

Mystery within a fibroadenoma

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ABSTRACT

Fibroadenomas (FA) are the most common benign biphasic neoplasms in young women. Occurrences of malignant changes within FA are rare. A 32-year-old female patient presented with a lump in the left breast since 1 month. On clinical and ultrasound examination, patient was diagnosed as having multiple FAs. Cytology revealed atypical cells and excision of the lump was suggested. Histopathological examination (HPE) of the lump diagnosed as infiltrating ductal carcinoma with FA. Patient thereafter underwent modified radical mastectomy and further treatment. Patient remained well on follow-up. The present case highlights the need for extensive sampling on fine-needle aspiration and conscientious search for malignancy during the HPE.

Key words: Cytology, fibroadenoma, histopathology, infiltrating ductal carcinoma

INTRODUCTION

Fibroadenomas (FA) are the most common benign biphasic neoplasms in young women, peak incidence being in the second to third decade of life.^[1] These FA are usually accompanied with fibrocystic disease, adenosis, calcification, proliferative epithelial changes and mild/moderate/florid atypical ductal or lobular hyperplasia.^[2] Occurrence of malignant changes, which are rare takes the form of a sarcoma;^[3,4] but a few reported cases of *in situ* or infiltrating ductal/lobular carcinoma do exist.^[5-7] Herein, we report a case of co-existing FA and infiltrating ductal carcinoma (IDC) in a young lady.

CASE REPORT

A 32-year-old female, home maker presented to the surgical out-patient department with a lump in the left breast since 1 month. There were no other systemic complaints. On examination, a left breast mass measuring 4 cm × 3 cm, mobile was felt in the subareolar region. Adjacent smaller mass measuring 1.5 cm × 1 cm also noted. Clinically and on

ultrasound examination patient was found to have multiple FAs [Figure 1] and was therefore subjected to fine-needle aspiration (FNA) cytology. Cytology of larger mass reveals fibromyxoid stroma, cohesive ductal epithelial cells and myoepithelial cells. Amidst these were few atypical cells with pleomorphic hyperchromatic nuclei, some were vesicular with prominent nucleoli. Hence, a diagnosis of FA with atypical cells was made. Smaller mass showed only features of FA. Patient was advised to have excision and histopathological confirmation. Excised masses were irregular, grey white nodules, larger measuring 4 cm × 3 cm and smaller mass measuring 1.5 cm × 1 cm. Cut section of larger lump was grey white, homogenous, with focal peripheral slit like spaces while the other lump showed only slit like spaces. Histopathological examination (HPE) of larger mass showed FA composed of fibromyxoid stroma compressing ducts in peri and intracanalicular patterns [Figure 2]. Amidst these were normal ducts surrounded by malignant cells [Figure 3]. Further sampling of the lesion showed areas of IDC [Figure 4]. Smaller mass showed histology of FA. Final diagnosis of IDC-not otherwise specified type, Grade 1 with adjacent FA was offered. In view of malignancy, patient was subjected to a modified radical mastectomy (MRM) with axillary dissection. On sectioning, the specimen showed no residual tumor growth; however, four out of seven lymph nodes, identified from axillary pad of fat, showed tumor deposits. Surgical margins, nipple and areola were free of tumor. Immunohistochemistry carried out showed estrogen [Figure 5], progesterone positivity, human epidermal growth factor receptor 2/neu was negative and

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Figure 1: Ultrasound scan showing well-defined hyperechoic lesion in the retroareolar region of the left breast suggestive of fibroadenoma

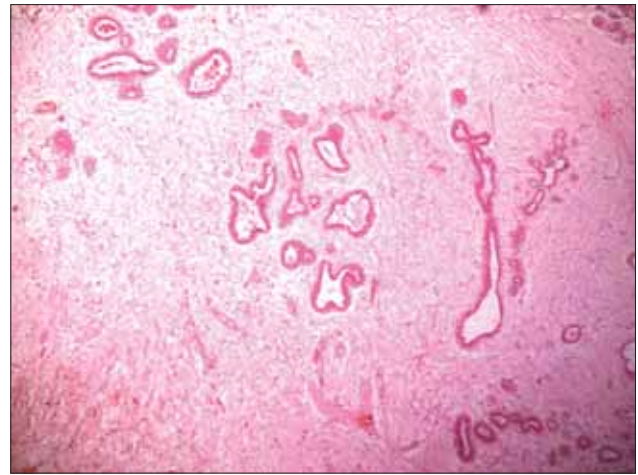


Figure 2: H and E of fibroadenoma showing fibromyxoid stroma compressing ducts in pericanalicular pattern (100x)

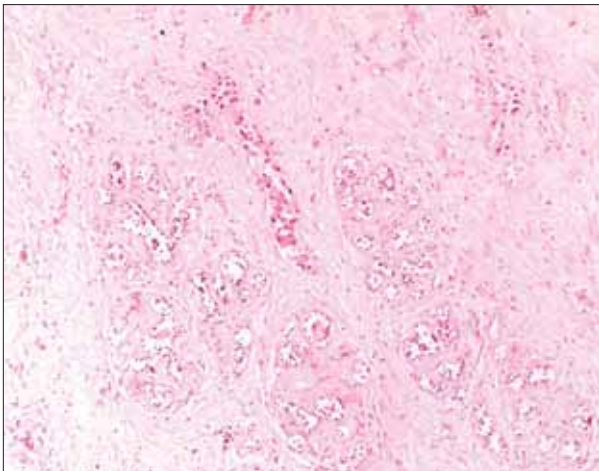


Figure 3: H and E showing benign ducts with fibromyxoid stroma and infiltrating malignant cells (x100)

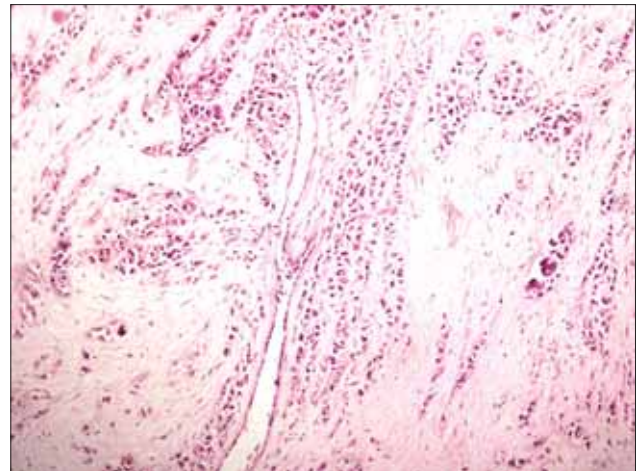


Figure 4: H and E showing malignant cells in cords surrounding the ducts (x400)

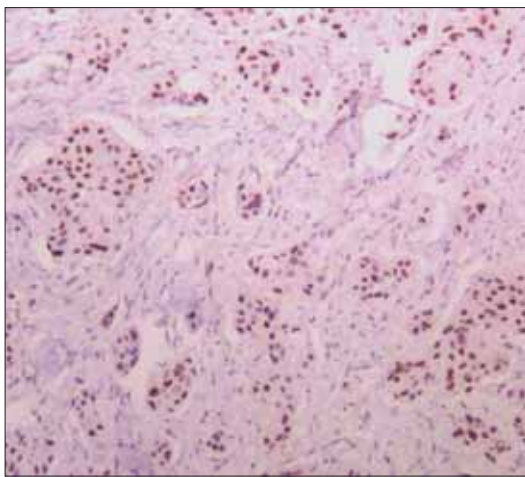


Figure 5: Immunohistochemistry showing diffuse estrogen nuclear staining (x100)

luminal cytokeratin was positive. Owing to the hormone receptor positivity patient was subjected adjuvant chemo

and hormonal therapy. On follow-up, there was no recurrence or metastasis until date.

DISCUSSION

FA is usually associated with epithelial hyperplasia and infrequently with atypical hyperplasia of ductal and lobular type.^[5] Yet a few case reports describe a stepwise progression of FAs to invasive carcinoma.^[5,8]

Cheatle and Cutler were the first to describe a carcinoma arising in FA in 1931.^[9] Carcinoma coexisting with FA ranges between 0.0125% and 0.33%,^[1] the mean age being 42.5 years.^[10] Most of the reported cases were within this range except for one study by Chintamani *et al.*,^[10] in which a 35-year-old lady presented with similar findings. A high index of suspicion and diligent search is required in those patients of FA with strong family history of malignancy.^[8,10] There was no family history in the present case.

Malignant transformation in a pre-existing FA is a rare event with a limited number of documented cases in the literature. Azzopardi *et al.*^[4] suggested the following theories for malignant transformation of FA-carcinoma arising in adjacent breast tissue engulfing/infiltrating a FA, carcinoma in the crevices of a FA, carcinoma restricted entirely, or at least dominantly to a FA. In the present study, the lady had synchronous IDC and FA, however considering various reports, progression from FA to IDC could be considered.

Breast lesions are usually evaluated with triple assessment tests, which include radio imaging techniques, FNA and core biopsy.^[5] In the present study, clinical and ultrasound examination gave a diagnosis of multiple FA. Detection of malignancy in a FA is difficult on imaging techniques alone, since radio signs are usually not evident until a breach in the capsule occurs^[5,11] in the present case also, the diagnosis was missed. On FNA, features of suspicious atypical cells were detected and hence lumpectomy was done. A study done by Rao *et al.*^[5] said that a cytologist might miss out lesional areas due to sampling error. Hence, wide sampling and meticulous search for various coexisting pathology should be sought for. Because of the heterogeneity of lesions, FNA sample could be insufficient for accurate diagnosis hence malignancy arising within a FA in most instances is detected only on excision and HPE.^[2]

The biological behavior of a carcinoma occurring in a FA does not differ from the usual breast carcinoma, so there is no difference in treatment.^[2,7] Our patient underwent MRM with axillary dissection. Owing to the hormone receptor positivity patient was subjected adjuvant chemo and hormonal therapy. On follow-up, there was no recurrence or metastasis until date.

CONCLUSION

The present case highlights need for extensive sampling on FNA and conscientious search in histopathological sections. One has to be proficient while diagnosing multiple FA and

associated lesions even in young females more so in those with strong family history of malignancy.

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