



## Faculty of Medicine

*Department XV: Orthopedics-Traumatology, Urology, Radiology and Medical Imaging*

**University Clinic of Radiology and Medical Imaging**

**University Professor, Position 30**

### Topics

1. Principles of imaging technologies. Roentgen radiation: mode of production; Properties physical, chemical and biological. Action on the human body. Image formation Radiological; peculiarities and laws of image formation. Dosing of X-rays.
2. Röntgen apparatus: component parts, operating principles, dedicated particular types.
3. CT image formation – physical principles. CT scan protocols for various organs and pathological processes, the relative value and indications of CT examination of various organs, and systems, Main diagnostic applications of the main conventional MRI sequences (T2, T1, STIR, FLAIR). Indications for the use of MRI contrast substances in the study of various organs and systems. Basic principles of radiation protection.
4. Radiology of the head and neck. Descriptive anatomy, congenital anomalies. Diagnosis radio-imaging of tumors of the base of the skull. Radio-imaging diagnosis of diseases Orbit. Radio-imaging diagnosis of lesions of the nose and paranasal sinuses. Radioimaging diagnosis of diseases of the oral cavity, pharynx and larynx
5. Chest radiodiagnosis: Normal radio-imaging anatomy of the chest. Techniques and radio-imaging protocols used in chest exploration. Imaging diagnosis of acute and chronic alveolar, bronchial, interstitial inflammatory diseases, diseases pleural. Imaging diagnosis of pulmonary tuberculosis. Diagnosis and management imaging of lung nodules and lung tumors.
6. Radiology of the heart and blood vessels: Radio-imaging techniques used in the evaluation of Cardiac. Radio-imaging techniques used in the evaluation of large vessels, trunks supraaortic and peripheral vessels. Radio-imaging diagnosis (CT, MRI) positive in cardiomyopathy. Radio-imaging diagnosis in the pathology of the arteries aortte. Radio-diagnosis imaging in pathology of the pulmonary artery. Vascular diagnosis by Doppler ultrasound: normal arterial and venous anatomy.
7. Gastrointestinal and abdominal radiology. Radioimaging anatomy of the gastro- tract Intestinal. Contrast substances used in the evaluation of abdominal organs; radio techniques- imaging used in the evaluation of the gastrointestinal and abdominal organs. Diagnosis radioimaging in the pathology evaluation of the esophagus , stomach, small intestine.
8. Radiodiagnostics of the urinary apparatus: Radio-imaging anatomy of the kidney, urinary tract, Bladder. Intravenous urography – indications, selection of the method, of the contrast agent. Radio-imaging diagnosis of renal malformations, urinary tract and ureters. Radio-imaging diagnosis of urinary lithiasis. Radioimaging diagnosis of kidney tumors and urination. Radio-imaging diagnosis of cystic kidney diseases. Radio-imaging diagnosis of renal, perirenal and urinary tract infections. Radio-imaging diagnosis of pathology Bladder.
9. Radiology in obstetrics and gynecology. Radio-imaging anatomy of the female pelvic. Radio-imaging diagnosis of tumors of the female genital apparatus. Radio-diagnosis imaging of ovarian lesions and pelvic inflammatory diseases
10. Radiodiagnostics of the musculoskeletal system: Indications / contraindications of the procedures and techniques relevant to radio-imaging examination of the musculoskeletal system. Diagnosis radio-imaging of TB infections of the musculoskeletal system . Radio-imagi diagnosis stic of bone-forming tumors, including osteoma , osteoid osteoma, osteoblastoma, osteosarcoma. Radio-imaging diagnosis of cartilage-forming tumors, including osteochondrome, encondroma, chondroblastoma, fibroids, chondrosarcoma. Diagnosis



radio-imaging of hematopoietic tumors including, malignant tumors with round cells (Ewing's sarcoma), myeloma/ plasmocytoma. Radio-imaging diagnosis of lesions pseudotumor bone (simple bone cyst, aneurysm bone cysts). Diagnosis radio-imaging of bone metastases.

11. Neuroradiology. Radio-imaging anatomy of the brain, cranial and vertebral skeleton. Neurovascular, radio-imaging diagnosis of stroke, radio-imaging diagnosis of intracranial vascular malformations. Radio-imaging diagnosis of epidural hematoma, subdural hematoma, HSA of traumatic cause and concussions of the cerebral parenchyma. Intracranial tumors. Inflammatory, infectious and neurodegenerative diseases.

12. Senological radio-imaging. Indications and contraindications of radio-imaging techniques in mammary pathology. Standardized lexicon and risk categories of breast diagnosis.

Radio-imaging diagnosis of benign, border and malignant breast lesions.

Indications and contraindications of imaging-guided interventional workmanship. Screening breast cancer.

### **Bibliography**

1. Sorin M. Dudea (under the editorship) – Radiology and Medical Imaging – study guide for training in the specialty, vol. I and II, Medical Publishing House, Bucharest, 2015
2. Haaga JR, Dogra VS, Forsting M, Gilkeson RC, Ha HK and Sundaram M – CT and MRI of the Whole Body, 5th ed, 2-Vol set, eds. Mosby Elsevier; 2008, 2904 pages.
2. Prokop M, Galansky M – Spiral and Multislice Computer Tomography of the Body, 2003.
3. Sutton D. – Textbook of Radiology and Imaging, vol.1-2, 7th Ed., 2003.