NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
DMS 243 - BREAST SONOGRAPHY (1 CR.)

Course Description

Presents the fundamentals of breast sonography, including case study review of normal anatomy, physiology, and pathological conditions of breast tissue and its visualization with real-time 2-D & 3-D imaging, and Doppler. Lecture 1 hour.

General Course Purpose

The purpose of this course is to introduce students with basic knowledge, techniques and procedures for evaluating the breast with 2-D & 3-D imaging, and Doppler. Students will develop the basic knowledge base to work from on how normal and abnormal breast anatomy and physiology appears with ultrasound.

Course Prerequisites/Co-requisites

The student must satisfactorily complete all previous sonography courses with a grade of "C" or better.

Course Objectives

Upon completing the course, the student will be able to:

- Describe the advantages of using a high frequency, linear array transducer for sonographic assessment of the breast including discussion regarding the elevation plane.
- Identify the advantages and disadvantages of utilizing color and power Doppler for specific disease processes of the breast.
- Discuss information required to perform a relevant clinical history and describe procedures for clinical inspection and palpation of the breast for correlation with breast sonograms.
- Describe the typical mammography views and correlate the mammographic findings with breast sonograms to compare the location and specific features of area(s) of concern.
- List the different stand-off techniques available for breast imaging and state the primary advantages for its use.
- Discuss the advantages of performing breast evaluation utilizing the radial and antiradial scan planes in comparison to the sagittal and transverse planes.
- Explain the effects of compression and echo-palpation as a means of improving breast imaging.
- Describe the typical patient positioning techniques for optimal scanning evaluation.
- List the indications and contraindications for performing breast sonography.
- Describe the embryologic development of the breast including the identification of the mammary milk line.
- Describe the anatomic makeup of the lactiferous ductal system as it relates to the breast lobular units and lobes.
- State the various fibrous planes of the breast tissue and discuss the importance of demonstrating the integrity of the planes on sonography.
- Identify the typical location of various lymph node groups surrounding the breast and discuss lymphatic flow and drainage in the breast and its relevance to sonographic assessment.
- Discuss the differences between mammographic and sonographic appearance of normal breast tissues.
- Describe the effects of pregnancy, lactation, and hormone stimulation on the appearance of breast tissues.
- List and describe the various congenital and developmental breast anomalies.
- Describe features related to the sharpness of margins and malignant masses.
• Define neoangiogenesis and the general differences in vascularity of benign and malignant masses.
• Describe the differences in the effects of breast pathologies on the fibrous tissue planes.
• Describe sonographic features of normal, reactive, and malignant lymph nodes.
• List benign and malignant causes of skin thickening.
• List causes of echoes within complex breast cysts and the resultant sonographic features.

**Major Topics to be Included**

a. Breast instrumentation and technique  
b. Normal anatomy  
c. Relevant clinical history and procedures for clinical inspection and palpation of the breast for correlation with breast sonograms.  
d. Typical mammography views and how they correlate to the mammographic findings and breast sonograms.  
e. Stand-off techniques available for breast imaging.  
f. Breast evaluation utilizing the radial and antiradial scan planes in comparison to the sagittal and transverse planes.  
g. Effects of compression and echo-palpation on breast imaging.  
h. Patient positioning techniques.  
i. Indications and contraindications for performing breast sonography.  
j. Embryologic development of the breast.  
k. Lymph nodes and lymphatic flow and drainage in the breast.  
l. Discuss the differences between mammographic and sonographic appearance of normal breast tissues.  
m. Effects of pregnancy, lactation, and hormone stimulation on the appearance of breast tissues.  
n. Congenital and developmental breast anomalies.  
o. Differences in vascularity of benign and malignant masses.  
p. Differences in the effects of breast pathologies on the fibrous tissue planes.  
q. Sonographic features of normal, reactive, and malignant lymph nodes.  
r. Benign and malignant causes of skin thickening.