

NAME OF ROTATION:
Musculoskeletal Radiology (Bone)

DIRECTOR OF ROTATION:
Jehangir Patel, M.D.

OVERVIEW:

The musculoskeletal radiology rotations are designed for senior residents who have already gained extensive training in musculoskeletal radiology in their Emergency, MRI, Pediatric and Nuclear Medicine rotations. These rotations will be supplemented by a lecture series presented annually as well as extensive reading of the musculoskeletal radiology literature and review of the ACR teaching file.

The resident is expected to be in the radiology department or 3300 Main Street from 7:30 a.m. – 5:00 p.m. except for conferences and other designated assignments. The resident should inform the attending about any absences from the rotation. The resident is expected to protocol upcoming musculoskeletal MRIs, evaluate all musculoskeletal MRIs and CTs, perform arthrograms with attending supervision, and dictate all studies reviewed or performed.

GOALS AND OBJECTIVES:

The overall goal of these rotations is to train the resident sufficiently to be able to function competently and independently in the performance and interpretation of all Musculoskeletal Radiology imaging including interventional procedures.

Musculoskeletal Radiology Rotation I

During this rotation, the resident will:

Patient Care:

1. Review the ACR standards and departmental policies and protocols pertinent to musculoskeletal radiology.
2. Observe, then assist, the attending radiologist in performing arthrography after obtaining informed consent.
3. Understand the principles of radiation protection and use this knowledge to minimize radiation dose to each patient.
4. Attain a basic fund of knowledge in musculoskeletal radiology in order to address patient's questions and concerns and deliver high quality patient care.

Medical Knowledge:

1. Review the entire ACR Musculoskeletal Teaching File.
2. Protocol, supervise, review and dictate, with staff supervision, all musculoskeletal MRIs and CTs.
3. Review and interpret, with staff supervision, at least ten-twenty examinations per day from the Orthopedic Clinic.

4. Attend the Monday fracture conference presented by the Orthopedic Surgeons.
5. Attend Monday afternoon Shriners Pediatric Orthopedic Conference.
6. Attend two Thursday afternoon Orthopedic Clinics.
7. Read texts numbers 1, 3, 6, 8, 9 and 11 from the recommended reading list.
8. Contribute two cases for the musculoskeletal teaching file.
9. Develop competence in the anatomy, pathology, and imaging assessment of musculoskeletal disorders.

Interpersonal Communication Skills:

1. Demonstrate precise, effective, and timely communications skills with patients and technologists to ensure satisfactory examinations and to provide reassurance to the patients during any procedure.
2. Communicate effectively with all members of the health care team and demonstrate competence in recognizing significant findings by directly calling referring physicians for positive urgent findings.

Practice Based Learning Improvement:

1. Effective and up to date utilization of electronic and text resources, including the major radiology journals.
2. Utilize critical feedback and evaluations to improve resident performance.
3. Identify, learn and correct from personal mistakes and utilize resources to avoid similar circumstances in the future.

Professionalism:

1. Demonstrate appropriate decorum of a physician.
2. Demonstrate respect for patients and other members of the health care team.
3. Honor patient confidentiality.
4. Demonstrate a responsible work ethic towards daily tasks and assignments.
5. Demonstrate punctuality and follow up on appropriate assignments and tasks.

Systems Based Practice:

1. Demonstrate proficiency in basic concepts of musculoskeletal imaging during resident and interdepartmental conferences.
2. Demonstrate competence in ACR practice guidelines and technical standards for musculoskeletal procedures.
3. Understand the importance of appropriate musculoskeletal studies in the context of overall patient care and management.

Musculoskeletal Radiology Rotation II

During this rotation the resident will continue to refine the goals and objectives of Rotation I and further his/her skills with the following:

Patient Care:

1. Review the ACR standards and departmental policies and protocols pertinent to musculoskeletal radiology.
2. Obtain consent and then perform musculoskeletal procedures under attending supervision.
3. Understand the principles of radiation protection and use this knowledge to minimize radiation dose to each patient.
4. Obtain a more advanced fund of knowledge in musculoskeletal radiology in order to address patient's questions and concerns and deliver high quality patient care.

Medical Knowledge:

1. Demonstrate proficiency in all aspect of musculoskeletal imaging.
2. Manage all aspects of musculoskeletal MR and CT exams, including special protocols, review, and interpretation.
3. Complete reading texts listed on the recommended reading lists.
4. Contribute at least two cases to the musculoskeletal teaching file.
5. Function competently as a consultant in musculoskeletal radiology with orthopedic surgeons and other clinicians.
6. Review interesting pediatric orthopedic cases from the Shriners Hospital with a pediatric or musculoskeletal radiologist weekly.
7. Maintain a list of all musculoskeletal interventional procedures and review the list with the Service Director to determine if additional experience is necessary.

8. Teach junior residents the basics of musculoskeletal imaging interpretation.

Interpersonal Communication Skills:

1. Generate accurate and concise reports.
2. Become capable of obtaining informed consent addressing concerns such as risk/benefits, complications rates and alternative methods
3. Demonstrate proficiency in communicating with other members of the health care team.

Practice Based Learning Improvement:

1. Effective and up to date utilization of electronic and text resources, including the major radiology journals.
2. Utilize critical feedback and evaluations to improve resident performance.
3. Identify, learn and correct from personal mistakes and utilize resources to avoid similar circumstances in the future.

Professionalism:

1. Demonstrate appropriate decorum of a physician.
2. Demonstrate respect for patients and other members of the health care team.
3. Honor patient confidentiality.
4. Demonstrate a responsible work ethic towards daily tasks and assignments.
5. Demonstrate punctuality and follow up on appropriate assignments and tasks.

Systems Based Practice:

1. Demonstrate proficiency in more advanced concepts of musculoskeletal imaging during resident and interdepartmental conferences.
2. Demonstrate competence in ACR practice guidelines and technical standards for musculoskeletal procedures.
3. Understand the role of musculoskeletal studies in the context of overall patient care and management.

The Service Director will meet with the resident at the beginning of each rotation to discuss the goals and objectives of the rotation and at the end of the rotation to discuss the resident's performance relative to the stated goals and objectives. The Service Director will complete a standard written evaluation form for the resident at the end of each rotation. This written evaluation will be sent to the program director for use in compiling the resident's semi annual overall evaluation. The evaluation will be discussed with the resident at the end of the rotation by the Service Director and an opportunity for resident feedback and rotation evaluation will be provided.

COMPREHENSIVE READING LIST:

1. Musculoskeletal Imaging: The Requisites 2nd Edition (2002), Master, Disler, & May.
2. Bone and Joint Imaging, 3rd Edition (2005). Resnick & Kransdorf.
3. Fundamentals of Skeletal Radiology, 2nd Edition (1995). Clyde Helms.
4. Magnetic Resonance Imaging in Orthopaedics and Sports Medicine, 2nd Edition (1997). David Stoller.
5. Orthopedic Radiology. A Practical Approach, 3rd Edition (2000). Adam Greenspan.
6. Orthopedic Radiology (1986). Barbara Weissman and Clement Sledge.
7. Pediatric Orthopedic Radiology, 2nd Edition (1992). Ozonoff.
8. Magnetic Resonance Imaging of the Body, 3rd Edition (1997). Higgins, Hricak, and Helms.
9. Arthrography (1979). Frieberger and Kaye.
10. ACR Bone Syllabi.
11. Musculoskeletal MRI (2001). Kaplan, Helms et. al.
12. Radiology of the Foot and Ankle, 2nd Edition (1999). Berquist.
13. Arthritis in Black and White (1996). Brower.
14. MRI Clinics of North America.
15. Radiology of Skeletal Trauma (2002) 3rd edition Rogers.
16. Shoulder Magnetic Resonance Imaging (1998). Steinbach.
17. MRI Arthroscopy and Surgical Anatomy of Joints (1998). Stoller.
18. Musculoskeletal Ultrasound (2001), 2nd edition VanHolsbeek.
19. Diagnosis of Bone and Joint Disorders (2002) 4th edition Resnick
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20. Musculoskeletal Imaging. A teaching File (1999) Chew, Maldjian & Leffler.
21. Diagnostic Imaging – Orthopedics (2004). Stoller, et. al.

MUSCULOSKELETAL RADIOLOGY LECTURE SERIES:

1. Introduction to Bone Trauma
2. Fractures and Dislocations of the Appendicular Skeleton
3. Facial Bone and Skull Trauma
4. Spinal Trauma
5. Normal Anatomy and Congenital Anomalies of the Upper Extremities
6. Normal Anatomy and Congenital Anomalies of the Lower Extremities
7. Normal Anatomy and Congenital Malformations of the Spine, Thorax, and Pelvis
8. Upper Extremity Trauma
9. Congenital Malformations of the Ankle and Foot
10. Dwarfs
11. Cervical Spine Trauma
12. Bone Metabolism
13. Plain Film Evaluation of Bone Tumors
14. MRI of the Knee
15. Rheumatoid Arthritis and Variants
16. Sinus Disease
17. Osteomyelitis
18. Nuclear Medicine Evaluation of Bone and Soft Tissue Infections
19. Pediatric Hip Disorders
20. MRI of the Shoulder, Elbow and Wrist
21. Arthrography of the Shoulder, Wrist and Ankle
22. Nuclear Medicine Evaluation of Bone Disease
23. CT Evaluation of Disk Disease

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MUSCULOSKELETAL RADIOLOGY LECTURE SERIES (cont'd):

24. Benign Bone Tumors
25. Malignant Bone Tumors

26. Postoperative Evaluation of the Hip
27. Nuclear Medicine Evaluation of Bone Tumors
28. Paget's Disease
29. Erosive Arthritides
30. Lower Extremity Trauma
31. Ultrasound Evaluation of Joint Disorders
32. Pelvic Ring and Acetabular Fractures
33. Orthopedic Hardware
34. MRI of the Ankle and Foot

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