ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 09 | September - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

MAMOGRAPHICAL IMAGING FEATURES OF BREAST MICROCALCIFICATIONS IN DUCTAL CARCINIMA INSITU WITH PATHOLOGICAL CORRELATION.

Radio-Diagnosis

Dr. Vinod Matapathi Registrar Dept Of Radiodiagnosis, Apollo Hospitals, Jubille Hills, Hyderabad
Dr. Mounika Palle Junior Resident Dept Of Radiodiagnosis, Apollo Hospitals, Jubille Hills, Hyderabad

KEYWORDS

INTRODUCTION:

Ductal carcinoma in situ (DCIS) is seen at the border between benign breast disease and malignancy (1). It is the proliferation of tumor cells within the terminal ductal lobular unit with preservation of the basement membrane (2).

Ability of detecting the DCIS has been recently increased due to the advancements in the imaging, However mammography is the prileminary investigation, where calcifications are the most common finding seen.

DCIS is subdivided into comedo and non-comedo which are more aggressive and less aggressive based on central necrosis,grade and cell type.

Pathologists have variabiltiy in their diagnosis of DCIS. Radiologists differ in describing DCIS and ongoing efforts to rename the DCIS. (1)

Aims And Objectives

Aim: Evaluation of calcifications which appears suspicious on mammography and correlating with HPE diagnosis and grading of DCIS.

Objectives:

To look into suspicious calcifications which are noted in mammography and correlate with the histopathology diagnosis.

Assessing the morphology of these suspicious calcifications on mammography.

MATERIALAND METHODS:

Place – Department of Radiodiagnosis, Apollo Hospital, Hyderabad.
Type of study: Retrospective study.
Period : January 2023- April 2024.

Inclusion:

Only patients who are detected with suspicious calcifications on mammography and sterotactic biopsies at our hospital.

Exclusion:

Suspicious calcifications with mass seen on digital mammography.
Patients who already diagnosed with mass.

Microcalcifications are frequent sign of DCIS. These calcifications are having different types of

1) Morphology
- Amorphous
- Fine pleomorphic
- Coarse heterogenous
- Fine linear or fine linear branching.

2) Distribution
- Diffuse
- Regional
- Grouped
- Linear
- Segmental

Ductal carcinoma is majorly divides into comedo and non comedo types.
Comedo – highly aggressive.
Non comedo – Less aggressive.

Ductal carcinoma also divides on the basis of presence of central necrotic area.
1) Low grade
2) Intermediate grade — Shows NO central necrotic area.
3) High grade — Shows central necrotic area.

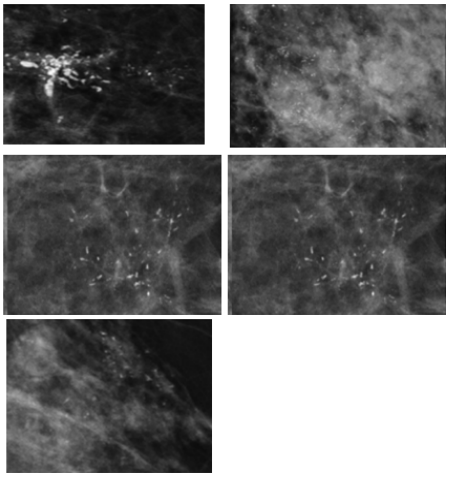
Data Acquired:

On total pateints of 63 who underwent sterotactic biopsies for suspicious calcifications on digital mammography. On total , 37 (59%) patients are DCIS positive and 26(41%) were DCIS negative based on histopathology.

On these 37 patients, 5 are low grade, 20 are intermediate grade, 5 are high grade and 7 patients are intermediate/high grade with invasive types.

DISCUSSION

- **DCIS:** It refers to breast epithelial cells that have become "cancerous" but still reside in their normal place in the ducts and lobules.
- The detection of DCIS has increased markedly in recent years secondary to the widespread use of screening mammography, and it now accounts for 25-40% of mammographically detected breast cancers.
- It also accounts for approximately 15-20% of all detected breast cancers.
- Calcifications typically represent calcium phosphate or calcium oxalate salt deposition within the breast tissue.
- The BI-RADS 5th edition lexicon includes four descriptors of suspicious calcification morphology on mammography, which are listed in order of increasing suspicion:
- A) Coarse heterogeneous: irregular, generally 0.5-1 mm
- B) Amorphous: indistinct and/or small ("powdery", "cloud", or "cottony"), such that another specific shape cannot be determined
- C) Fine pleomorphic: variable shape ("shards of glass" or "crushed stone"), generally <0.5 mm
- D) Fine linear or Fine-linear branching: thin (<0.5 mm), linear, branching or irregularly arranged ("casting")



- At diagnostic mammography, suspicious calcifications are categorised as BI-RADS 4. If there is a combination of findings that is highly suggestive of malignancy (e.g. fine linear and

branching calcifications in segmental distribution, or microcalcifications associated with a spiculated mass), then a BI-RADS 5 assessment may be appropriate.

- Amorphous calcifications are usually suspicious (BI-RADS 4) unless they are bilateral and diffuse and/or stable for many years. A single group of coarse heterogeneous, amorphous, or fine pleomorphic calcifications are moderately suspicious (BI-RADS 4B), whereas fine linear or fine-linear branching calcifications are highly suspicious (BI-RADS 4C).

CONCLUSION:

- Awareness of different morphology and distribution of suspicious calcifications and their detection on mammography are important to predict the diagnosis of DCIS and it's histopathological grade on mammography.
- DCIS has higher risk of becoming invasive cancer compared to the normal population.
- Understanding the mammographic appearances of DCIS is essential to minimize the number of benign calcification biopsies.
- There is no statistically significant correlation between mammographic features and histopathological grading of DCIS, however which can predict the DCIS and it's histopathological grade on digital mammography.