

Tomosynthesis is advantageous in detecting cancer in dense breasts

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Abstract Body

Digital breast tomosynthesis, also known as 3D mammography, has been implemented in Assessment Clinic for over a year. Tomosynthesis is a relatively new technology that uses conventional x-rays from limited angles and a digital detector to create cross-sectional images. Each slice is as thin as 1 mm which improves imaging quality for large dense breast tissue, and provides a sharper and clearer view of the inner breast structure. With its increased accuracy, sensitivity and specificity, tomosynthesis made earlier detection of breast cancer more efficient.

The purpose of this case study is to show that tomosynthesis is advantageous in detecting cancer in dense breasts compare to traditional 2D screening images.

A 54 years old lady, with no family history, post-menopausal, was called back for further assessment after her screening mammograms. Her breast density is 51-75% glandular. A suspicious stellate lesion in the upper-outer quadrant of her right breast was called by two radiologists. After the 3D tomosynthesis, another two malignant lesions were found in the right breast. Ultrasound guided core biopsy of the three lesions confirmed these are classic lobular invasive carcinomas, which are the second most common type of breast cancer.

Studies have shown that tomosynthesis can increase invasive breast cancer detection by 41% and up to 40% reduction in false positive recalls, which minimizes patient anxiety and unnecessary costs compare to 2D mammograms.

Radiologists, physicians and surgeons are more confident to make clinical decisions when tomosynthesis images have been performed. Tomosynthesis has great potential to be integrated into screening, biopsy and clinical routine imaging.