

Revised: Spring 2016

RAD 240

Radiographic Pathology

COURSE OUTLINE

Prerequisites: None

Course Description:

Presents a survey of common medical and surgical disorders that affect radiographic images. Discusses conditions related to different systems of the human body. Studies the correlation of these conditions with radiographs.

Semester Credits: 3 Lecture Hours: 3 Lab/Recitation Hours: 0

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RAD 240 Radiographic Pathology

Course Outcomes

After reading each chapter, the student will be able to:

- a. Classify the more common diseases in each system in terms of their attenuation of x-rays
- b. Explain the changes in technical factors required for obtaining optimal quality radiographic images in patients with various underlying pathologic conditions
- c. Define and describe all bold-faced terms in the chapter
- d. Characterize the various alterations of cell growth
- e. Describe the various immune reactions of the body
- f. Describe various imaging modalities used in producing images of diseases
- g. Identify all equipment implanted and used as accessories in disease diagnosis and treatments especially depicted on medical images
- h. Identify physiology of each system and identify anatomic structures on diagrams and radiographic images.
- i. Ultimately, be able to make logical inferences about patient conditions in relation to the imaging requests.

Final Objective: Prepare a 10 minute report and presentation on a disease process(es) utilizing knowledge gained from the chapters and images used in the course plus examples experienced in the clinical setting that relate to the specific condition or disease. The project should contain the following: signs, symptoms, diagnosis, testing and values, treatments, imaging protocols, prognosis, any correlation to patient histories that were presented on imaging requests, national and regional medical epidemiological data. Specific topics and more details will be given out in class.

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Topical Description

1. Introduction to Pathology
 - a. Disease
 - b. Hereditary Diseases
 - c. Infections Disease Exposure
 - d. Acquired Immunodeficiency Syndrome
2. Specialized Imaging Techniques
 - a. Diagnostic Imaging Modalities
3. Skeletal System
 - a. Physiology of the skeletal System
 - b. Congenital/Hereditary Diseases of Bone
 - c. Inflammatory and Infectious Disorders
 - d. Metabolic bone Disease
 - e. Fibrous Dysplasia
 - f. Ischemic Necrosis of Bone
 - g. Benign Bone tumors
 - h. Malignant Bone Tumors
 - i. Bone Metastases
 - j. Fractures
 - k. Fractures and Dislocations of the Spine
 - l. Herniation of Intervertebral Disks
 - m. Scoliosis
 - n. Spondylolysis and spondylolisthesis
4. Gastrointestinal system
 - a. Physiology of the Digestive System
 - b. Esophagus
 - c. Stomach
 - d. Small Bowel
 - e. Colon
 - f. Gallbladder
 - g. Liver
 - h. Pancreas
 - i. Pneumoperitoneum
 - j. Spleen
5. Urinary System
 - a. Physiology of the Urinary System
 - b. Congenital/Hereditary Diseases

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- c. Inflammatory Disorders
- d. Urinary Calculi
- e. Urinary Tract Obstruction
- f. Cysts and Tumors
- g. Renal Vein Thrombosis
- h. Acute Renal Failure
- i. Chronic Renal Failure
- 6. Respiratory System
 - a. Physiology of the Respiratory System
 - b. Internal Devices
 - c. Congenital/Hereditary Diseases
 - d. Inflammatory Disorders of the Upper Respiratory System
 - e. Inflammatory Disorders of the Lower Respiratory System
 - f. Diffuse Lung Disease
 - g. Neoplasms
 - h. Vascular Diseases
 - i. Miscellaneous Lung Disorders
 - j. Disorders of the Pleura
 - k. Mediastinal Masses
 - l. Disorders of the Diaphragm
- 7. Cardiovascular System
 - a. Physiology of the Cardiovascular System
 - b. Congenital Heart Disease
 - c. Acquired Vascular Disease
 - d. Valvular Disease
 - e. Pericardial Effusion
 - f. Venous Disease
- 8. Nervous System
 - a. Physiology of the Nervous System
 - b. Infections of the Central Nervous System
 - c. Tumors of the Central Nervous System
 - d. Traumatic Processes of the Brain and Skull
 - e. Vascular Disease of the Central Nervous System
 - f. Multiple Sclerosis
 - g. Epilepsy and Convulsive Disorders
 - h. Degenerative Diseases
 - i. Hydrocephalus
 - j. Sinusitis
- 9. Hematopoietic System
 - a. Physiology of the Blood

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- b. Diseases of Red Blood Cells
- c. Diseases of White Blood Cells
- d. Diseases of Platelets (Bleeding Disorders)
- 10. Endocrine System
 - a. Physiology of the Endocrine System
 - b. Adrenal Gland
 - c. Pituitary Gland
 - d. Thyroid Gland
 - e. Parathyroid Glands
 - f. Diabetes Mellitus
- 11. Reproductive System
 - a. Infectious Diseases of Both Genders
 - b. Male Reproductive System
 - c. Physiology of the Male Reproductive System
 - d. Benign Prostatic Hyperplasia
 - e. Carcinoma of the Prostate Gland
 - f. Staging
 - g. Undescended Testis (Cryptorchidism)
 - h. Testicular torsion and Epididymitis
 - i. Testicular Tumors
 - j. Female Reproductive System
 - k. Physiology of the Female Reproductive System
 - l. Pelvic Inflammatory Disease
 - m. Cysts and Tumors
 - n. Breast Lesions
 - o. Imaging in Pregnancy
- 12. Miscellaneous Diseases
 - a. Nutritional Diseases
 - b. Systemic Lupus Erythematosus
 - c. Melanoma
 - d. Muscular Dystrophy
 - e. Hereditary Diseases

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Required Materials

Textbook:

*“Radiographic Pathology For Technologists”, Nina Kowalczyk, Latest Edition, Elsevier,
ISBN: 978-0-323-08902-9*

The following supplementary materials are available:

1. Several resource pathology textbooks are located in the Radiography Lab.

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Notes to Instructors:

1. Radiographic images may be retrieved from the clinical sites by the Clinical Instructors ONLY .

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