



School of Medicine
Department of Radiology

MEMORANDUM

TO: Radiology 5001 Students

FROM: Clarence Joe, D.M.D., M.D.
Course Director

Jim Corley, M.S.
Education Coordinator

SUBJECT: Radiology 5001 Elective
Academic Year 2007 - 2008

DATE: June 6, 2008

Welcome to the Radiology 5001 Elective!

Enclosed you will find information explaining the elective, what you are expected to do and learn, and how we can help you. You should get the impression that this will be an active four weeks. You are expected to do your share of learning through participation.

The major focus of the next four weeks will be clinical radiological correlation. We can't teach you to "*read*" films during this time, but we can present certain information, which should make it easier for you to utilize Radiology in your clinical approach to problem solving.

If you should have any questions or need assistance, you may contact Mr. Corley at 1-2867, Fran Wolff at 1-2076, or myself at extension 1-2076.

Mr. Corley: Phone 721-2867, Pager 723-1197 jcorley@mail.mcg.edu
Ms. Wolff: Phone 721-2076, franw@mail.mcg.edu

RADM 5001 RADIOLOGY ELECTIVE

GENERAL DESCRIPTION

This course is a four-week elective for phase III and IV medical students. The time is divided into a series of rotations through several of the major areas of the radiology department at MCGHI and the CMC. It is expected that students be on site and prepared to begin work by 8:00 a.m. daily, Monday through Friday, and remain until 4:30 p.m. unless otherwise indicated or dismissed by the attending radiologist or the radiology resident on the service. Introductory lectures and case presentations will be held daily according to the attached schedule. Students may be assigned to work up and present cases.

GOALS AND OBJECTIVES

The primary goal of the elective is for the participating medical student to develop a better understanding of the functions of radiology as a contributor to primary care of the patient. Through the lectures, case studies, and clinical interactions, the student will learn the importance of thoroughness in reporting clinical information when ordering radiographic procedures and proper patterns of imaging resource utilization. The student will learn to recognize certain basic radiographic signs and patterns.

Specific objectives have been written for most of the clinical rotations as a guide to student learning in that clinical area. Please refer to them at the beginning of that rotation.

EVALUATION

The course grade will be based upon a combination of attendance, participation, interest in learning and demonstrated knowledge during film review sessions, and the final exam score.

1. Each week's (rotation site) evaluation will be done using the One45 Program.
2. If there is disagreement among the evaluations as to the grade (i.e., A vs B) then the amount of improvement from the Pre-test to the Post-test exam will be considered in the final determination of your grade.

TEXTBOOK

The course textbook, *Squire's Fundamentals of Radiology* 6th Edition is provided by the Radiology Faculty. The book must be returned on the last day of the course. Your grade will **not** be reported until the book is returned. The bookstore stocks the book if you should want to purchase your own copy. During the first week the suggested reading assignment is Chapters 1, 2 & 3. For each rotation or as questions arise in your mind read the appropriate chapter in your textbook. Some rotation sites have a suggested reading assignment, which is listed on the following pages of this outline.

IMAGING PRIMER

The Radiology Imaging Primer is the primary source of information regarding clinical indications and appropriateness of examinations. The Imaging Primer is also online at:

www.radiology.mcg.edu/radprimer

It is also located on the One45 program under learning objectives.

Each student will review the CT body and US PowerPoint self-instruction presentations as part of their body imaging rotations-please see Dr. Karmin for access.

ABSENCES

You will be allowed two absences for the rotation. Beyond two days arrangements to make up the day will have to be accomplished prior to reporting out your grade.

GENERAL RADIOLOGY (MCGHI/ACC/ER/Pit)

Schedule: 7:30 a.m. - 3:30 p.m., M, W, and F; 8:00 to 4:30 Tuesday and Thursday

Rotation Directors: Dr. Daley.

Facilitators: Radiology residents.

Specific goals:

Students should develop a basic understanding of the role of the radiologist in reading films in the ICU and emergency room environment; plain film radiographs; and mammography.

Students will correlate pathological data with radiological data to develop an appreciation of the role of radiology in the diagnostic process and the importance of correlation of data from all sources in making an accurate diagnosis.

Students will observe film reading sessions with attendings and residents in the MCG general radiology (plain film) area, and outpatient area, concentrating on diseases of the chest:

- a. air space vs. interstitial space lung densities
- b. pleural effusion and pneumothorax
- c. hemoptysis
- d. dyspnea
- e. unexplained chest pain

Students will observe film reading sessions and biopsy procedures in mammography.

Suggested Reading: Squire's *Fundamentals of Radiology* 5th Edition

Chapter 4, How to Study the Chest, p. 80

Chapter 5, The Lung, p. 92

Chapter 6, Lung Consolidations and Pulmonary Nodules, p. 112

Chapter 7, The Diaphragm, the Pleural Space, and Pulmonary Embolism, p. 126

Chapter 8, Lung Overexpansion, Lung Collapse, and Mediastinal Shift, p. 140

Chapter 9, The Mediastinum, p. 158

Chapter 10, The Heart, p. 174

Suggested Web site: http://rad.usuhs.mil/rad/chest_review/index.html

VASCULAR/INTERVENTIONAL RADIOLOGY

Schedule: 8:00 a.m.-4:30 p.m.; Radiology University Hospital. (except for scheduled lectures and conferences).

Call 733-0188, ext. 3947 at 8:30 a.m. to find where the procedures are being done, then proceed to that location.

Rotation Directors: Drs. Riggans and Tannehill

At the end of the rotation, the student should be able to:

1. List several conditions for which angiography is an appropriate diagnostic procedure.
2. Describe the general procedure for percutaneous punctures and catheter placement.
3. Discuss the characteristics of contrast agents used in angiography, particularly those that sometimes brings on adverse clinical reactions in certain patients.
4. Name and describe one interventional procedure done in angiography.

During the rotation, the student should observe both diagnostic and interventional procedures.

Suggested Reading: Squire's *Fundamentals of Radiology* 5th Edition

Chapter 19, Interventional Radiology p. 548

BODY IMAGING (MCGHI)

Schedule: 8:00 a.m.-4:30 p.m., M-F; MCG, 2nd floor (except for scheduled lectures and conferences).

Rotation Directors: Drs. Rawson, Sostre, Munroe, Bates and Thigpen.

Facilitators: Radiology Residents and Fellow.

Specific goals:

Students should learn and demonstrate general knowledge of:

- a. GI anatomy by barium studies.
- b. GU anatomy by IVP.
- c. Chest and abdomen anatomy.

Students should observe attending radiologists triage, protocol, monitor and interpret:

- a. UGI, colon, and IVP exams.
- b. CT exams.
- c. U/S exams of abdomen.

Students should learn:

- a. the types of clinical questions which can be answered with radiology exams,
- b. how to use radiology requests, staff, and faculty to order examinations which have high yield in answering the clinical questions.

Suggested Reading: Squire's *Fundamentals of Radiology* 5th Edition

Chapter 11, How to Study the Abdomen, p. 210

Chapter 12, Bowel Gas Patterns, Free Fluid, and Free Air, p. 244

Chapter 13, Contrast Study and CT of the Gastrointestinal Tract, p. 260

Chapter 14, The Abdominal Organs, p. 300

Radiology Imaging Primer

Each student will review the CT body and US PowerPoint self-instruction presentations as part of their body imaging rotations-please see Dr. Karmin for access.

NEURORADIOLOGY (MCGHI)

Schedule: 8:00 a.m.-4:30 a.m., M-F; MCG, 2nd floor SCC (except for scheduled lectures and conferences).

Rotation Director: Drs. Figueroa, Nieves, and Araque.

Facilitators: Radiology Fellows and Residents.

Specific goals:

Students will study a normal CT and anatomic skull model, and apply basic anatomy to images.

Students should observe and learn patient preparation and indications for:

- a. CNS, MRI, and CT.
- b. Myelography.
- c. Angiography.

Students should be able to discuss diagnostic radiological algorithms for the following clinical problems:

- a. Seizures.
- b. Stroke.
- c. Headaches.
- d. Neck and backache.
- e. Paralysis.
- f. Head and spine trauma.

Students will learn to recognize normal brain structures (hemisphere, ventricles, vascular structures) and their importance in classic pathologic processes.

Suggested Reading: Squire's *Fundamentals of Radiology* 5th Edition

Chapter 18, The Central Nervous System, p. 506

NUCLEAR MEDICINE (MCGHI)

Schedule: 8:00 a.m. -4:30 p.m., MCG 2nd floor (except for scheduled lectures and conferences).

Rotation Director: Drs. Williams, Kaminski and Sostre

Facilitators: Radiology Residents.

Specific goals: Students should be able to discuss indications and patient preparation for:

1. Liver-spleen scan.
2. Hepatobiliary scan.
3. Bone scan.
4. V/Q scan.
5. Renal scan.
6. Brain scan.
7. Thyroid scan.

Students should observe procedures being don and participate in film review sessions.

Given images of one of the above procedures, students should be able to identify the normal/abnormal pathology demonstrated by the Radiopharmaceutical.

MUSCULOSKELETAL (MCGHI)

Schedule: 9:00 a.m - 5:00 p.m., M; MCG 2nd floor ACC. (Dr. Joe will advise time to report T-F)

Rotation Director: Dr. Joe.

Specific goals:

Students should learn and demonstrate radiographic knowledge of the appendicular skeleton.

Students should learn the basic radiographic appearance of fractures, including:

1. Subtle (soft tissue swelling and need for additional views).
2. Acute (broken cortex, impacted, etc.)
3. Healing.
4. Healed.

Students should learn proper terminology in the requisition of radiographs.

Suggested Reading: Squire's *Fundamentals of Radiology* 5th Edition

Chapter 3 Normal Radiological Anatomy p. 42
Chapter 15 Musculoskeletal System, p. 352

PEDIATRIC RADIOLOGY (CMC)

Schedule: 8:00 a.m. - 4:30 p.m., 2nd floor (except for scheduled lectures and conferences).

Rotation Directors: Drs. Greenfield, Araque & Sostre.

Facilitators: Radiology Residents.

General Activities: Students should observe:

1. Preparing the patient for examination and the performance of the exam.
2. Applying techniques to reduce radiation exposure.
3. Students should sit with the resident or attending during reading sessions to observe the process of film review and reporting.

Objectives: At the end of the rotation, the student should be able to:

1. Describe the various types of procedures and techniques used to image pediatric patients.
2. Identify on a plain film the general anatomic structures of an infant or child.
3. Discuss specific pathologies in which radiographic procedures provide key information leading to the diagnosis and/or management of the patient.

Suggested Reading: Squire's *Fundamentals of Radiology* 5th Edition

Chapter 16, Men, Women, and Children, p. 406

Radiology Imaging Primer

RADIATION ONCOLOGY (Georgia Radiation Therapy Center)

Schedule: 8:00 a.m. – 4:30 p.m., M – F

Rotation Director: Drs. Greskovich, Chang and Sheils

Knowledge - Through didactic session and audiovisual presentations, the student should understand the pathophysiology and management of two of the most frequent radiation oncology emergencies - superior vena cava syndrome and spinal cord compression.

Skills - The student should be able to:

Identify the radiographic features on chest x-ray, which might suggest benign, or malignant (Superior Vena Cava Syndrome) SVC syndrome and spinal cord compression (SCC).

Define the clinical presentation and the physical examination of a patient presenting with SVC syndrome and SCC, correlating clinical with radiographic findings.

Provide a differential diagnosis for SVC and SCC syndrome.

Appropriately suggest management of SVC and SCC syndrome.

Skills (Spinal Cord Compression) - The student should be able to:

Observe oncologists, technologists, dosimetrists, and technicians in their preparation and performance of patient treatment protocols.

Attend conferences and case reviews.

ATTENDING RADIOLOGISTS	EXTENSION	
Dr. Thigpen (Body Imaging)	1-2076	
Dr. Chang (Radiation Oncology)	1-2971	
Dr. Bates (Body Imaging)	1-2076	
Dr. Craft (Mammography)	1-0183	
Dr. Daley (Outpatient Radiology)	1-2076	
Dr. Thigpen (Mammography & GI Radiology)	1-0183	
Dr. Munroe (Body Imaging)	1-2076	
Dr. Figueroa (Chief, Neuroradiology)	1-2076	
Dr. Greenfield (Pediatric Radiology)	1-3214	
Dr. Joe (Musculoskeletal Radiology)	1-2076	
Dr. Williams (Nuclear Medicine)	1-2076	
Dr. Nieves (Neuroradiology)	1-2076	
Dr. Rawson (Chairman & Body CT)	1-2076	
Dr. Schnuck (VA Radiology)	823-2236	
Dr. Sostre (Body Imaging)	1-2076	
Dr. Tannehill (Angio)	724-5444	

Radiology 5001 Outline

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RADIOLOGY CLINICAL SITES	Extension	Building	Floor	Room #
Body Imaging/Ultrasound	1-4948	BI MCGHI Sydenstricker	2 nd Floor	2255
General Radiology (ACC/SCC/ER, "Pit")	1-3251	BP MCGHI SCC	2 nd Floor	2425
Interventional Radiology		University Hospital	Radiology	
Mammography	1-0183	BA MCGHI Talmadge	1 st Floor	1466
Musculoskeletal	1-2741	BP MCGHI ACC	2 nd Floor	2117
Neuroradiology	1-2076	BP MCGHI SCC	2 nd Floor	2436
Nuclear Medicine	1-2867	BI MCGHI Sydenstricker	2 nd Floor	2034
Pediatric Radiology	1-5201	BT MCGHI CMC	2 nd Floor	2701/2742
Radiation Oncology	1-2971	HK Ga Radiation Therapy Center	1 st Floor	
VAMC Radiology	823-2236	PV VA Medical Center	2 nd Floor	2D212
Lecture Classroom (Pastoral Care)		BA MCGHI Talmadge	2 nd Floor	2477

