RAD 394-3
CT and MRI Pathology

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Radiologic Sciences

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COURSE DESCRIPTION:

This course is designed as an overview of the pathologies commonly seen in computed tomography and magnetic resonance imaging. Along with distinguishing various types of pathologies as seen on CT and MRI scans, emphasis will be placed on a general understanding of the descriptions, etiology, signs and symptoms, manifestations, treatments, and prognosis of those pathologies. Prerequisite: RAD 362 or consent of instructor.

TEXTBOOK:

Required:


COURSE OBJECTIVES:

Upon completion of this course, the student will be able to:

1. Differentiate between normal and pathologic structures.
2. Identify various types of pathologies commonly seen in the central nervous system, head/neck, chest, abdomen, pelvis, musculoskeletal (joints), and vascular system.
3. Define the terminology commonly used in identifying these pathologies.

TOPICAL OUTLINE and OBJECTIVES:

I. General Principles
1. Define terms relating to general principles of pathology.
2. Define terms related to cancer.
3. List and define (4) different tissue types.
4. List and define (4) types of cancer.
5. Differentiate between malignant vs. benign tumors.
6. List and explain (3) methods cancers metastasize.
7. Differentiate between the staging and grading of cancerous tumors.
8. List and describe the (3) common methods of treating cancer.
9. List and explain the (7) warning signs of cancer.
II. Central Nervous System
1. Define terms related to the central nervous system.
2. List indications for performing a CT and/or MRI examination on the CNS.
3. Provide a description of the pathologies discussed in class.
4. Provide an etiology statement for the pathologies discussed in class.
5. Provide an epidemiology statement for the pathologies discussed in class.
6. List and describe common signs and symptoms associated with diseases and disorders of the central nervous system. (See HO & Textbook)
7. Describe the CT and MRI imaging characteristics of the pathologies discussed in class.
8. List the method of treatment for the pathologies discussed in class.
9. List the prognosis of the pathologies discussed in class.
10. Discuss the CT myelography procedure.

III. Head and Neck
1. Define terms related to the head and neck.
2. Provide a description of the pathologies discussed in class.
3. Provide an etiology statement for the pathologies discussed in class.
4. Provide an epidemiology statement for the pathologies discussed in class.
5. List and describe common signs and symptoms associated with diseases and disorders discussed in class.
6. Describe the CT and MRI imaging characteristics of the pathologies discussed in class.
7. List the method of treatment for the pathologies discussed in class.
8. List the prognosis of the pathologies discussed in class.

IV. Thorax (Chest and Mediastinum)
1. Define terms related to the cardiovascular and pulmonary systems.
2. List indications for performing a CT and/or MRI examination on chest and/or mediastinum.
3. Provide a description of the pathologies discussed in class.
4. Provide an etiology statement for the pathologies discussed in class.
5. Provide an epidemiology statement for the pathologies discussed in class.
6. List and describe common signs and symptoms associated with diseases and disorders discussed in class. (See HO & Textbook)
7. Describe the CT and MRI imaging characteristics of the pathologies discussed in class.
8. List the method of treatment for the pathologies discussed in class.
9. List the prognosis of the pathologies discussed in class.

V. Abdomen
1. Define terms related to the abdomen.
2. List indications for performing a CT and/or MRI examination of the abdomen and pelvis.
3. Provide a description of the pathologies discussed in class.
4. Provide an etiology statement for the pathologies discussed in class.
5. Provide an epidemiology statement for the pathologies discussed in class.
6. List and describe common signs and symptoms associated with diseases and disorders discussed in class. (See HO & Textbook)
7. Describe the CT and MRI imaging characteristics of the pathologies discussed in class.
8. List the method of treatment for the pathologies discussed in class.
9. List the prognosis of the pathologies discussed in class.
VI. **Pelvis**
1. Define terms related to the pelvis.
2. Provide a description of the pathologies discussed in class.
3. Provide an etiology statement for the pathologies discussed in class.
4. Provide an epidemiology statement for the pathologies discussed in class.
5. List and describe common signs and symptoms associated with diseases and disorders discussed in class. (See HO & Textbook)
6. Describe the CT and MRI imaging characteristics of the pathologies discussed in class.
7. List the method of treatment for the pathologies discussed in class.
8. List the prognosis of the pathologies discussed in class.
9. List (8) areas in evaluating the abdomen/pelvis.

VII. **Musculoskeletal (Joints)**
1. Define terms related to the musculoskeletal system.
2. List indications for performing a CT and/or MRI examination on the musculoskeletal system.
3. Provide a description of the pathologies discussed in class.
4. Provide an etiology statement for the pathologies discussed in class.
5. Provide an epidemiology statement for the pathologies discussed in class.
6. List and describe common signs and symptoms associated with diseases and disorders discussed in class. (See HO & Textbook)
7. Describe the CT and MRI imaging characteristics of the pathologies discussed in class.
8. List the method of treatment for the pathologies discussed in class.
9. List the prognosis of the pathologies discussed in class.

**GRADING SCALE:**

The grading will be on a straight scale. Course grades will be based on quizzes, tests, and a final exam.

**EVALUATION AND POINT VALUE FOR THE COURSE:**

<table>
<thead>
<tr>
<th></th>
<th>Maximum Points</th>
<th>Your Points</th>
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</thead>
<tbody>
<tr>
<td>Quizzes (6)</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Tests (3)</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>300</strong></td>
<td></td>
</tr>
</tbody>
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A = 93 - 100% 279 - 300 points  
B = 85 - 92% 255 - 278 points  
C = 77 - 84% 231 - 254 points  
D = 70 - 76% 210 - 230 points  
F = Below 70% below 210 points

All students are expected to attend class and come prepared to discuss the topic assigned for that day. Tests will cover the lecture, text, handouts, and images reviewed during class. No make-up tests will be given except for instructor approved absences.