

Comparison of 15° and 30° Angle Acquisition Digital Breast Tomosynthesis for Visualization and Characterization of Breast Abnormalities

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Objective

The goal of this pilot study was to compare characterization and conspicuity of common breast lesions imaged by two different scan angles, 15° and 30° angles, in patients with BI-RADS 0 assessment on FFDM examinations. Image quality concerning the elimination of superimposed tissue and overall DBT preference was also evaluated.

Materials and Methods

Out of 110 women participating, a total of 61 DBT studies with 78 findings were evaluated by three readers independently. All cases reviewed were proven to have a lesion of concern. Cases that were determined to be negative (summation artifact) were excluded. The types of lesions reviewed were masses and architectural distortions as well as calcifications. The Hologic Selenia[®] Dimensions[®] system was modified to allow acquisition at both scan angles, 15° and 30°. All participants underwent a 2D screening or diagnostic examination prior to having the two experimental DBT acquisitions. Both the Cranio-Caudal (CC) and Mediolateral Oblique (MLO) views were acquired on the breast of concern.

Results

The three readers reviewed cases with both scan angles and were unaware of which scans were 15° versus 30° acquisitions. A scoring key was utilized for each the wide angle and narrow angle. For masses and distortions, the readers did not have a preference to wide or narrow scan angle. A narrow scan angle was preferred for evaluating the distribution of calcifications and was significantly better for conspicuity and sharpness of microcalcifications. The evaluation of shape, distribution, and depicting calcifications as benign or malignant was a benefit of a narrow angle. Two readers strongly preferred the narrow scan angle overall and the third reader was neutral.

Conclusion

The readers' assessment of lesions as well as overall usefulness gave a slight preference toward the narrow angle scans.

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