



## Case Report

# Rare findings in a common tumor: A case of complex fibroadenoma with secondary changes in a young female

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## ABSTRACT

Fibroadenoma (FA) is one of the most common breast tumours seen in adolescent and young women. Although, in the postmenopausal females FA regresses, becomes hyalinised and shows calcification these findings are rare in the younger and reproductive age group. Complex FA is defined as FAs with cysts, sclerosing adenosis, epithelial calcifications or papillary apocrine changes. We present a case of multiple synchronous FAs in a young female with uncommon findings at her age like extensive hyalinization, coarse calcification and cystic changes. No evidence of ductal hyperplasia, carcinoma in situ or invasive carcinoma was seen. Very few such cases have been reported in literature in young females. Despite these unusual findings, recent large cohort studies concluded that complex FA is not an independent risk factor for carcinoma breast.

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## 1. Introduction

Fibroadenoma (FA) is the most common breast tumor seen in adolescent and young women.<sup>1</sup> Calcification and hyalinization in FA in the younger women and in reproductive age group is very rare. However, in the postmenopausal females FA regresses, may become hyalinised and show calcification.<sup>1</sup> Complex FAs are defined as FAs with at least one of the histologic characteristics, including cysts ( $\geq 3$  mm), sclerosing adenosis, epithelial calcifications, or papillary apocrine metaplasia.<sup>2</sup> Some authors have reported increase in risk of carcinoma with complex FA as compared to simple FA while others opine that complex FA does not increase risk of carcinoma breast beyond that of other established histologic features such as proliferative disease without atypia and atypical hyperplasia.<sup>2-4</sup>

## 2. Case History

A 25-year-old unmarried female presented with multiple lumps in both the breasts for a duration of three and a half years. The lumps gradually increased in size to the present size. The patient was not on any hormonal therapy. No history of trauma or any surgery in past. She denied any family history of breast lump or any other cancer in the family.

Local examination revealed multiple firm, freely mobile and non-tender lumps with well-defined margins in both the breasts. The axillary lymph nodes were not enlarged. USG both breasts revealed multiple hypoechoic capsulated lesions in both breasts, (BIRADS III) and was opined as FAs. The largest FA in the left breast also showed calcifications. Other two FAs in the left breast showed cystic areas. Largest FA in the right breast measured 19 x 10.4 mm and did not show any secondary changes on USG.

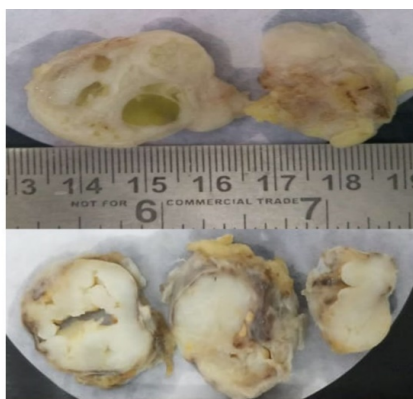
FNAC was done from the largest lump in the left breast. Aspirate comprised of 0.1 ml of straw-coloured fluid. The

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smears were moderately cellular and revealed cohesive clusters, acinar pattern and monolayered sheets of bimodal population of epithelial cells. The cells were intermediate in size had moderate cytoplasm, round nucleus and no nucleoli. Background showed few stromal fragments, bare nuclei and lymphocytes along with cyst macrophages. No malignant cell was seen. FNAC was opined as Fibroadenoma with cystic change.

Lumpectomy of three lumps from left breast was done. The lumps measured 3.2x2.5x1.8 cm, 3.0x2.1x2.0 cm and 2x2x1.2 cm respectively. Grossly the external surface was globular and the cut surface of both the larger lumps revealed coarse calcification and multiple small cystic areas (> 3mm) were noted in smaller lumps (Figure 1). However, no necrosis or haemorrhage were seen.



**Fig. 1:** Gross features of the lesion showing well circumscribed lesions. Cut surface of the lesions pearly white in colour and showing calcification and cysts.

Microscopy from the all the three lumps (Figure 2) revealed similar features and showed well defined lesion. The lesion showed proliferation of glandular elements and intra and interlobular connective tissue. The tubules were lined by cuboidal cells with round uniform nuclei resting on a layer of myoepithelial cells. Cystically dilated ducts along with collection of cyst macrophages was noted within the lesion. No atypia, mitosis or necrosis was seen. The surrounding breast tissue showed few normal ducts and terminal duct lobular units at the periphery of the lesions. No adenosis or fibrocystic change was noted in the surrounding breast tissue. The sections from two larger lumps also revealed extensive hyalinization and focal calcification. The histopathological diagnosis of multiple complex fibroadenoma of left breast was given.

The patient developed post operative seroma in the left breast and was managed conservatively. The patient was followed up for a period of five months post operatively and is doing well, with no residual lumps in the left breasts.

### 3. Discussion

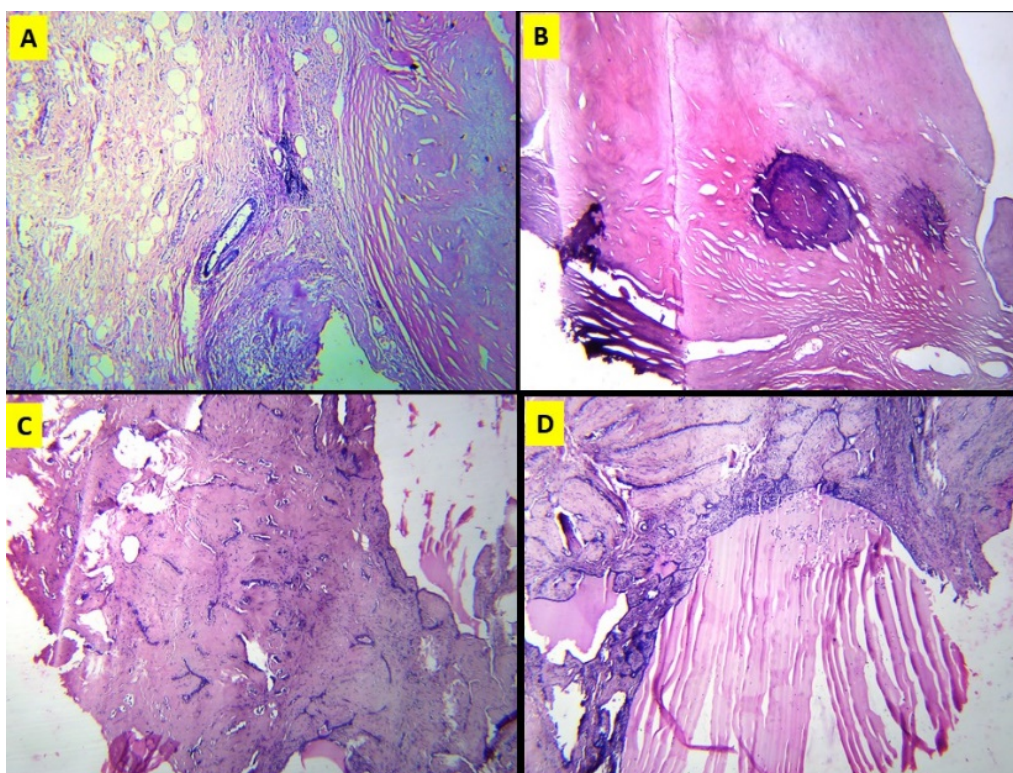
FA is the most common benign tumour of the breast in females below 30 years of age. The mean age of patients of complex FA have been reported to be 34.5 years, by Kuijper et al.<sup>5</sup> In another study by Sklair-Levy et al the median age of complex FA was reported to be 47 years as compared to 28.5 years for patients with noncomplex FA.<sup>4</sup> The stroma of FA in postmenopausal women shows regressive changes and tends to be hypocellular and hyalinized and it frequently harbours coarse dystrophic calcifications.<sup>1</sup> Our patient is only 25 years old with extensive hyalinization, coarse calcification and cystic changes in the FAs. In a study by Geethamala et al the hyalinization in FA was seen in one out of 158 cases (0.3%) of FA.<sup>6</sup> Extensive literature search did not reveal any similar case as ours.

Unlike women with a single FA, most of the patients with multiple FA have a strong family history of these tumors and occurs more often in African-Americans than in whites/Asians.<sup>7</sup> Our patient is Indian and did not have any family history of breast lump.

FA may be associated with macrocalcifications. Namazi et al. reported calcification in 9.8% of FAs in his study of 92 cases.<sup>8</sup> The incidence of malignancy arising from a FA specimen is rare, and ranges from 0.002% to 0.125%.<sup>9</sup>

Dupont et al. in their retrospective cohort study of 1,835 women with FA emphasized upon the significance of complex FA. They found that the risk of invasive breast cancer in these patients was 3.1 times higher than in women of the general population as compared to relative risk of 1.89 in FAs not associated with complex features.<sup>2</sup> Dupont et al also described that risk of breast carcinoma in patients with complex FA remains elevated forever after the diagnosis. The risk of invasive carcinoma further increased in patients who also have benign proliferative disease in adjacent breast parenchyma or a family history of breast carcinoma.<sup>2</sup> Awareness of complex FA is vital because, USG finding of complex FA e.g. presence of internal cysts, small punctuate echogenicities or heterogeneous echotexture inside a solid nodule are encountered in a nodule which is otherwise classified as BIRADS 3 on sonography, a biopsy may be taken instead of routine follow-up. There is limited literature on the management of complex FAs. Sklair-Levy et al. in their study of 63 patients found a low incidence of malignancy in complex FA at a mean follow-up of 2 years. They recommended that patients with complex FA be managed conservatively, with the same approach as for simple FAs.<sup>4</sup> Sklair-Levy et al. reported that the average size of complex FAs ( $1.3 \pm 0.57$  cm; range 0.5 to 2.6) was about half that of noncomplex FAs ( $2.5 \pm 1.44$  cm; range 21 to 69).<sup>4</sup> Our patient had larger lesions than reported by Sklair-Levy et al.

Recently Nassar et al. studied a cohort of 9076 women aged 18 to 85 years who underwent surgical excision of a benign breast lesion. Out of these 1,835 (20.2%)



**Fig. 2:** Photomicrographs showing well circumscribed lesion; **A):** Calcification; **B):** Areas of hyalinization and cysts (**C&D**): (H&E,  $\times 100$ ).

had simple FA and 301 (3.3%) had complex FA.<sup>3</sup> They concluded that complex FA does not confer increased risk of invasive breast carcinoma beyond that of other recognized histologic features such as proliferative disease without atypia and atypical hyperplasia. Therefore, the management of complex FA should be based on the associated histologic findings of hyperplasia with or without atypia.<sup>3</sup>

Carolina et al. studied 59 cases of benign breast pathology from 19 women with Cowden's Syndrome (CS). They concluded that FAs from these cases tend to hyalinize at an early age and are often complex.<sup>10</sup> However our patient neither revealed any family history nor any other clinical features of CS.

#### 4. Conclusion

Hyalinization of FA suggesting regressive change, is an exceptional phenomenon in younger patients which makes our case a unique one. Our patient had multiple fibroadenomas in both breasts without any family history of lump breast. Calcification and cysts, can be seen in FA conferring diagnosis of complex FA. We suggest that excised fibroadenomas in young patients should be thoroughly grossed to look for evidence of regressive changes. Other patients may be followed up USG breasts to find out if FA can spontaneously regress even in younger patients.

#### 5. Source of Funding

None.

#### 6. Conflict of Interest

None.

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