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Clinical Experience with TC-99M Sestamibi Breast Scan in the Detection of Malignant Breast Lesions

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Mammography is currently the modality of choice for screening of breast cancer. However, it is not ideal as a diagnostic technique for breast cancer due to its low specificity. Also the sensitivity and specificity of mammography decrease significantly as the density of the breast increases. It has been estimated that approximately 25% of women have dense breast on mammogram, rendering mammographic interpretation very difficult in this large subgroup of women. Other situations that make mammographic interpretation difficult include breasts with structural destruction e.g. previous surgery or radiation, and breast implants. Tc-sestaMIBI breast scan (MIBI) has been evaluated as a diagnostic tool for breast cancer. The overall sensitivity and specificity quoted in the literature are between 84%-94% and 72%-94% respectively. It has also been found to be not significantly affected by dense breast tissue on mammogram. The following is a report of our clinical experience with MIBI.

Method

MIBI was performed after injection of 740MBq (20mCi) of Tc-99m Sestamibi intravenously. 10 minutes anterior, prone right and left lateral, right and left anterior oblique and delayed anterior views were obtained using high resolution collimator on a wide field of view gamma camera. A marker view was also obtained. No compression of the breast was used. 11 patients who had MIBI and pathological diagnosis (needle aspiration or open excision) within a 4-month period were reviewed.

Result

All patients had palpable lesions ranging in sire between 2-5 cm. Of the 9 patients who had pathology positive for malignancy, 8 of these patients have positive MIBI. The single patient with benign finding on MIBI has in situ carcinoma with only focal invasive duct carcinoma. Both patients with benign pathology have negative MIBI. 2/3 patients with axillary nodes positive for metastasis also showed abnormality in the corresponding axilla in MIBI. 3/3 patients negative for metastasis showed no abnormality in the corresponding axilla in MIBI.

Discussion

Our clinical experience is in agreement with the results reported in the literature. MIBI has high sensitivity for detecting malignant breast legions, particularly for palpable lesions. MIBI also has the advantage of being able to assess both axillae in the same study, therefore yielding more information regarding metastatic spread of malignant breast lesions to the axilla.