



ROLE OF TOMOSYNTHESIS IN EVALUATION OF BREAST LESIONS

Essay

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Degree in Radiodiagnosis**

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Abstract

Introduction: Breast cancer is the most common cancer among women, accounting for 29% of newly diagnosed cancers, and is the second most common cause of death from cancer in women. Digital breast tomosynthesis (DBT) is a newly developed form of three dimensional (3D) imaging with the potential to improve the accuracy of mammography by reducing tissue overlap.

Aim of the Work: To highlight the role of Digital breast tomosynthesis (DBT) in evaluation of breast lesions.

Summary: It was demonstrated that the addition of tomosynthesis to 2D imaging provides improved performance in both fatty and dense breasts, compared to 2D alone, with the performance gain in dense breasts higher than in fatty breasts. Contrast-enhanced DBT can be used to facilitate three dimensional images of contrast agent distribution through the breast tissue so help in detection of breast cancer, so reducing the cost and the contraindications of the breast MRI.

Conclusion: DBT has many advantages over mammography as; reducing challenges due to overlapping structures in breast tissue associated with two-dimensional mammography, increases lesion and margin visibility and helps to localize structures in the breast, all of which leads to increased cancer detection and reduced false-positive recalls, also DBT is found to improve sensitivity, specificity and the accuracy of the lesion size measurement in women with dense breast.

Keywords: Digital breast tomosynthesis, Mammography, Breast lesions



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Rehab Saied Khalil

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

صدقة الله العظيم

سورة البقرة الآية: ٣٢

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List of Abbreviations

2D	: Two dimensional.
3D	: Three-dimensional image.
ADH	: Atypical ductal hyperplasia.
ALH	: Atypical lobular hyperplasia.
ART	: Algebraic Reconstruction Technique.
BIRADS	: Breast Imaging-Reporting Data System.
BP	: Back Projection.
CC	: Cranio-caudal.
CT	: Computed Tomography.
DBT	: Digital Breast Tomosynthesis.
DCIS	: Ductal carcinoma insitu.
DICOM	: Digital Imaging and Communications in Medicine.
DQE	: Detective quantum efficiency.
FBP	: Filtered Back Projection.
FCC	: Fibrocystic changes.
FDA	: Food and Drug Administration.
GFB	: Gaussian Frequency Blending.
IC	: Intercostal artery.
IDC	: Invasive ductal carcinoma.
IDC-NOS	: Invasive ductal carcinoma not otherwise specified.
ILC	: Invasive lobular carcinoma.
IM	: Internal mammary artery.

List of Abbreviations

ITC	: Isolated tumor cells.
LCIS	: Lobular carcinoma in situ.
LCIS	: Lobular carcinoma insitu.
LIQ	: Lower inner quadrant.
LOQ	: Lower outer quadrant.
LT	: Lateral thoracic artery.
MIP	: Maximum Intensity Projection.
MITs	: Iterative Matrix Inversion Tomosynthesis.
ML	: Maximum-Likelihood Algorithm.
MLO	: Medio-Lateral Oblique.
Mo	: Molybdenum.
PAS	: Periodic acid-Schiff.
PASH	: Pseudoangiomatous stromal hyperplasia.
Rh	: Rhodium.
SAA	: Shift-and-Add.
TACT	: Tuned Aperture Computed Tomography.
TDLU	: Terminal ductal lobular units.
UICC	: Union for International Cancer Control.
UIQ	: Upper inner quadrant.
UOQ	: Upper outer quadrant.

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