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Research Article

ROLE OF STEREOTACTIC CORE NEEDLE BIOPSY OF NON MASS-CALCIFICATION WHICH ARE SUSPICIOUS AND HIGHLY SUGGESTIVE OF MALIGNANCY (BIRADS III, IV &V) ON MAMMOGRAM

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A R T I C L E I N F O

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A B S T R A C T

Purpose: Role of stereotactic core needle biopsy of non mass calcification which are suspicious and highly suggestive of malignancy (BIRADS III, IV &V) on mammogram.
Material and method: In our study twelve patients with calcification on mammogram underwent for stereotactic biopsy at radiodiagnosis department in a tertiary care hospital of Rajasthan. Informed written consent was taken from each patient under the study. Stereotactic core needle biopsy (by core biopsy instrument used along with biopsy needle of 14 G size) of the breast was done using a digital breast tomosynthesis mammography machine named Fuzi Film Amulet System.
Result: Correlation between BIRADS and histo-pathologic finding shows among BIRADS IV and V 100% patients were belongs to malignant group and among BIRADS III 00.00 % were malignant and 100% were benign.
Conclusion: Mammography has great importance because of its ability to detect calcifications which is often the earliest sign of malignancy and with stereotactic core needle biopsy it is possible to reduce rate of open surgical biopsy.

INTRODUCTION

Role of stereotactic biopsy for calcification non mass breast lesion (suspicious or highly suggestive for malignancy) on mammogram to avoid open surgical biopsy and precisely taking the sample from the lesion site. Also cost effective and short time duration procedure which is acceptable by patient.
The continually increasing number of women undergoing annual mammographic screening has led to an increase in the number of (mostly calcified) nonpalpable abnormalities identified (1). Calcification has been shown to be a component in up to 50% of malignant lesions (2), and in 84% of ductal carcinomas in situ (DCIS), the presence of calcification has been demonstrated by mammography (3).

MATERIAL AND METHOD

The present study has been carried out on patients presented with calcification on mammogram at Radiodiagnosis department in a tertiary care hospital of Rajasthan (Government Medical College Kota).

Study design: - Prospective Comparative study.

Study duration: - One year- from 30 November 2018 to 29 November 2019.

Source of data/study population: - The study was done on patients presenting with nipple discharge, nipple retraction and pain and for screening at Radiodiagnosis department.

Sampling: - We consider twelve cases that full fill our selection criteria during the study period. Selection of the cases based on convenience sampling.

Inclusion criteria: - Patients belong to BI-RADS category III, IV and V.

Exclusion criteria: - Patients with BI-RADS category I, II, and VI.

Procedure of study: Patients were selected according of the inclusion criteria. Informed written consent was taken from each patient under the study. Under the guidance of my guide stereotactic core needle biopsy (by core biopsy instrument used along with biopsy needle of 14 G size) of the breast was done in using a digital breast tomosynthesis mammography machine named Fuzi Film Amulet System.

Statistical analysis: Categorical variables were described in count and proportion at 95% confidence interval. All variable were analyzed using Chi square test of significance; $P<0.05$ was taken as statically significant. Diagnostic accuracy of the techniques was calculating using sensitivity, specificity, positive predictive value, negative predictive value.

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OBSERVATION AND RESULT

Twelve stereotactic core needle biopsies were performed for calcification in mammogram in upright position from 30 November 2018 to 29 November 2019.

Frequency of type of calcification on mammogram rounded grouped (8.33%) pleomorphic (50 %) linear calcification (33.3%) amorphous grouped (8.3%) [Figure 1]

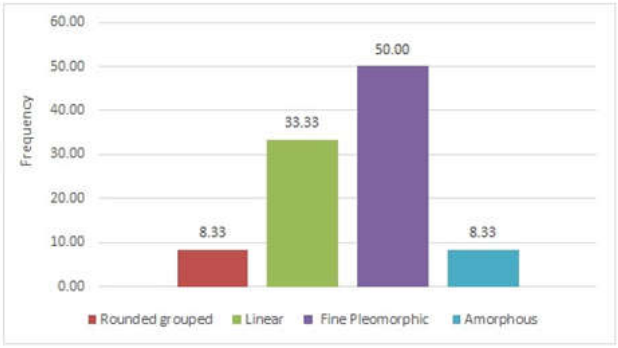


Figure 1 shows frequency of type of calcification on mammogram (type of calcification were suspicious or highly suggestive of malignancy

Pleomorphic, linear and amorphous calcification are malignant on histopathology and rounded calcification appear benign on histopathology [Figure 2]

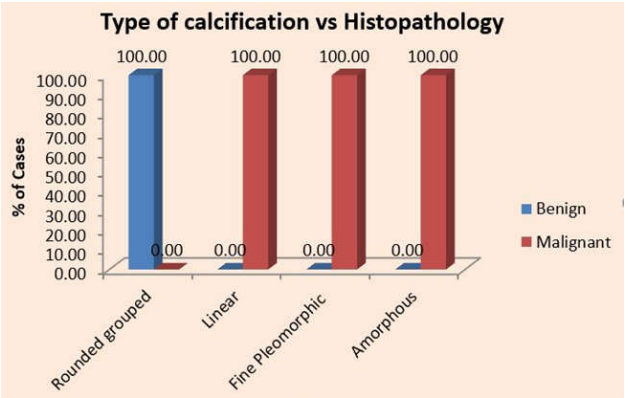


Figure 2 shows histopathologic correlation with type of calcification shows all linear, fine pleomorphic and amorphous type calcification are malignant on histopathology

BIRADS distribution of calcification non mass lesions in mammography show BIRADS III (9.0%), IV (63.6%) and V (27.2%) [Figure 3]

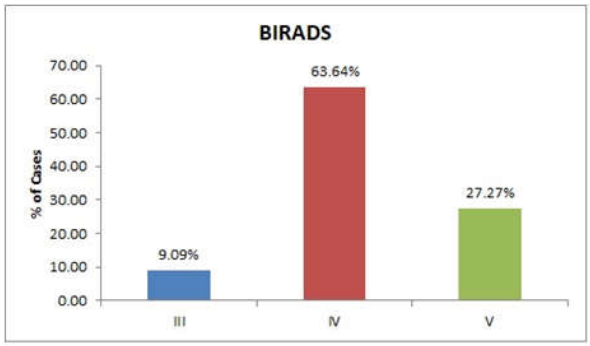


Figure 3 shows BIRADS distribution of calcification non mass breast lesion on mammogram

Correlation between BIRADS and histo-pathologic findings show among BIRADS IV and V 100% patients were belongs to malignant group and among BIRADS III 00.00 % were malignant and 100% were benign. [Figure 4]

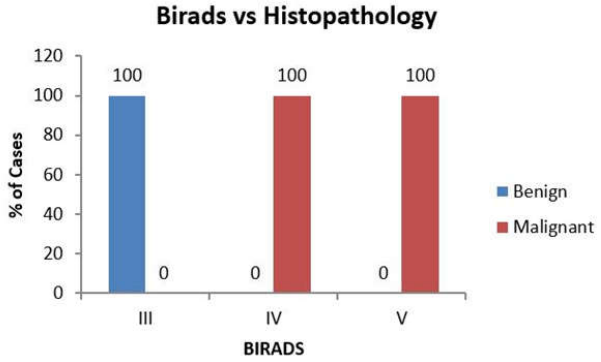
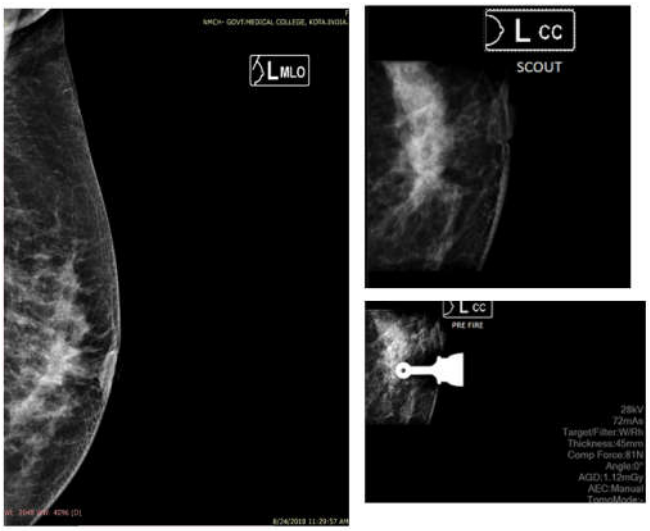
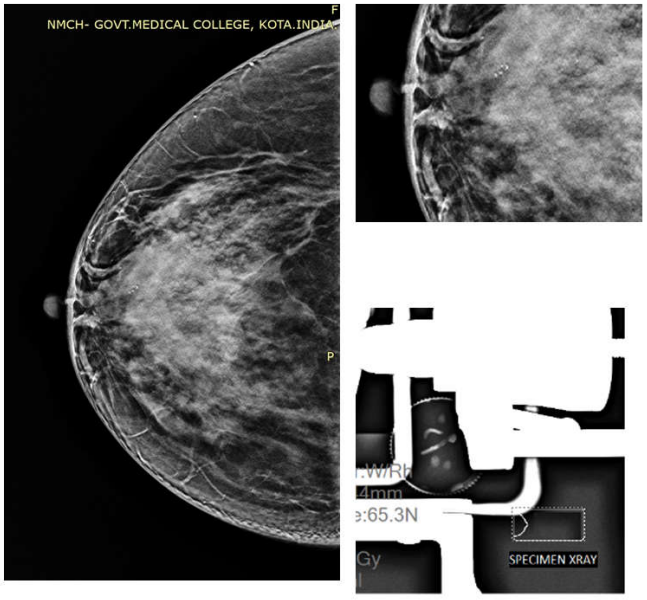


Figure 4 shows correlation between BIRADS and histopathology (BIRADS IV &V show malignancy) Patient come with retracrion of nipple



Pic 5a,5b,5c Mammogram left breast medilolateral oblique view shows pleomorphic calcification in retroreolar region stereotactic biopsy and check image with needle holder to localise calcification on histopathology shows ductal carcinoma in situ.



Pic 6a,6b& 6c Craniocaudal view shows retroareolar pleomorphic calcification stereotactic biopsy was done on specimen xray shows calcification. on histopathological diagnosis ducatal carcinoma in situ

BIRADS and histopathological correlation shows significantly higher malignancy rate among grade IV & V as compare to BIRADS III (P = 0.017).

DISCUSSION

Mammography has great role in early detection of calcification in early stage and it is usually necessary to obtain the tissue of the lesion to make diagnosis in case of calcification non-palpable breast lesion. Imaging finding form the basis for further decision making on procedure like invasive biopsies. We report one year result of biopsies for mammographically detected calcification non-palpable breast lesions using a combination of an upright type stereotactic mammography unit.

Sickles, in his 'mammographic features of early breast cancer' studies, has identified the importance of the presence of calcifications in breast disease (4). Calcifications are often a good indicator of malignancy. Sigfusson *et al* (5) pointed out that round and oval-shaped calcifications often indicate benign processes, whereas linear and branching shapes, pleomorphic and grouped are an indicator for malignant lesions.

Rominger *et al* showed that calcifications with suspicious morphology have an increased risk for malignancy, with a probability of 13% in coarse heterogeneous, 27% in amorphous, 50% in fine pleomorphic, and 78% in fine linear or fine linear branching calcifications (6)

In our study the following calcifications were observed - fine pleomorphic (50%), amorphous (8.3%), linear (33%), rounded (8.3%) calcification. All the suspicious calcifications were proven to be malignancies. The benign lesions encountered in our study was one case with round calcification The positive predictive value of biopsy for malignancy was 100%.

Each calcification morphologic descriptor was able to help stratify the probability of malignancy.

CONCLUSION

Breast malignancy has emerged to be a global epidemic. The only key to successfully deal with this is to diagnose the cases early and providing early and prompt management. Mammography is an essential tool in this approach.

It is of great importance because of its ability to detect calcifications in non-palpable mass lesion; which are often the earliest signs of malignancy and with stereotactic core needle biopsy that is possible to reduce rate of open surgical biopsy.

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