

Parallel Artery and Vein: Sign of Benign Nature of Breast Masses.

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Abstract

The purpose of this study was to assess the parallel artery and vein sign at color Doppler breast ultrasound as a predictor of the benign nature of breast masses.

SUBJECTS AND METHODS: A prospective study was performed to identify evidence of a parallel artery and vein in breast lesions consecutively biopsied with a 14-gauge needle under ultrasound guidance. Sensitivity, specificity, positive and negative predictive values, likelihood ratios, and 95% CIs for the parallel artery and vein sign were calculated.

RESULTS: The parallel artery and vein sign was identified in 142 of the 1074 masses (13.2%). The specificity for benignity was 99.3% (CI 95%, 98.3-100.0%); sensitivity, 17.6% (CI 95%, 15.0-20.3%); positive predictive value, 99.0% (CI 95%, 96.7-100); negative predictive value, 30.0% (CI 95%, 27.0-32.9); positive likelihood ratio, 24.7 (CI 95%, 21.2-28.7); and negative likelihood ratio, 0.83 (CI 95%, 0.80-0.86). Among masses found to have the parallel artery and vein sign, all BI-RADS ultrasound category 3 and 95.1% of BI-RADS 4 lesions were determined to be benign.

CONCLUSION: Although the parallel artery and vein sign is an uncommon finding, it has a significant association with benign pathologic results (96.5%) with a positive likelihood ratio of 24.7. The presence of this color Doppler ultrasound finding in breast masses in BI-RADS ultrasound categories 3 and 4 reinforces the benign nature and may allow follow-up rather than biopsy in the care of some patients.