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"Evaluation of solid breast lesions with color doppler sonography and power doppler imaging "

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Abstract:

Background: The purpose of our study was to assess the potential of color Doppler (CD) and Power Doppler Imaging (PDI) to differentiate benign from malignant solid breast masses. Materials and Methods: Seventy-one biopsy proven solid breast masses were evaluated with CD and PDI using 7.5 MHZ Transducer. Vascularity, Resistive Index (RI) and patterns of vascular distribution of masses were assigned before biopsy. Results: There were 22 cancers and 49 benign lesions. All malignant masses had vascularity in some degrees, except 3 cancers which were less than 10 mm in diameter. Most of cancers were hypervascular (15 cancers) and had penetrating or diffuse vessels (14 cancers). Most of benign lesions and fibro adenomas were avascular (35 masses). 12 cancers, 2 fibro adenomas and all vascular benign lesions had $RI > 0.6$. 7 cancers and 6 fibro adenomas had $RI < 0.6$. By using hypervascularity to indicate malignancy sensitivity for CD and PDI was 68 percent and specificity was 90 percent and by using penetrating and diffuse vessels sensitivity was 64 percent and specificity was 82 percent. By using $RI < 0.6$ sensitivity was 32 percent and specificity was 88 percent and by using these three criteria together sensitivity was 73 percent and specificity was 82 percent ($P < 0.00001$). Conclusion: The vascularity and pattern of distribution and morphology of blood vessels in solid breast masses seen at PDI and CD is a potentially important feature to predict the likelihood of malignancy. But RI appears to be of limited value.

Keywords:

Color doppler songraphy . Power doppler imaging

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