

Incidental Finding of Ductal Carcinoma *in Situ*: On Histopathology Report of Fibroadenoma

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Abstract

Breast cancer remains one of the most common causes of cancer and cancer-related death in women. Invasive ductal carcinoma (ICD) of breast and fibroadenoma are rarely found as coexist. There are no pathognomonic symptoms or signs to distinguish both diseases. A 28-year-old woman presented with a palpable lump in the right breast, upper outer quadrant.

Mammography showed an oval mass associated with two small microcalcifications within the lump. Breast ultrasound (US) revealed a 2.5 cm×2.5 cm oval mass. On Fine Needle Aspiration Cytology (FNAC), the initial biopsy of the lump suggested fibroadenoma; however, the mass was diagnosed as a fibroepithelial lesion. Per-operatively the mass was found suspicious for malignancy, as there were pockets of dark discolored tissue within the lump. The lump was removed with 1cm clearance. Histopathological examination of the specimen revealed small lesions of ductal carcinoma in situ (DCIS) within the fibro adenomatous tissue. This case highlights the diagnostic challenges of identifying coexisting carcinomas within fibroadenoma tumours and emphasizes the necessity for increased awareness among radiologists regarding this possibility.

Keywords: DCIS, Invasive ductal carcinoma, ICD, breast cancer, fibroadenoma.

1. INTRODUCTION

Breast cancer is the second leading cause of cancer death in women, after lung cancer. Among the many different forms of breast cancer, the most common type found in women is ductal carcinoma in situ (DCIS) [1]. Fibroadenoma, a common benign fibroepithelial breast tumor, typically affects women aged 14-35 years. It presents as a painless, mobile, firm lump due to overgrowth in a breast lobule. While it often resolves on its own, it may require removal. Uncommonly, conditions such as DCIS, atypical ductal hyperplasia, lobular carcinoma in situ, atypical lobular hyperplasia, and invasive carcinomas can be found within a fibroadenoma [2].

Globally, there have been roughly 100 reported cases of carcinoma developing within a fibroadenoma, including intra-ductal carcinoma, lobular carcinoma in situ, and invasive carcinoma [3]. Breast cancer diagnosis occurs

through either routine screening or investigation of a presenting symptom, such as pain or a palpable mass [4]. Invasive ductal carcinoma (IDC) typically remains localized near the site of origin, but cancer cells may enter the bloodstream or lymphatic system and metastasize elsewhere [5]. In 2013, approximately 232,340 new cases of invasive breast cancer were diagnosed in the US, with 39,620 breast cancer deaths expected among women. It is projected that one in eight women in the United States will develop breast cancer in her lifetime [6].

2. CASE REPORT

A 28-year-old woman presented to the outpatient department (OPD) with a palpable lump in the upper outer quadrant of her right breast. She reported intermittent stabbing pain for the past seven months, which resolved spontaneously. During a recent bath, she noticed a painless swelling in the same area.

2.1. Clinical Examination

On examination, a 2.5 cm × 2.5 cm mobile, well-demarcated, non-tender lump was palpated in the right

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breast. No axillary lymphadenopathy was noted bilaterally.

2.2. Investigations

- **Ultrasound:** A 2.5 cm × 2.5 cm lump was identified at the 3 o'clock position in the right breast. The surrounding breast tissue appeared normal, with fibrofatty glandular tissues and no axillary lymph node enlargement.
- **Mammogram:** The lump was clearly visualized, with two microcalcifications (small translucent dots) were noted within it.
- **Fine Needle Aspiration Cytology (FNAC):** Initial biopsy suggested fibroadenoma, but further evaluation diagnosed it as a fibroepithelial lesion.

2.3. Surgical Procedure

Per-operatively, the lump was found to be slippery and mobile, with areas of discoloration raising suspicion. A lumpectomy was performed with a 1 cm clear margin, and the specimen was sent for Histopathological examination.

2.4. Histopathology

The biopsy revealed a fibroepithelial lesion with areas of ductal hyperplasia and ductal carcinoma in situ (DCIS) were observed as small lesions. No molecular analysis was conducted.

2.5. Follow-Up

The patient was followed up for three years with regular clinical examinations, mammograms, and ultrasounds. No recurrence was observed in the ipsilateral or contralateral breast. No post-operative CT scans or chemotherapy were administered, as the margins were free of cancer, and no metastasis was detected.

3. DISCUSSION

Breast cancer often remains asymptomatic in its early stages, making annual screenings crucial for early detection [7]. Common signs include a palpable mass, skin dimpling, nipple discharge, or breast pain [1, 7]. Fibroadenoma, the most common benign fibroepithelial tumor, typically presents as a painless, mobile, and non-tender lump in women aged 14-35 years. It may shrink over time and does not require excision unless associated with suspicious cytology or significant size [2].

In this case, the patient underwent a lumpectomy, and the specimen was sent for histopathology testing that showed invasive lesion with DCIS arising inside the fibroadenoma. The margins were free of cancer, and no adjuvant therapy

was required. The patient had no family history of breast cancer, which underscores the importance of routine screenings even in the absence of risk factors.

3.1. Diagnostic Challenges

The initial diagnosis of fibroadenoma highlights the challenges of identifying coexisting carcinomas within such tumours. Radiologists should maintain a high index of suspicion for malignancies in fibroadenoma, especially in the presence of micro-calcifications or atypical features on imaging.

3.2. Role of MRI

• MRI Indications

Magnetic Resonance Imaging (MRI) is recommended in specific situations:

• High-Risk Patients

Individuals with a significantly increased lifetime risk of breast cancer, such as those with BRCA1 or BRCA2 gene mutations, a family history of breast cancer, or a history of chest radiation during youth.

• Inconclusive Mammograms

When mammography results are unclear or ambiguous, MRI can provide more detailed imaging.

• Dense Breast Tissue

Women with dense breast tissue, which can obscure tumors on mammograms, may benefit from MRI as it is not affected by tissue density and offers higher sensitivity in detecting cancers.

• Case Context

In the specific case mentioned, MRI was not utilized initially because both the imaging results and biopsy outcomes indicated the presence of a benign (non-cancerous) lesion.

3.3. Clinical Signs of DCIS

DCIS is often asymptomatic and detected incidentally on mammography. However, micro-calcifications, architectural distortions, or areas of asymmetry on imaging may raise suspicion. In this case, the patient's lack of symptoms delayed diagnosis, emphasizing the need for regular breast self-examinations and awareness campaigns.

3.4. Management and Follow-Up

For benign fibroadenoma, surgical excision is curative.

However, in cases of malignancy, wider excision or adjuvant therapy may be required⁸. In this case, the patient's three-year follow-up revealed no recurrence, highlighting the effectiveness of early intervention.

4. CONCLUSION

This case underscores the diagnostic challenges of identifying malignancies within fibroadenoma and emphasizes the importance of routine screenings, even in asymptomatic patients. Females, especially those with a family history of breast cancer, should undergo annual mammograms and clinical examinations. Radiologists and clinicians should maintain a high index of suspicion for malignancies in fibroadenomas, particularly in the presence of atypical features.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

FUNDING

No external funding received for the study.

PATIENT'S CONSENT

Verbal informed consent was obtained from the patient prior to participation.

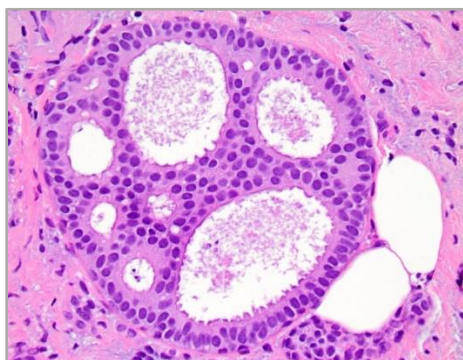
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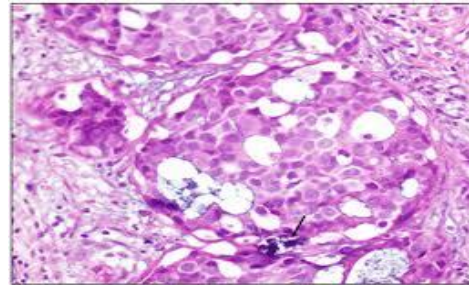
AUTHOR CONTRIBUTIONS

Not applicable.

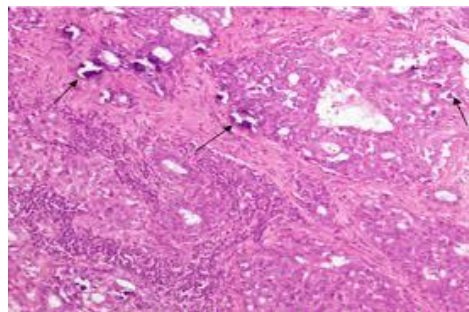
APPENDIX



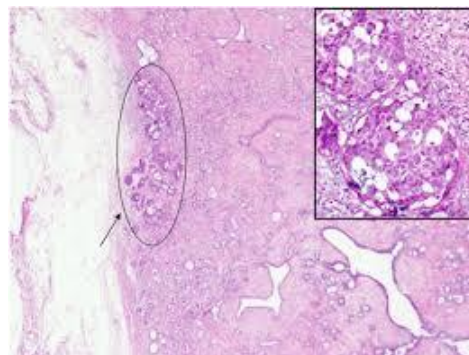
A



B



C



D

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