

MUSCULOSKELETAL STUDY GUIDE

The following pages summarize potential content for the Certifying and Maintenance Examinations in the Musculoskeletal section. The subject matter that may be used for a test question is listed below in outline form as a study guide.

- Imaging Techniques: indications and limitations (including radiography, CT, MRI, nuclear scintigraphy/PET, diagnostic and therapeutic aspiration and injections, percutaneous biopsy, ultrasound and bone mineral density)
- Normal/Normal Variants (including normal anatomy and physiology of bone and joints, primary and secondary ossification centers and sequence of ossification, physiologic radiolucencies, vascular channels, physiologic bowing, transverse/growth line, sesamoids and accessory ossicles, accessory muscles, tug lesions)
- Congenital and Developmental Spine Abnormalities (including scoliosis, os odontoideum, Klippel-Feil, vertebral anomalies, Schmorl node, Scheuermann disease, limbus vertebra)
- Congenital Anomalies and Dysplasias
 - Lower Extremity (including developmental hip dysplasia, Blount disease, discoid meniscus, foot deformities, syndactyly, polydactyly)
 - Upper Extremity (including Madelung deformity, congenital dislocation of the radial head, carpal coalition, syndactyly, polydactyly, Sprengel deformity)
 - Diffuse/Multifocal (including achondroplasia, osteogenesis imperfecta, sclerosing osseous dysplasias, osteopetrosis, cleidocranial dysplasia/dysostosis, amniotic band syndrome, connective tissue disorders such as Ehlers-Danlos syndrome and Marfan syndrome, neurofibromatosis, cerebral palsy, muscular dystrophies, congenital insensitivity to pain)
 - Miscellaneous (including mucopolysaccharidosis, tuberous sclerosis, Down syndrome, Turner syndrome, Apert syndrome, fibrodysplasia/myositis ossificans progressive, macrodystrophia lipomatosa, pachydermoperiostosis, nail-patella syndrome)
- Infection (including routes of spread, predisposing factors, common and other organisms including syphilis, rubella, leprosy, parasitic)
 - Osteomyelitis (common sites, terminology including sequestrum, involucrum, cloaca, Brodie abscess, sclerosing osteomyelitis, multifocal)
 - Septic Arthritis (bacterial, tuberculosis, Lyme disease)
 - Soft Tissue (including abscess, cellulitis, myositis, gas gangrene, necrotizing fasciitis)
- Tumors and Tumor-like Conditions
 - Imaging Features (including size, location, aggressiveness/growth pattern, internal characteristics, involvement of adjacent structures, margin/zone of transition, pattern of

- osteolysis, periosteal reaction, soft tissue mass, matrix/calcification, biopsy techniques, therapy options)
- Benign Bone Lesions (including cartilaginous, fibrous, osteogenic, lipid, vascular and miscellaneous)
- Miscellaneous Lesions (including Ollier disease, Maffucci syndrome, osteofibrous dysplasia (ossifying fibroma), liposclerosing myxofibrous tumor (LSMFT), hemophilic pseudotumor, hemangiopericytoma, Gorham disease, giant reparative granuloma)
- Malignant Bone Lesions (including cartilaginous, fibrous, osteogenic, vascular, miscellaneous and secondary tumors from radiation, Paget disease, metastases)
- Benign soft tissue lesions (including fibrous, neural, cartilaginous, vascular, lipid, muscle and miscellaneous)
- Malignant Soft Tissue Lesions (primary and secondary from leukemia, lymphoma, metastases)
- Trauma
 - General Principles (including relationship of force and deformation to fracture, mechanisms of injury, relevant anatomy and terminology, fracture patterns and associated injuries, fracture description, bone and soft tissue stress injuries, fracture healing, complications, open fractures)
 - Internal Derangement of Joints
 - Repetitive Trauma (tendinopathy, enthesophytes)
 - Soft Tissue Injuries and Myositis Ossificans (including grades of muscle and ligament tear)
 - Thermal Trauma (including burns and cold injuries)
 - Foreign Bodies (including gunshot wounds)
 - Adult Trauma
 - Pediatric Trauma (including nonaccidental trauma/child abuse)
- Metabolic Disorders (including osteoporosis, hyperparathyroidism, thyroid diseases, rickets and osteomalacia, renal osteodystrophy, pituitary disorders, intoxication/poisoning such as heavy metal/lead, fluorine, hypervitaminosis A and D)
- Hematologic Disorders (such as anemia, sickle cell, thalassemia, hemophilia, myelofibrosis, extramedullary hematopoiesis, marrow reconversion)
- Osteonecrosis (causes, site-specific disease)
- Periosteal Reaction (including primary and secondary hypertrophic osteoarthropathy and infantile cortical hyperostosis/Caffey disease)
- Miscellaneous (including Paget disease, sarcoidosis, radiation-induced marrow changes, mastocytosis, amyloidosis, lipid storage diseases)
- Arthropathy
 - General Features (including distribution, soft tissue changes, joint space width, bone density, osteophytes, subchondral cysts, osseous erosions, proliferative new bone, joint deformity, calcification)
 - Osteoarthritis
 - Inflammatory (including rheumatoid, psoriatic, reactive arthritis, ankylosing spondylitis, enteropathic, spondyloarthropathy, juvenile chronic arthritis)
 - Connective Tissue Diseases (systemic lupus erythematosus [SLE], scleroderma, dermatomyositis, polymyositis)
 - Crystal-associated (including gout, calcium pyrophosphate deposition disease [CPPD])
 - Joint Replacement Procedures and Complications

- Miscellaneous (including hemochromatosis, pigmented villonodular synovitis, synovial chondromatosis, osteitis condensans ilii, degenerative disc disease, diffuse idiopathic skeletal hyperostosis [DISH], alkaptonuria/ochronosis)

SAMPLE QUESTIONS:

CASE 1:

1A. What is the most likely diagnosis?



A.

- A. Tumor
- B. Fracture
- C. Infection
- D. Thigh splints

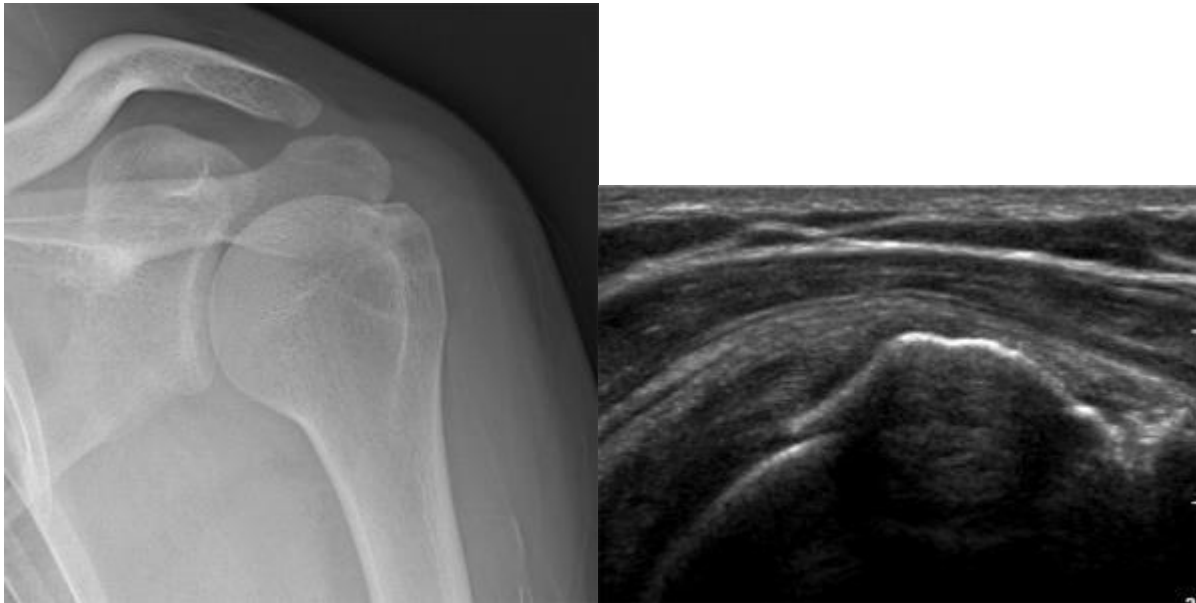
BLOCK (after you answer question 1A and proceed to question 1B, you cannot go back and change your answer to question 1A)

1B. Which location of osteoid osteoma is associated with a lack of periosteal reaction?

- A. Cortical
- B. Subperiosteal
- C. Intra-articular
- D. Medullary

CASE 2:

1. What is the most likely diagnosis?



- A. Rotator cuff tear
- B. Greater tuberosity fracture
- C. Calcific tendinosis
- D. Intra-articular body