

YR 2 CONNECTIVE TISSUE/DERMATOLOGY UNIT EXAM -- January 12, 1998.

CHOOSE THE SINGLE BEST ANSWER FOR QUESTIONS 1 - 100.

1. A 70 year old man presents with back pain. Multiple osteosclerotic lesions involving several vertebral bodies are seen on spine radiographs. What is the most likely diagnosis?
 - A. Multiple myeloma
 - B. Malignant lymphoma
 - C. Metastatic pulmonary adenocarcinoma
 - D. Metastatic prostatic adenocarcinoma
 - E. Spinal osteomyelitis

2. Most common primary malignant bone tumor is:
 - A. Malignant fibrous histiocytoma
 - B. Osteosarcoma
 - C. Ewing's sarcoma
 - D. Metastatic carcinoma
 - E. Chondrosarcoma

3. Schwannoma and neurofibroma are examples of benign nerve sheath tumors. Which feature is more characteristic of neurofibroma?
 - A. Most common benign soft tissue neoplasm
 - B. Forms an eccentric mass with respect to the nerve of origin
 - C. Less potential for malignant transformation than schwannoma
 - D. 11:22 chromosomal translocation
 - E. More likely to be multifocal than schwannoma

4. A 35 year old woman presents with knee pain. Radiographs disclose an osteolytic bone tumor with sharp margins in the distal femur abutting the articular surface. What is the most likely diagnosis?
- A. Osteosarcoma
 - B. Osteochondroma
 - C. Solitary bone cyst
 - D. Non-ossifying fibroma
 - E. Giant cell tumor
5. Collagen fibers are formed through a series of structural biochemical alterations. Which of the following statements is true about this process?
- A. Cross-linking is mediated by a zinc-dependant metalloproteinase
 - B. Collagen fibrils are assemble in the extracellular environment
 - C. Triple helix formation is initiated by cleavage of N- and C-terminal propeptides
 - D. Alpha chains have a repetitive molecular structure of PRO-X-Y
 - E. Cross-linking occurs through a vitamin C-dependant reaction.
6. A 72 year old man complains of tightness in his palm and is unable to fully extend his 4th and 5th digits. What is the most likely diagnosis?
- A. Dupuytren's contracture
 - B. Peyronie's disease
 - C. Musculoaponeurotic fibromatosis
 - D. Desmoid tumor
 - E. Ormond's disease

7. Choose the single best statement about Paget's disease of bone.
- A. Bone resorption outpaces bone formation.
 - B. Pagetic bone is denser and sturdier than normal bone
 - C. Most patients are symptomatic
 - D. There is no known effective therapy
 - E. Classic clinical features are due to skeletal enlargement
8. All the following statements about osteoporosis are true EXCEPT:
- A. It is defined by the presence of fragility fractures.
 - B. It results from abnormalities in remodeling.
 - C. Sites rich in cancellous bone are most affected.
 - D. Excess alcohol consumption is a risk factor for developing osteoporotic fragility fractures.
 - E. It is more common in women.
9. All the following statements about osteomalacia are true EXCEPT:
- A. Bowing deformity of the lower extremities is a classic clinical feature.
 - B. Associated with fragility fractures
 - C. Renal failure is the most prevalent cause in this country.
 - D. Rare cases are caused by tumors which elaborate a phosphaturic substance.
 - E. The skeleton is undermineralized.

10. Choose the single best statement about normal bone and bone remodeling.
- A. Bone resorption is a slower process than bone formation.
 - B. 80% of bone mass is contained in cortical bone.
 - C. Bone remodeling takes place predominantly on endosteal surfaces.
 - D. Bone formation outpaces bone resorption until late adulthood when progressive negative skeletal balance ensues.
 - E. Osteoblasts liberate factors which recruit osteoclasts to sites of remodeling.
11. The stratum lucidum is most apparent in epidermis of the:
- A. Face
 - B. Scalp
 - C. Forearm
 - D. Sole
 - E. Back
12. Merkel Cell:
- A. Dopa positive
 - B. Fibrillar proteins
 - C. Membrane-bound granules
 - D. Stain with gold chloride
13. Melanocyte:
- A. Dopa positive
 - B. Fibrillar proteins
 - C. Membrane-bound granules
 - D. Stain with gold chloride

14. All the appendages listed below are included in the term "pilar complex" EXCEPT:
- A. Hair follicle
 - B. Eccrine gland
 - C. Sebaceous gland
 - D. Apocrine gland
15. Sebaceous glands are found everywhere on the body EXCEPT:
- A. Buccal mucosa
 - B. Scalp
 - C. Face
 - D. Palms
16. Which of the following is/are NOT associated with infantile atopic eczema?
- A. Erythematous patches on cheeks
 - B. Onset 2 or more months after birth
 - C. Antecubital and popliteal fossa eczema
 - D. Lichenification
 - E. Tendency to disappear after two years
17. Which of the following is/are NOT associated with atopic dermatitis?
- A. Dennie-Morgan lines
 - B. Scabies
 - C. Cataracts
 - D. Keratoconus
 - E. Hertoghe's sign

18. The differential diagnosis for a vesicular, often itchy, eruption on the palms, soles and sides of fingers may include all of the following, EXCEPT:
- A. Pustular psoriasis
 - B. Nummular eczema
 - C. Dyshidrosis (pompholyx)
 - D. Drug eruption
 - E. Chickenpox
19. Which of the following signs, symptoms, or features is/are characteristic of allergic contact dermatitis?
- A. Pustules frequently occur
 - B. Prevalence of between 1% to 10%, and accounts for 70% to 80% of contact dermatitis.
 - C. Often produced by soaps
 - D. patch test is negative at 24 hours
 - E. May be suppressed by ultra violet light
20. Signs/symptoms of lower extremity venous insufficiency include all of the following EXCEPT:
- A. varicosities and an eczematous eruption
 - B. Round or oval ulcers with a predilection for medial aspect of ankles
 - C. Presence of venous pulsation and thrills
 - D. Pruritus and pain (if ulcer is present)
 - E. Reticulated melanin hyperpigmentation of the skin
21. Renewal time of the human epidermis is about:
- A. 1 week
 - B. 5 weeks
 - C. 10 weeks
 - D. 15 weeks

22. Seborrheic keratosis is:
- A. Benign squamous cell growth
 - B. Malignant squamous cell growth
 - C. Benign basaloid cell growth
 - D. Malignant basaloid cell growth
23. Basal cell epithelioma (or carcinoma) may be:
- A. Pigmented
 - B. Flesh-colored with pearly border
 - C. Ulcerated
 - D. All of the above
24. Parakeratosis means:
- A. Incomplete keratinization
 - B. Incomplete keratinization with retention of nucleus
 - C. Lack of keratinization
 - D. Excessive keratinization
25. Squamous cell carcinoma may arise from:
- A. Actinic keratosis
 - B. Burn scar
 - C. radiodermatitis
 - D. All of the above
26. Racial difference of skin color is due to the difference of:
- A. Number of melanocytes/mm² of skin
 - B. Different color of melanin
 - C. Number and size of melanosome
 - D. Depth of melanocyte location in the skin

27. Useful staining(s) for tissue diagnosis of melanoma is(are):
- A. Dopa
 - B. HMB45
 - C. S-100
 - D. All of the above
28. Chromosome locus 9p21 mutation is related to:
- A. Familial nevoid basal cell epithelioma
 - B. Non-familial basal cell epithelioma
 - C. Familial melanoma
 - D. Colon cancer
29. The major portion of a papule:
- A. Is the dermis
 - B. Projects above the skin plane
 - C. Is greater than 1 cm in diameter
 - D. Is always scaly
 - E. Is none of the above
30. The classic morphology of a lichen planus lesion is:
- A. A purple polygonal papule
 - B. An ill-defined plaque
 - C. A tight cluster of papules
 - D. A well-defined scaly plaque on an erythematous base
 - E. None of the above

31. Gastro-intestinal (GI) involvement in scleroderma is characterized by the following:
- A. Usually (>50% of the time) presents as bloody diarrhea
 - B. Is a major and direct cause of death
 - C. Usually (>50% of the time) presents with gastro-esophageal reflux symptoms (heartburn)
 - D. Is an uncommon (<10%) complication of systemic scleroderma
 - E. Is best treated by a surgical approach with resection of the affected segment
32. Diseases which do not have T cell receptor gene rearrangements are:
- A. Parapsoriasis
 - B. Psoriasis
 - C. Mycosis fungoides
 - D. Pityriasis lichenoides
 - E. All of the above
33. Photochemotherapy (PUVA) is beneficial to:
- A. Lichen planus
 - B. Psoriasis
 - C. Mycosis fungoides
 - D. Pityriasis lichenoides
 - E. All of the above

34. The NIH Consensus Conference agreed that all of the following are suggestive of neurofibromatosis-1 EXCEPT:
- A. Axillary freckling
 - B. Lisch nodules
 - C. First degree relative with these changes
 - D. Six or more ash leaf spots
 - E. Two or more cutaneous neurofibromas or one plexiform neurofibroma
35. Recalcitrant discoid lupus erythematoses are best treated with:
- A. Improved sunscreen preparation
 - B. Anti-malarials
 - C. Azathioprine
 - D. Dapsone
 - E. Intralesional steroid
36. Concerning infantile atopic dermatitis, all of the following are TRUE EXCEPT it:
- A. Is associated with asthma or hayfever
 - B. Has a predilection for the cheeks and extensor surfaces
 - C. Is associated with prematurity
 - D. Is not relieved by dietary restrictions
 - E. Begins after the age of two months

37. Which of the statements below is TRUE?
- A. The prevalence of HLA-B27 in the Afro-American Population is 8-14%.
 - B. The prevalence of Ankylosing Spondylitis in the general population is 10%.
 - C. The Spondyloarthropathies are more prevalent in females.
 - D. Populations that have a high frequency of HLA-B27 have a higher prevalence of Ankylosing Spondylitis.
 - E. The pain of Ankylosing Spondylitis is relieved by rest.
38. Clinical abnormalities seen in Ehlers-Danlos Syndromes include all the following EXCEPT:
- A. Osteopenia
 - B. Coarse scarring
 - C. Large arterial ruptures
 - D. Mitral valve prolapse
 - E. Kyphoscoliosis
39. Which one of the following BEST describes a possible basal cell carcinoma?
- A. A yellow scar
 - B. A black or brown mole
 - C. Eczema with scale
 - D. Pearly papule with prominent telangiectasia
 - E. Ulceration
40. Which of the following statements about sarcoidosis is TRUE?
- A. It is a disease of the elderly
 - B. It is more prevalent in Asians than Africans
 - C. Skin lesions can be treated with intralesional steroids
 - D. It can be diagnosed on the basis of the clinical presentation and laboratory values

41. Psoriasis can involve which of the following sites?
- A. Nasal mucosa
 - B. Oral mucosa
 - C. Abdominal lining
 - D. Teeth
 - E. Nails
42. A red flat lesion is pressed hard and still erythematous. One would describe this as:
- A. Non-blanching macule
 - B. Non-blanching plaque
 - C. Blanching plaque
 - D. Red bumps
 - E. Blanching papules
43. All these diseases are associated with HLA-B27 antigen EXCEPT:
- A. Ankylosing Spondylitis
 - B. Reactive Arthritis
 - C. Arthritis Associated with Inflammatory Bowel Disease
 - D. Uveitis
 - E. Juvenile Rheumatoid Arthritis
44. All these cell types have a prominent role in the pathogenesis of the Spondyloarthropathics EXCEPT:
- A. Polymorphonuclear Leukocytes
 - B. Monocytes
 - C. CD4⁺ T cells
 - D. CD8⁺ T cells

45. The following statement regarding joint terminology is TRUE:
- A. A symphysis is a slightly movable joint typified by skull sutures in the adult.
 - B. Condylloid joints permit movement in one axis.
 - C. Active range of motion is the motion obtained when the examiner moves the patients's body.
 - D. A valgus deformity is present when the distal portion of the bone is displaced away from the midline.
 - E. Synonymous terms for the sole of the foot are plantar and dorsal.
46. What are the factors affecting back strength?
- A. Body position
 - B. Gender
 - C. Duration of sustaining the force
 - D. Age
 - E. All the above
47. Each of the following is a roentgenographic feature of chondrocalcinosis EXCEPT:
- A. Linear calcification of the symphysis pubis
 - B. Narrowing of the radiocarpal joint
 - C. Stippled calcification in the knee joint space
 - D. Knee involvement restricted to the patellofemoral compartment
 - E. Osteophytosis

48. Rheumatoid factor (IgM) may be present in the following disease:
- A. Gout
 - B. Reiter's syndrome
 - C. Chondrocalcinosis
 - D. Ankylosing spondylitis
 - E. Bacterial endocarditis
49. The diagnosis of scleroderma is made of the basis of:
- A. A laboratory test (the ANA)
 - B. A positive family history
 - C. Presence of Raynaud's phenomenon
 - D. A skin biopsy
 - E. A combination of signs, symptoms and lab values
50. Systemic Scleroderma:
- A. Has a benign, self-limiting course
 - B. Is universally fatal
 - C. Is a skin disease more frequently seen in children than in adults
 - D. Is a chronic disease with a variable course in terms of severity and distribution of internal organ system involvement
 - E. Skin involvement starts on the trunk and progresses outward toward the extremities

51. The most characteristic feature of Polymyositis is:
- A. Muscle pain
 - B. Positive family history of similar muscle problems
 - C. Muscle weakness
 - D. Paresthesias (numbness/tingling) of the distal extremities
 - E. Constitutional symptoms - fever/lethargy/anorexia
52. Which of the following statements is TRUE of vasculitis?
- A. Vasculitis, although uncommon, presents in a typical and predictable fashion
 - B. Vasculitis can affect blood vessels of any size
 - C. Vasculitis is a separate entity from the defined connective tissue diseases (SLE, scleroderma, polymyositis), and is not seen with these syndromes
 - D. Vasculitis affects multiple organ systems but spares the brain
 - E. vasculitis is a disease primarily of children
53. All of the following factors/agents activate bone remodeling EXCEPT?
- A. Excess vitamin D
 - B. Excess parathyroid hormone
 - C. Excess thyroid hormone
 - D. Corticosteroids
 - E. Alcohol

54. One half of adult height is achieved in most girls by age:
- A. One year
 - B. Two years
 - C. Five years
 - D. Seven years
 - E. None of the above
55. The musculoskeletal system is mostly derived from:
- A. Ectoderm
 - B. Endoderm
 - C. Mesoderm
 - D. None of the above
 - E. All of the above
56. The onset of most non-genetic congenital malformations occur:
- A. In the 1st trimester
 - B. In the 2nd trimester
 - C. In the 3rd trimester
 - D. Throughout the pregnancy
57. Bone remodeling occurs through the action of:
- A. Osteoblasts
 - B. Osteoclasts
 - C. Osteoblasts and osteoclasts
 - D. Collagen cross-linking

58. Bone remodeling processes of funnelization and cylinderization takes place in the:
- A. Epiphysis
 - B. Physis
 - C. Metaphysis
 - D. Diaphysis
 - E. Sysyphis
59. Peak height velocity occurs between Tanner Stages:
- A. 0 - I
 - B. I - II
 - C. II - III
 - D. III - IV
 - E. IV - V
60. A fracture containing multiple fragments is termed:
- A. Compression
 - B. Compound
 - C. Commplicated
 - D. Torus
 - E. Comminuted

61. A fracture pattern caused by rotational forces is termed:
- A. Oblique
 - B. Torus
 - C. Comminuted
 - D. Transverse
 - E. Spiral
62. Factors associated with avascular necrosis of bone include all the following EXCEPT:
- A. Corticosteroid medication
 - B. Trauma
 - C. Sickle cell disease
 - D. Autoimmune disease
 - E. Alcohol abuse
63. "Sprains" are injuries to:
- A. Tendons
 - B. Muscles
 - C. Joints
 - D. Ligaments
 - E. Epiphyses
64. A shoulder "separation" involves the:
- A. Glenohumeral joint
 - B. Sternoclavicular joint
 - C. Acromio-clavicular joint
 - D. Gleno-acromial space
 - E. Scapulo-thoracic space

65. The following statement about stress fractures are TRUE EXCEPT they:
- A. Are often radiographically "silent" initially
 - B. May be diagnosed by bone scan techniques
 - C. May be confused with a malignant process
 - D. Are difficult to clinically diagnose
 - E. May have prolonged healing times
66. Osteochondritis dissecans is MOST COMMON in the:
- A. Lateral talus
 - B. Medial talus
 - C. Medial femur
 - D. Lateral femur
 - E. Patella
67. Ankylosing spondylitis is associated with:
- A. Progressive scoliosis
 - B. Isolated spine disease
 - C. HLA - D4 antigen
 - D. HLA - B27 antigen
 - E. Short's arm deletion of "Y" chromosome
68. Idiopathic scoliosis accounts for what percentage of all types of scoliosis?
- A. 10%
 - B. 25%
 - C. 33%
 - D. 50%
 - E. 70%

69. Batson's plexus is commonly involved with metastatic disease of which primary malignancy?
- A. Colonic
 - B. Pancreatic
 - C. Hepatic
 - D. Lymphoma
 - E. Prostatic
70. Knee meniscal repairs are recommended in all the following zones EXCEPT:
- A. Red-red
 - B. Red-white
 - C. White-red
 - D. White-white
71. Lung cancer often metastasizes to the skeleton. All the following statements about this disease process are true EXCEPT:
- A. Associated with relatively shorter survival time than metastatic breast carcinoma
 - B. Spinal cord compression may occur
 - C. Patients can become hypocalcemic due to paraneoplastic PTHrP production
 - D. Metastases are usually osteolytic
 - E. Pattern of skeletal dissemination is related to anatomic location of the primary tumor

72. Choose the BEST statement regarding desmoid tumor:
- A. Intra-abdominal tumors typically encases the ureters and cause hydronephrosis
 - B. Disseminates primarily via the hematogenous route, especially to lungs
 - C. Associated with fibrosing conditions in other organs/sites
 - D. Associated with a family cancer syndrome
 - E. Most tumors arise in scars
73. Choose the BEST statement regarding the etiology of osteogenesis imperfecta.
- A. genetic abnormality mapped to chromosome 15q
 - B. Autosomal recessive inheritance
 - C. Defect in conversion of type I procollagen to collagen
 - D. Etiology unknown in most cases
 - E. Genetic defect in type I collagen gene
74. There is great clinical heterogeneity among patients with Marfan Syndrome. Which statement best describes the etiology of this disease?
- A. The abnormality resides in the microfibrillar system
 - B. The precise biochemical and molecular defects are not known in most types
 - C. Mutations have been mapped to chromosome 5q
 - D. Mutations have been mapped to the type I collagen gene
 - E. The abnormality resides in the elastin molecule

75. An adult gait pattern is achieved by:
- A. 2 years
 - B. 3 years
 - C. 5 years
 - D. 7 years
 - E. 8 years
76. Contiguous osteomyelitis is commonly associated with septic arthritis in the:
- A. Wrist
 - B. Elbow
 - C. Hip
 - D. Knee
 - E. Ankle
77. Raynaud's phenomenon is characterized by the following:
- A. Persistently cold hands regardless of the ambient temperature
 - B. More common in men than in women
 - C. Is rare in the general population (rare = < 0.1.%)
 - D. The best approach is to move to a warmer climate
 - E. May be the first sign of connective tissue or auto-immune disease, or it may occur alone in the absence of any disease process
78. Avascular necrosis of the bone is common in:
- A. Diabetes mellitus - Type II
 - B. Renal osteodystrophy
 - C. Alcoholism
 - D. Achondroplasia
 - E. Hypertension

79. The source of osteomyelitis in a 5-year-old is most likely:
- A. An open fracture
 - B. Post operative infection
 - C. Direct puncture wound
 - D. A bacteremia
 - E. A viremia
80. The primary collagenous component of bone is:
- A. Type I
 - B. Type II
 - C. Type III
 - D. Type V
 - E. Type X
81. The term used to designate surgical fusion of a joint:
- A. Arthroplasty
 - B. Arthrodesis
 - C. Arthrocentesis
 - D. Arthrosis
 - E. Arthrogryposis
82. Bone metastatic sites from which primary tumor are characteristically blastic-type?
- A. Thyroid
 - B. Colon
 - C. Lung
 - D. Renal
 - E. Prostate

83. "SCIWORA" refers to:
- A. Septic cartilage inflammation
 - B. Surgical closed instrumentation
 - C. Sequential cerebral integration
 - D. Spinal cord injury
 - E. Subchondral injury
84. Scheuermann's disease is:
- A. thoracic kyphosis 2 vertebral osteomyelitis
 - B. thoracic kyphosis 2 infectious discitis
 - C. thoracic kyphosis 2 unknown causes
 - D. thoracic kyphosis 2 vertebral osteomyelitis
 - E. thoracic kyphosis 2 acute trauma
85. Biomechanically, which is "heavier" on the spine?
- A. 50 pounds of lead
 - B. 50 pounds of wood
 - C. 50 pounds of feathers
 - D. 50 pounds of water
 - E. They are all the same
86. All of the following causes articular injury in septic arthritis EXCEPT:
- A. Bacterial toxins
 - B. Enzymatic action of bacteria
 - C. Joint passive motion
 - D. Increased intraarticular pressure
 - E. Secondary products of bacterial cell necrosis

87. A surgical emergency requiring incision and drainage exists in septic arthritis of the:
- A. Ankle
 - B. Knee
 - C. Hip
 - D. Wrist
 - E. Elbow
88. All of the following malignant primary tumors have a propensity to metastasize to bone EXCEPT:
- A. Thyroid
 - B. Breast
 - C. Lung
 - D. Renal
 - E. Pancreatic
89. The most common risk factor producing overuse injuries is:
- A. Sport technique
 - B. Training error
 - C. Sports equipment
 - D. Athlete size
90. The most common organism which causes osteomyelitis is:
- A. Staph. aureus
 - B. Strep. pyogenese
 - C. H. influenza
 - D. Salmonella
 - E. N. Gonorrhoea

91. The most common type of scoliosis is:
- A. Congenital
 - B. Degenerative
 - C. Neuro-muscular
 - D. Traumatic
 - E. Idiopathic
92. All the following statements about rickets are TRUE EXCEPT:
- A. Nutritional rickets can be cured completely and quickly with adequate vitamin D replacement
 - B. More common in underdeveloped countries
 - C. May occur due to limited exposure to ultraviolet irradiation
 - D. Characterized by depletion of bone matrix
 - E. The skeleton is undermineralized
93. All of the following are the result of UVB EXCEPT:
- A. Increased DNA synthesis
 - B. Dark repair
 - C. Burn
 - D. IL 10 production
 - E. Delayed tanning

QUESTIONS 94 - 100 ARE RELATED TO THE PHOTOGRAPHS PROVIDED.

94. Radiograph (A1) and photomicrograph (A2) are of the fifth finger of a 13 year old girl. What is the diagnosis?
- A. Solitary (unicameral) bone cyst
 - B. Aneurysmal bone cyst
 - C. Enchondroma
 - D. Osteochondroma
 - E. Giant cell tumor
95. MRI (B1) and photomicrograph (B2) are from a fibular tumor in an 11 year old girl. Choose the single best statement about this lesion.
- A. *Staphylococcus aureus* is the most likely causative organism
 - B. Most common primary malignant bone tumor
 - C. This is a stage IIB tumor in the Enneking staging system
 - D. This is most likely a benign tumor
 - E. Patient may show a monoclonal serum immunoglobulin spike
96. The picture (Figure C) shows a:
- A. Plaque
 - B. Lichenification
 - C. Fissure
 - D. Patch
 - E. Nodule

97. The above condition most likely results from:
- A. Active UVA exposure
 - B. Long term UVA and UVB exposure
 - C. Self-picking
 - D. Drug reaction
 - E. Eczema
98. The most likely diagnosis for the lesion depicted in Figure D is:
- A. Atopic dermatitis
 - B. Porphyria cutanea tarda
 - C. Drug reaction
 - D. Psoriasis
 - E. Melanoma
99. Choose the single best statement regarding the radiograph depicted in figure E.
- A. Most likely primary tumor is prostatic carcinoma
 - B. Autoimmunity plays an important role in the pathogenesis of this disease.
 - C. Patients with this disease have a high risk of fracture.
 - D. There is marked joint space narrowing.
 - E. This patient would probably be asymptomatic.

100. This radiograph (Figure F) is taken of the left and right legs of a 14 year old boy who presents with knee pain. Choose the single best statement about the lesion depicted.
- A. This lesion should be followed with repeat radiographs to see if it progresses.
 - B. The lesion is probably benign.
 - C. Chemotherapy is an effective modality in the management of this type of tumor.
 - D. Staphylococcus aureus is the most likely pathogen.
 - E. The histology would be "small blue cell tumor."