

Digital Breast Tomosynthesis versus Supplemental Diagnostic Mammographic Views for Evaluation of Noncalcified Breast Lesions

Zuley ML, Bandos AI, Ganott MA, Sumkin JH, Kelly AE, Catullo VJ, Rathfon GY, Lu AH, Gur D.



Radiology. 2012 Nov 9. [Epub ahead of print]

OBJECTIVE

For the classification of masses, distortions and asymmetries, the diagnostic performance of digital breast tomosynthesis is compared to that of supplemental diagnostic mammographic views .

MATERIALS AND METHODS

217 consecutively accrued breast lesions from 182 patients (mean, 50 years) who underwent diagnostic mammography and tomosynthesis were retrospectively reviewed by 8 radiologists. Of the 217 lesions, there were 72 (33%) cancers and 145 (67%) benign lesions. 182 of the lesions (84%) were masses, 25 (11%) were asymmetries and 10 (5%) were distortions. 191 of 217 lesions were also verified by histopathologic examinations. The radiologists interpreted the lesions once with tomosynthesis and once with supplemental mammographic views. Both these modes included the mediolateral oblique and craniocaudal views. The lesions were scored using a five category BIRADS assessment and a probability-of-malignancy score.

FINDINGS

- Average probability-of-malignancy–based area under the ROC curve was 0.87 for tomosynthesis versus 0.83 for supplemental views ($P < .001$).
- With tomosynthesis, the false-positive rate decreased:
 - 85% (989 of 1160) to 74% (864 of 1160) ($P < .01$) for cases that were rated BI-RADS category 3 or higher with tomosynthesis and supplemental mammographic views, respectively;
 - 57% (663 of 1160) to 48% (559 of 1160) for cases rated BI-RADS category 4 or 5 ($P < .01$) with tomosynthesis and supplemental mammographic views, respectively, without a meaningful change in sensitivity.
- With tomosynthesis, more cancers were classified as BI-RADS category 5 (39% [226 of 576] vs 33% [188 of 576]; $P = .017$) without a decrease in specificity

CONCLUSION

Tomosynthesis significantly improved diagnostic accuracy for non-calcified lesions compared to supplemental mammographic views.

HOLOGIC[®]

The Women's Health Company

MISC-02305 © 2012 Hologic, Inc. All rights reserved.

Hologic, Selenia and Dimensions are trademarks or registered trademarks of Hologic and/or Hologic subsidiaries in the United States and/or other countries. Views and opinions expressed herein by third parties are theirs alone and do not necessarily reflect those of Hologic. This information is intended for medical professionals in the U.S. and other markets and is not intended as a product solicitation or promotion where such activities are prohibited. Because Hologic materials are distributed through websites, eBroadcasts and tradeshows, it is not always possible to control where such materials appear. For specific information on what products are available for sale in a particular country, please contact your local Hologic representative or write to womenshealth@hologic.com.