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Ductal Carcinoma-in-situ within fibroadenoma of the breast: A case report with literature review

Sana Zeeshan, Sabeeh Siddique, Nazia Riaz

ABSTRACT

Introduction: Fibroadenoma is a most commonly diagnosed benign tumor of the breast with highest occurrence in adolescent and young women, but its coexistence with ductal carcinoma in-situ (DCIS) is extremely rare and infrequently reported. Case Report: We report a case of 34-year-old pregnant female who was diagnosed with DCIS within fibroadenoma on wide local excision. The diagnosis of DCIS was not identified on core biopsy. The patient was subsequently managed with radiation followed by endocrine therapy as DCIS was positive for expression of estrogen and progesterone receptors. Conclusion: Diagnosis of DCIS within fibroadenoma is a rare presentation and requires extensive tissue sampling by pathologist in order to avoid missing it. As this is a rare entity, management and follow-up remains a challenge in the absence of established guidelines.

Keywords: Breast lump, Case report, Ductal carcinoma in-situ, Fibroadenoma

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INTRODUCTION

Fibroadenoma of the breast is a frequent presentation in young women with peak incidence in 2nd or 3rd decade of life [1, 2, 3]. This type of tumor is generally considered benign and non-operative follow-ups maybe frequently considered [4]. However, fibroadenoma in association with breast cancer is not an unknown phenomenon, with first case reported by Cheatle and Cutler in 1931, as referenced by Deschenes et al and Petersson et al in their reports [5, 6, 7]. Although very rare, the incidence of breast cancer within a fibroadenoma has been reported with a prevalence of up to 0.02% as per different case reports [8,9]. These include invasive as well as in-situ carcinomas. Carcinoma in-situ, both lobular and ductal, was found to be more common in such cases as compared to invasive types [10]. Due to rarity of such cases and unexpected incidental discovery on excision specimens, exact guidelines for further management are not available and management so far is dictated by the malignant component of fibroadenoma [11]. Here, we report a case of ductal carcinoma in-situ within a fibroadenoma of a 34-year-old pregnant patient identified on excisional biopsy.

CASE REPORT

A 34-year-old female, with no co-morbids, came to the breast clinic with presenting complaint of a lump in her right breast from one year. This lump was identified two months after she had stopped breast feeding. At the time of her current presentation, the patient was two months pregnant. She did not have any risk factors for breast cancer. On examination, there was a 4 x 4.5 cm, partly defined, mobile mass palpable in the right retroareolar region. Overlying skin, nipple areolar complex, contralateral breast and axillae were unremarkable.

Her initial ultrasound revealed a solid, heterogeneous, vascular lesion with lobulated margins in right retroareolar region measuring 42 x 32 mm and labeled as BIRADS-IV. The lesion subsequently increased in size as the patient deferred further evaluation and an ultrasound performed after a delay of nine months showed an increase in size to 51x45 mm with benign appearing axillary lymph-nodes in Figure 1(A and B). The mammogram was also performed (Figure 2).

Core biopsy of this lesion showed breast parenchyma exhibiting a biphasic lesion composed of epithelial and stromal components, without any evidence of atypia or malignancy. With a possibility of fibroepithelial lesion / phylloides tumor, she was subjected to wide local excision of breast lump. The specimen revealed circumscribed biphasic lesion labeled as fibroadenoma (Figure 3) with a focus of ductal carcinoma in-situ, cribriform pattern, nuclear grade I measuring 0.2cm (Figure 4, 5) along with a focus of lobular cancerization measuring 0.3 cm (Figure 6). Both the foci were away from the margins. In addition, focally dilated ducts exhibited atypical ductal hyperplasia (Figure 7). In lieu of ADH close to the margin of excision, she was subjected to re-excision of margins from tumor bed which showed only benign breast changes such as adenosis, fat necrosis, duct ectasia and foreign body giant cell reaction without any malignancy. Receptors performed on the focus of DCIS were positive, ER: 6 (proportion score: 4, intensity score: 2) and PR: 8 (proportion score: 5, intensity score: 3).

Following her first procedure, the patient had termination of pregnancy due to fetal demise at 20 weeks of gestation. The patient was subsequently managed by radiation to the conserved breast and kept on tamoxifen for 5 years.

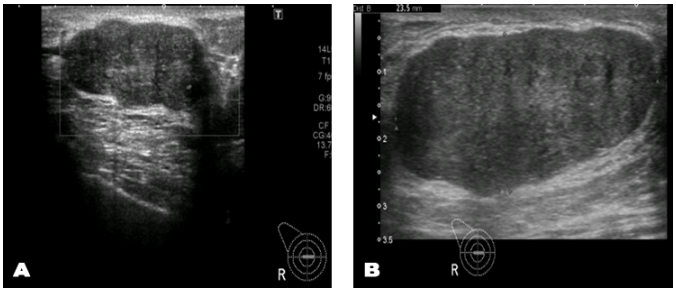

Figure 1(A and B): Initial ultrasound of right breast showing a solid heterogeneous lesion with lobulated margins and internal vascularity in retroareolar region measuring 42x32 mm (A). Follow-up ultrasound showing same lesion with increase in size (B).

Figure 2: Mammogram of right breast showing a partly defined high density lesion in the upper-outer quadrant corresponding to the palpable lump measuring 34x33 mm (arrow).

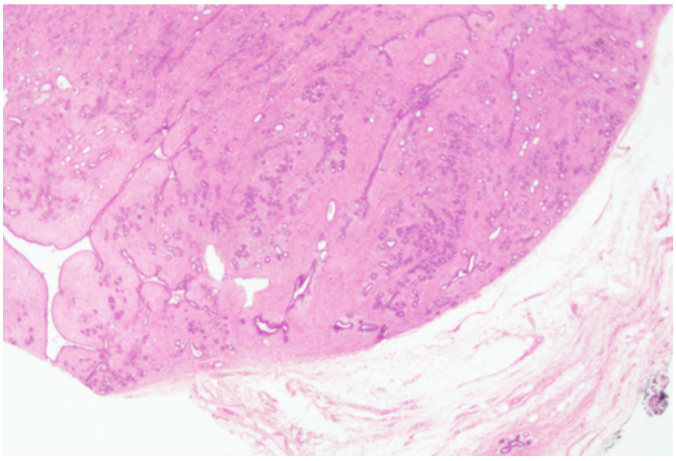

Figure 3: Low power view of fibroadenoma showing well delineated circumscribed border with the surrounding tissue. Characterstic epithelial and stromal components can be appreciated.

DISCUSSION

Fibroadenoma is a biphasic tumor with epithelial and stromal components, with highest incidence in younger women. It is not known to be a risk factor for malignancy. However, in light of more than 200 case reports published over the years, fibroadenoma may be seen to be associated with some form of carcinoma. Whether this association is due to malignant transformation within the fibroadenoma itself or from a concomitant development of two pathologies is still unknown.

Wu et al analyzed a sample of 30 patients from published case reports with mean age of 46.9 years having carcinoma within fibroadenoma, out of which 7 cases (23.3%) were DCIS. The patients with DCIS were treated with breast conservation, however, radiotherapy

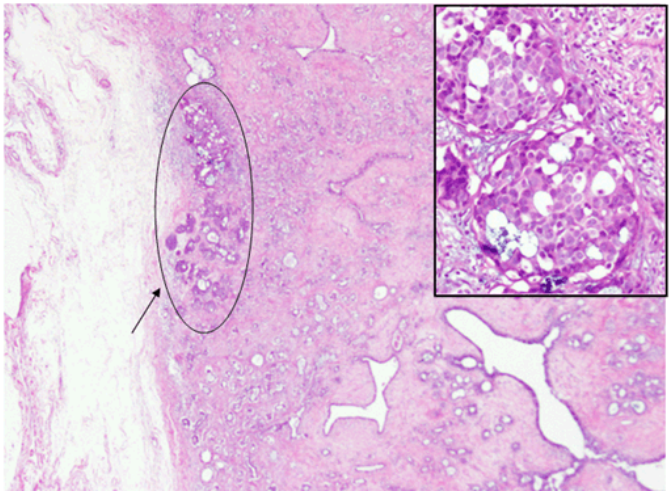

Figure 4: Low power view of the fibroadenoma showing focal ducts with in-situ carcinoma. Even at low power, these ducts seem to stand out distinctly from the surrounding benign mammary ducts. Inset shows medium magnification of the focus.

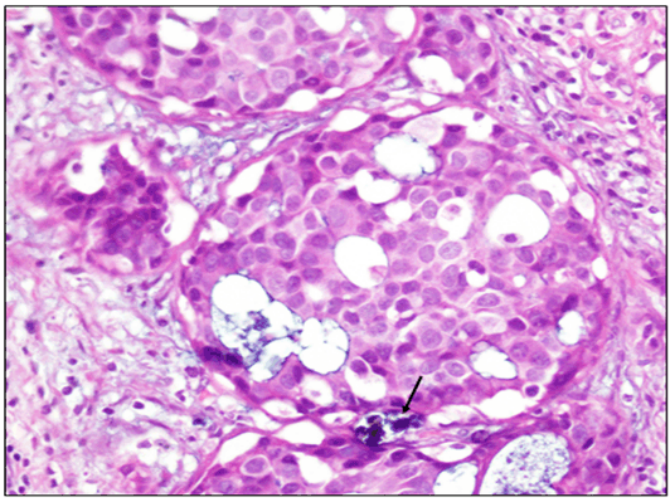

Figure 5: High power view showing characteristic features of a low grade DCIS. The cells are relatively monotonous appearing, having oval nuclei, inconspicuous nucleoli and moderate eosinophilic cytoplasm with distinct cell borders. Sharp punched out spaces are seen. Compressed enclosing layer of myoepithelial cells is seen at the periphery. Occasional foci of microcalcification are also noted (arrow).

was given only to two patients based upon clinician's preference. Receptor status was not available for all cases, but where ever positive, hormonal treatment was given [10].

Diaz et al reported the clinicopathologic features of 105 carcinomas arising within fibroadenomas, 95% of them being in-situ type with lobular and ductal carcinoma in-situ occurring with similar frequency. The mean age of the patients was 44 years. Based on their mean follow-up of 7.7 years, no subsequent carcinoma was identified in any of the patients with DCIS within fibroadenoma treated with excision, however, re-excision

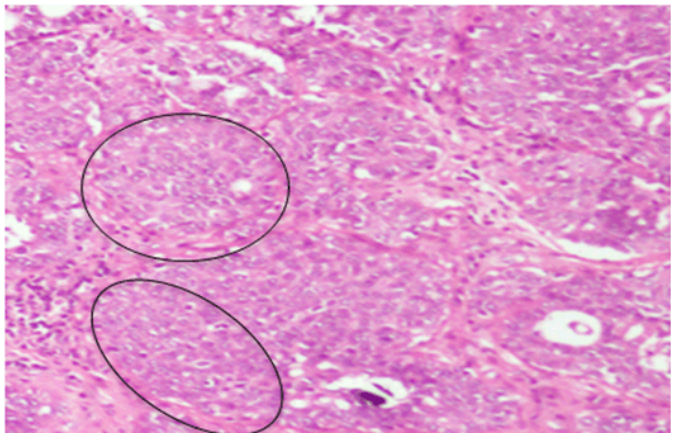

Figure 6: The two circles highlight Focus of lobular cancerization. The intact lobules show solid proliferation of lesion cells. These cells had positive expression for immunohistochemical stain E-cadherin (not shown here).

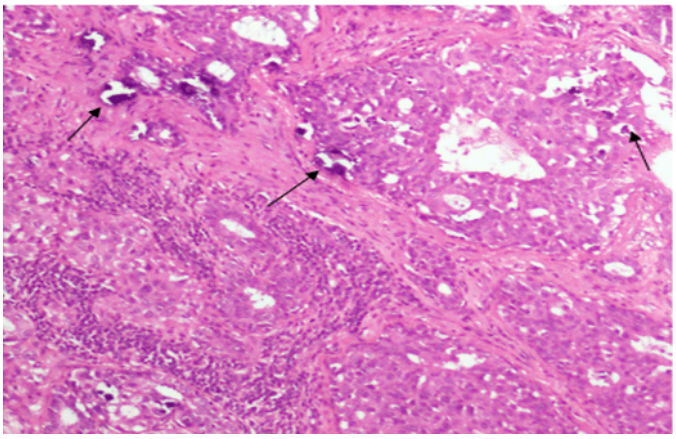

Figure 7: Some of the ducts showed features of Atypical ductal hyperplasia. Scattered foci of microcalcification are also noted (arrow).

of surrounding tissue has been recommended as in-situ malignancy in surrounding breast tissue was identified in 21% of their patients with DCIS. Role of radiation therapy was not addressed in their series [11].

Tiu et al in their case report of 45 years old lady with DCIS in a fibroadenoma recommended similar treatment in such cases as that of carcinomas, as carcinomas within a fibroadenoma tend to have the same behavior as those which occured independently [12].

Kuijper et al reported a case of DCIS diagnosed on excisional biopsy of fibroadenoma in a middle aged woman with strong family history of breast and ovarian cancer and BRCA mutation [13]. This is of clinical significance as fibroadenoma in a slightly older woman, especially in the presence of risk factors should give the clinician a high index of suspicion and excision should be preferred over follow-up even if core needle biopsy fails to identify malignancy.

Our patient did not have any risk factor for malignancy, however, due to slightly increased age at presentation and increase in size of lump along with vascularity on ultrasound, the suspicion was raised. Whether or not her state of pregnancy was a contributing factor in causing changes within the fibroadenoma is an unaddressed hypothesis.

There is lack of sufficient literature and guidelines regarding management and outcome of DCIS within fibroadenoma. However, in light of published case reports, management plan should be individualized and perhaps should not differ from the conventional treatment of carcinoma of the breast.

CONCLUSION

DCIS within a fibroadenoma is a rare but known entity and should be considered especially in women presenting with fibroadenoma at a later age than usual and with risk factors for breast cancer. Extensive tissue sampling should be performed by expert breast pathologist in order to avoid missing the condition, and if identified, treatment should follow the same principles as for breast carcinoma.

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Author Contributions

Sana Zeeshan – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Sabeeh Siddique – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Nazia Riaz – Substantial contributions to conception and design, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor of Submission

The corresponding author is the guarantor of submission.

Source of Support

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Consent Statement

Written informed consent was obtained from the patient for publication of this case report.

Conflict of Interest

Authors declare no conflict of interest.