a condition termed cachexia.

REF: Page 7

39. Benign epithelial neoplasms that grow in a glandlike pattern are
- cystadenomas
 - adenocarcinomas

- c. adenomas
- d. fibromas

ANS: C

The term adenoma is applied to benign epithelial neoplasms that grow in glandlike patterns.

REF: Page 7

40. Tumors that contain muscle cells are called
- a. myelomas
 - b. myomas
 - c. papilloma
 - d. hypertrophic

ANS: B

Myomas are tumors consisting of muscle cells.

REF: Page 8

41. Tumor cells of stratified squamous epithelium, which invade and destroy adjacent structures, make up
- a. adenomas
 - b. sarcomas
 - c. cystadenomas
 - d. squamous cell carcinomas

ANS: D

Squamous cell carcinoma denotes a cancer in which the tumor cells resemble stratified squamous epithelium.

REF: Page 8

42. If a neoplastic growth proliferates without form, it is considered
- a. anaplastic
 - b. dysplastic
 - c. aplastic
 - d. hyperplastic

ANS: A

A tumor growing in a bizarre pattern is termed undifferentiated or anaplastic (without form).

REF: Page 8

43. Symptoms suggestive of esophageal or stomach cancer are
- a. anasarca and dysphagia
 - b. anaplasia and anorexia
 - c. aplasia and gangrene
 - d. anorexia and dysphagia

ANS: D

Difficulty in swallowing (dysphagia) or loss of appetite (anorexia), especially if accompanied by rapid weight loss, suggests a neoplasm in the esophagus or stomach.

REF: Page 8

44. Diffuse spread of malignant neoplasms by invasion into a natural body cavity is called
- tumor grading
 - staging
 - seeding
 - lymphatic spread

ANS: C

Seeding (diffuse spread) of cancers occurs when neoplasms invade a natural body cavity.

REF: Page 9

45. The major metastatic route of carcinomas is
- lymphatic spread
 - undifferentiated spread
 - hematopoietic spread
 - hematogenous spread

ANS: A

Lymphatic spread is the major metastatic route of carcinomas, especially those of the lung and breast.

REF: Page 9

46. Assessing the aggressiveness or degree of malignancy is referred to as
- staging
 - grading
 - seeding
 - metastatic

ANS: B

The grading of a malignant tumor assesses aggressiveness, or degree of malignancy.

REF: Page 9

47. To determine the most appropriate therapy, the disease process must be
- seeded
 - staged
 - graded
 - phased

ANS: B

Staging refers to the extensiveness of a tumor at its primary site and the presence or absence of metastases to lymph nodes and distant organs, such as the liver, lungs, and skeleton. The staging of a tumor aids in determining the most appropriate therapy.

REF: Page 9

48. Using a combination of cytotoxic substances to kill neoplastic cells is called
- radiation therapy
 - chemotherapy

- c. hormonal therapy
- d. seeding

ANS: B

Chemotherapy uses one or a combination of cytotoxic substances that kill neoplastic cells, but these drugs may injure many normal cells and result in significant complications.

REF: Page 9

49. The most common hereditary abnormality is
- a. chromosomal aberration
 - b. enzyme deficiency
 - c. glycogen and lipid storage disease
 - d. sex-linked disorders

ANS: B

The most common hereditary abnormality is an enzyme deficiency.

REF: Page 9

50. Exposure to radiation, chemicals, or viruses may result in alterations in the DNA called
- a. mutations
 - b. reduced penetrance
 - c. variable expressivity
 - d. aberrations

ANS: A

Mutations are alterations in the DNA structure that may become permanent hereditary changes if they affect the gonadal cells. Mutations may result from radiation, chemicals, or viruses.

REF: Page 10

51. A gene always producing an effect regardless of whether the person is homozygous or heterozygous is named
- a. recessive
 - b. dominant
 - c. autosomal recessive
 - d. autosomal dominant

ANS: B

Dominant genes always produce an effect regardless of whether the person is homozygous or heterozygous.

REF: Page 10

52. When a vaccine or toxoid is used to counteract an antigen, it is considered
- a. passive immunity
 - b. active immunity
 - c. community-acquired immunity
 - d. iatrogenic

ANS: B

In active immunity, a person forms antibodies to counteract an antigen in the form of a vaccine or a toxoid.

REF: Page 11

53. The body has the ability to combat antigens by forming _____ in the lymphoid tissue.
- antibodies
 - toxins
 - immunoglobulins
 - antibodies and immunoglobulins

ANS: D

The immune reaction of the body provides a powerful defense against invading organisms by allowing it to recognize foreign substances (antigens), such as bacteria, viruses, fungi, and toxins, and to produce antibodies or immunoglobulins to counteract them.

REF: Page 11

54. Hypotension and vascular collapse with urticaria, bronchiolar spasm, and laryngeal edema are characteristics of
- anaphylactic reactions
 - cytotoxic reactions
 - histamine release
 - delayed reactions

ANS: A

Generalized, or systemic, anaphylactic reactions are characterized by hypotension and vascular collapse (shock) with urticaria (hives), bronchiolar spasm, and laryngeal edema.

REF: Page 11

55. Profound and sustained impairment of cellular immunity resulting in recurrent or sequential opportunistic infections is characteristic of
- anaphylactic reactions
 - histamine release
 - AIDS
 - cytotoxic reactions

ANS: C

Acquired immunodeficiency syndrome (AIDS), which most commonly affects young homosexual men and intravenous drug abusers, is characterized by a profound and sustained impairment of cellular immunity that results in recurrent or sequential opportunistic infections.

REF: Page 12

56. The retrovirus known to contribute to AIDS is
- hepatitis
 - human immunodeficiency virus
 - immunoglobulins
 - Kaposi sarcoma

ANS: B

AIDS is attributable to infection with retroviruses known as human immunodeficiency viruses (HIV).

REF: Page 12

57. A hazy, perihilar, granular infiltrate spreading to the lung periphery is the early radiographic finding of
- AIDS
 - Kaposi syndrome
 - hepatitis
 - Pneumocystis jirovecii* pneumonia

ANS: D

The typical early radiographic finding of *P. jirovecii* pneumonia is a hazy, perihilar, granular infiltrate that spreads to the periphery and appears preponderantly interstitial.

REF: Page 12

58. The modality of choice to demonstrate the multiple manifestations of AIDS in the central nervous system is
- CT
 - nuclear medicine
 - ultrasound
 - MRI

ANS: D

MRI best demonstrates the multiple manifestations of AIDS in the central nervous system.

REF: Page 12

59. All of the following are personal protective equipment (PPE), except
- gown
 - gloves
 - mask
 - sharps container

ANS: D

A sharps container is not used for personal protection against the transmission of diseases.

REF: Page 11

60. All of the following are additive diseases in terms of x-ray attenuation, except
- pneumonia
 - osteolytic metastasis
 - callus
 - ascites

ANS: B

Osteolytic metastasis is a destructive disease.

REF: Page 3

MATCHING

Match each of the following terms with the correct answer. Each question has only one correct answer.

- a. Rubor
- b. Calor
- c. Dolor
- d. Tumor

- 1. Heat
- 2. Pain
- 3. Redness
- 4. Swelling

- 1. ANS: B REF: Page 4
- 2. ANS: C REF: Page 4
- 3. ANS: A REF: Page 4
- 4. ANS: D REF: Page 4

Match the following terms related to edema.

- a. A parasitic worm causing a lymphatic obstruction
- b. Accumulation of fluid in a serous cavity
- c. Extravascular fluid collection surrounding the heart
- d. Localized edema resulting from a lymphatic obstruction
- e. Pronounced swelling in subcutaneous tissue throughout the body

- 5. Anasarca
- 6. Elephantiasis
- 7. Filariasis
- 8. Pericardial effusion
- 9. Peritoneal ascites

- 5. ANS: E REF: Pages 4-5
- 6. ANS: D REF: Pages 4-5
- 7. ANS: A REF: Pages 4-5
- 8. ANS: C REF: Pages 4-5
- 9. ANS: B REF: Pages 4-5

Match the following terms related to hemorrhage.

- a. An accumulation of blood in the tissue
- b. Large (>1 to 2 cm) subcutaneous bruise
- c. Larger areas of bleeding into the skin
- d. Minimal bleeding in the skin or mucous membrane
- e. Rupture of a blood vessel

- 10. Ecchymosis
- 11. Hematoma
- 12. Hemorrhage
- 13. Petechiae

14. Purpura

10. ANS: B REF: Page 6
11. ANS: A REF: Page 5
12. ANS: E REF: Page 5
13. ANS: D REF: Page 5
14. ANS: C REF: Page 6

Match the following terms related to alterations in cell growth.

- a. Failure of normal development causing smaller cells
- b. Increased size of the cells
- c. Loss of uniformity of individual cells
- d. Number of cells in the tissue increases
- e. Reduction in number or size of cells

15. Atrophy

16. Dysplasia
17. Hyperplasia
18. Hypertrophy
19. Hypoplasia

15. ANS: E REF: Page 6
16. ANS: C REF: Page 6
17. ANS: D REF: Page 6
18. ANS: B REF: Page 6
19. ANS: A REF: Page 6

Match the following terms related to the neoplastic process.

- a. A malignant tumor arising from connective tissue
- b. Benign tumor consisting of fibrous tissue
- c. Cartilaginous tumor that is benign
- d. Composed of blood vessels
- e. Forming benign large cystic masses
- f. Glandular cell malignancy
- g. Malignancy of epithelial cell origin
- h. Soft, fatty tissue tumor
- i. Tumor that grows in a glandlike pattern

20. Adenocarcinoma
21. Adenoma
22. Angioma
23. Carcinoma
24. Chondroma
25. Cystadenoma
26. Fibroma
27. Lipoma
28. Sarcoma

20. ANS: F REF: Page 8

- 21. ANS: I REF: Page 8
- 22. ANS: D REF: Page 8
- 23. ANS: G REF: Page 8
- 24. ANS: C REF: Page 8
- 25. ANS: E REF: Page 8
- 26. ANS: B REF: Page 8
- 27. ANS: H REF: Page 8
- 28. ANS: A REF: Page 8

Match the following terms related to immunity.

- a. Binds with foreign substance to make harmless
 - b. Body makes harmless
 - c. Chemically altered poisonous material
 - d. Form in lymphoid tissue
 - e. Low dose of dead or deactivated bacteria or virus
 - f. Recognition of foreign substance
-
- 29. Antibody
 - 30. Antigen
 - 31. Immune
 - 32. Immunoglobulin
 - 33. Toxoid
 - 34. Vaccine

- 29. ANS: A REF: Page 11
- 30. ANS: F REF: Page 11
- 31. ANS: B REF: Page 11
- 32. ANS: D REF: Page 11
- 33. ANS: C REF: Page 11
- 34. ANS: E REF: Page 11