

Course Competency

SON 1141C Small Parts Sonography

Course Description

An in-depth course designed to cover all aspects of clinical abdominal ultrasound studies. Subject matter includes: review of normal anatomy (ultrasonic appearance), indications for ultrasound studies, clinical presentation and data, pathophysiological basis of disease, ultrasonic manifestations of diseases, recognition of adequate images and scanning pitfalls. Prerequisite: SON 1112C. (2 hr. lab.)

| Course Competency | Learning Outcomes |
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| <p>Competency 1 The student will demonstrate knowledge, comprehension of anatomy, physiology, sonographic appearance, pathology, pathophysiology, and scanning procedures of normal and abnormal structures of the neck by:</p> <ol style="list-style-type: none"> a. Identifying the gross, cross-sectional plane, sagittal plane, and coronal plane of the thyroid, parathyroid and surrounding anatomical structures including the vasculature and muscles. b. Describing the physiological function of the thyroid and parathyroid. c. Identifying if the thyroid gland is an endocrine or exocrine gland. d. Recalling the hormones released by the thyroid gland and their controlling factors e. Distinguish between a “hot” or “cold” spot (area of increased uptake, decreased uptake, or no uptake) on a nuclear medicine study. f. Listing which lesions show up as “hot” or “cold” on a nuclear study g. Differentiating normal and abnormal sonographic appearance of the thyroid h. Identifying the sonographic appearance of thyroid pathologies i. Describing the symptoms associated with hypocalcemia. j. Describing which structure(s) a parathyroid mass must be distinguished from. k. Identifying the cause of hyperparathyroidism associated with the neck area. | <ul style="list-style-type: none"> • Communication • Information Literacy • Computer / Technology Usage |

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| <ol style="list-style-type: none"> l. Correlating related diagnostic imaging procedures and sonographic examinations of the thyroid, parathyroid, and surrounding neck locations. m. Describing the protocol, patient position, scanning planes, knobology for obtaining a diagnostic examination of the thyroid, parathyroid, and surrounding neck area. n. Identifying normal anatomy of the neck Identifying normal vs abnormal sonographic patterns and congenital anomalies o. Describing the utilization of Doppler techniques Explaining the role of Doppler in evaluating structures in the neck (spectral and/or color-flow) Discuss the differential diagnosis for thyroid abnormalities, parathyroid parathyroid abnormalities, and neck masses, based on the clinical history, laboratory data, results of related diagnostic procedures, and sonographic appearance and blood flow patterns. | |
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| <p>Competency 2: The student will demonstrate knowledge and comprehension of anatomy, physiology, sonographic appearance, pathology, pathophysiology, and scanning procedures of normal and abnormal structures of the male reproductive system by:</p> | |
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| <ol style="list-style-type: none"> a. Describing the structural organization of the male reproductive system. b. Identifying anatomy of the scrotal contents. c. Identifying and describing the sonographic appearance of the scrotal contents. d. Discussing the vascular supply to the scrotal contents. e. Describing the patient positioning and scanning protocol for ultrasound exam of the scrotum f. Reviewing the technical considerations of ultrasound imaging related to scrotal ultrasound. g. Discussing the role and application of color and spectral Doppler in the scrotal ultrasound exam h. Describing the sonographic appearance of scrotal pathology. i. Identifying the differential diagnosis for scrotal pathology. j. Comparing and contrasting sonographic appearance of normal and abnormal findings of scrotal ultrasound. | <ul style="list-style-type: none"> • Communication • Information Literacy • Computer / Technology Usage |
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| <p>k. Describing the normal anatomy and scanning techniques to demonstrate the male pelvis.</p> <p>l. Discussing gross anatomy, pathology and scanning techniques of the ureters, urinary bladder, prostate and testicles.</p> <p>m. Identifying the gross, cross-sectional plane, and sagittal anatomy of the scrotum, testes, and epididymis.</p> <p>n. Correlating related diagnostic imaging procedures and sonographic examinations of the scrotum, testes, and epididymis</p> <p>o. Describing the protocol, technical standards, and appropriate use of ultrasound controls for obtaining a diagnostic examination of the scrotum, testes, and epididymis.</p> <p>p. Describing modalities and ultrasound techniques used to demonstrate pathology of the scrotal contents.</p> | |
| <p>Competency 3:The student will demonstrate knowledge, comprehension of anatomy, physiology, sonographic appearance, pathology, pathophysiology, and scanning procedures of normal and abnormal structures of the breast by:</p> | |
| <p>a. Describing the basic anatomic structures of the breast and how it relates to the sonographic layers.</p> <p>b. Identifying the different sonographic layers of</p> | <ul style="list-style-type: none"> • Communication • Information Literacy • Computer / Technology Usage |

the breast and boundary tissues, including skin, subcutaneous layer, mammary layer, retromammary layer, and chest wall.

- c. Describing the sonographic technique used in scanning the breast. • Identifying methods (clock face and quadrant), to describe the location of a breast mass.
- d. Labeling the three-dimensional size of a breast mass using two methods (sagittal/transverse and radial/ anti-radial).
- e. Describing sonographic evaluation of the breast: Technique and ultrasound pitfalls.
- f. Describing applications of breast sonography in the evaluation of a mass: cystic versus solid nature of smooth mammographic masses.
- g. Discussing evaluation of a palpable breast lump. Discussing when the patient presents with a difficult or compromised mammogram. Describing the difference between using breast ultrasound as the primary imaging tool and using it in an adjunctive role.
- h. Identifying at least three sonographic characteristics of common breast masses.
- i. Explaining the evaluation of breast implants and how to rule out rupture.
- j. Discussing the concept of screening versus diagnostic breast imaging.
- k. Describing breast imaging and clinical evaluation: classification of a breast lesion and when the patient presents for breast ultrasound.
- l. Describing the difference between using breast ultrasound as the primary imaging tool and using it in an adjunctive role.
- m. Listing and discussing at least two common pitfalls in imaging the breast with ultrasound and how to avoid them.
- n. Identifying at least three sonographic characteristics of common breast masses.
- o. Discussing breast procedures for which ultrasound guidance is used.

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