

Infarcted Fibroadenoma: An unusual case with its Cyto-histopathological Correlation

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ABSTRACT

Fibroadenoma is a benign breast lesion of adolescents and young women. It constitutes 20% of all benign breast tumours. Fibroadenoma is associated with many secondary changes like calcification, ossification, hyalinization, myxoid and apocrine squamous metaplasia. Spontaneous infarction in fibroadenoma is very rarely seen. We report one such case of spontaneous infarction of fibroadenoma in a 16-year-old unmarried female with its cyto-histopathological correlation, that posed us with a diagnostic dilemma in the early stage. The possibility of this entity should be considered while diagnosing breast lumps on cytology. The lesion was further confirmed on histology.

Keywords: Breast, Fibroadenoma, Infarction, Necrosis

Introduction

Fibroadenoma is one of the most common causes of a benign lump in the breast. They may occur at any age after puberty but are most frequent in the third decade. They may be unifocal or multifocal and unilateral or bilateral. Clinically they present as firm or rubbery, mobile, well-defined masses that are usually painless. Fibroadenoma is associated with many secondary changes like calcification, ossification, hyalinization, myxoid and apocrine squamous metaplasia but infarction of fibroadenoma is very rare.^[1] In Haagensen's review of fibroadenoma, the incidence of spontaneous infarction was 5 out of 1000 cases (0.5%), and 3 of these 5 patients were pregnant or lactating for the first time.^[2] Here we report a case of infarcted fibroadenoma in a 16-year-old unmarried female without any history of pregnancy, lactation or trauma.

Case Report

A 16-year-old unmarried female came to surgery OPD with a complaint of right breast lump since 7 months. The lump was slowly increasing in size. The patient had no history of pain, trauma or any other previous breast disease. On examination there was a lump in the right upper outer quadrant of breast of about 2.7x1.5 cm which was firm, mobile with mild tenderness. There was no ulceration, scar mark or any fixation to underlying structure. Fine needle aspiration (FNA) was performed and slide was examined under microscope. Paucicellular FNA smears were composed of small sheets and clusters of benign ductal epithelial cells, necrotic epithelial fragments showing well-defined contours reminiscent of fibroadenoma (Figure-1) and occasional dull-looking necrotic stromal fragments with irregular shapes and variable thickness (Figure-2). Occasional nuclei were enlarged, smudgy, and

focally irregular. In isolation, these cells could have been misinterpreted as malignant cells in a necrotic background. Benign breast disease with possibility of fibroadenoma was considered cytologically.

Surgical excision of the lesion was performed and sent for histopathological examination. Grossly the lesion was circumscribed, nodular, encapsulated measuring 2.5x1.5x1.5 cm. On cut section the lesion was greyish to dull white with presence of hemorrhagic areas and focal necrotic areas (Figure 3). Microscopy of the lesion showed an encapsulated tumour with extensive areas of necrosis enclosing ghost architecture of intracanalicular ductal pattern and stromal tissue (Figure 4). Only peripheral part showed cellular fibroblastic stroma enclosing proliferated duct lined by flattened epithelium (Figure 5). A final diagnosis of infarcted fibroadenoma was made histopathologically.

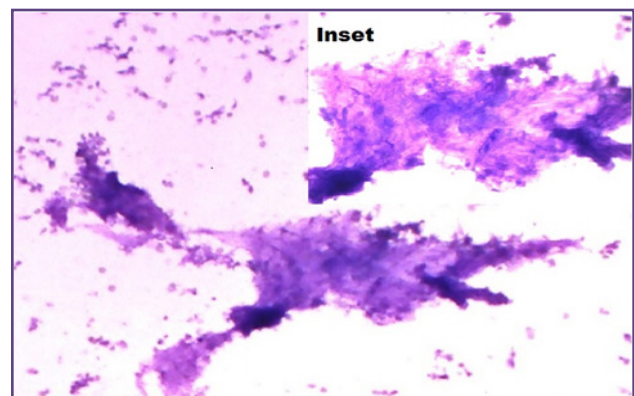


Fig. 1: Photomicrograph of FNA showing necrotic epithelial fragments showing well-defined contours reminiscent of fibroadenoma (H&E stain x100), INSET: Necrotic epithelial fragment (H&E stain x400).

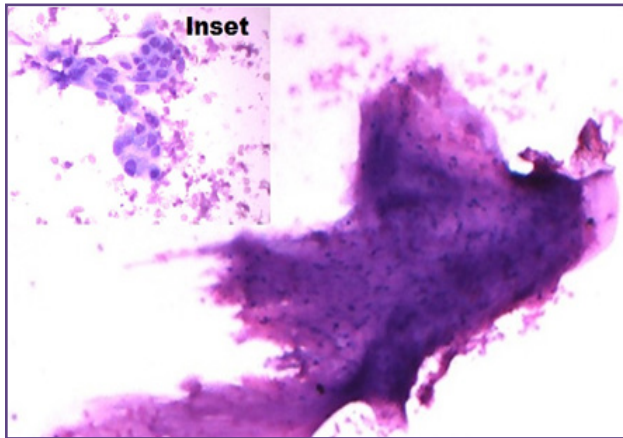


Fig. 2: Photomicrograph of FNAC showing dull looking necrotic stromal fragments with irregular shapes (Giemsa stain x100), INSET: Preserved cluster of ductal epithelial cells showing mild anisonucleosis (Giemsa stain x400),

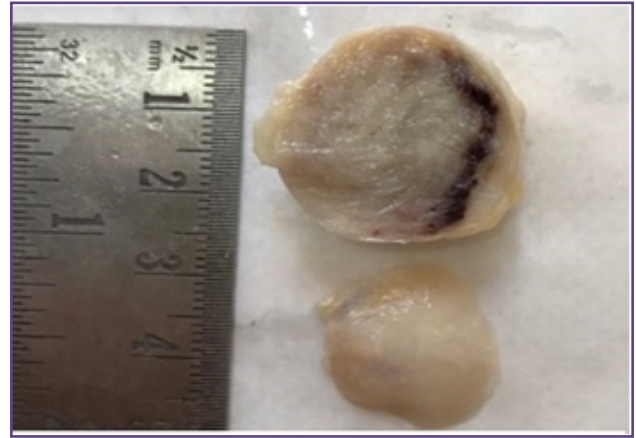


Fig. 3: Photomicrograph showing cut section of fibroadenoma with dull looking surface and hemorrhagic areas at the periphery.

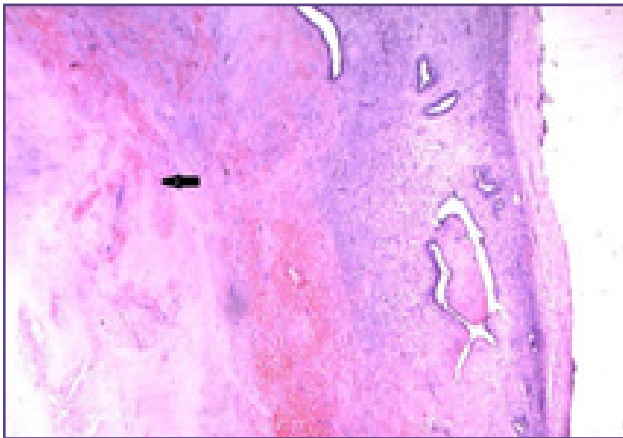


Fig. 4: Photomicrograph showing necrotic tissue (arrow) and peripheral part showing cellular fibroblastic stroma enclosing viable benign ductal epithelial cells on Histopathology. (H&E stain x100).

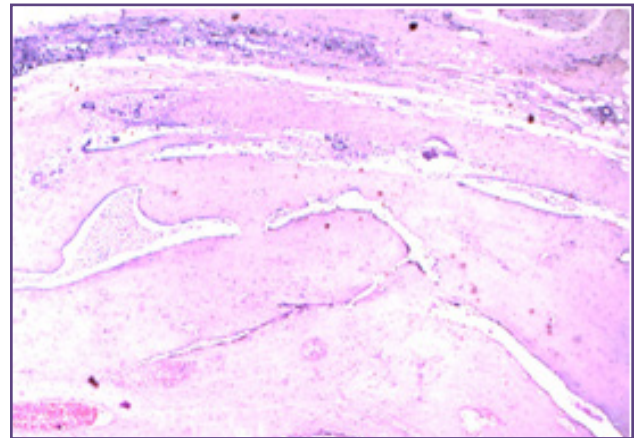


Fig. 5: Photomicrograph showing areas of ischemic necrosis, haemorrhagic areas with partial retaining of the ghost architecture of intracanalicular duct on histopathology. (H&E stain x100).

Discussion

Fibroadenomas are benign tumours arising from the epithelium and stroma of the terminal duct lobular unit and its origin was demonstrated by Demetrakopoulos and constitute 20% of all the benign breast lumps.^[3,4] Females of second and third decade are the most commonly affected group but they can occur in any age group.^[1] Spontaneous infarction within fibroadenoma is a very rare complication of benign breast tumour. First case of spontaneous infarction of Fibroadenoma was described by Delaure and Redon in a fibroadenoma lumps in young females.^[5] It may occur during pregnancy, lactation, trauma or following fine needle aspiration cytology(FNAC).

The pathogenesis is attributed to reactive vascular failure due to increased metabolic demand associated with pregnancy or lactation. In literature some authors have also proposed thrombo-occlusive vascular changes in the feeding vessels as the cause for infarction.^[2,6,7] However, both these mechanisms fails to explain cause in our cases. McCutcheon and Lipa reported a case of extensive haemorrhagic infarction in fibroadenoma following FNA. The vascular trauma during the needling procedure may induce thrombosis and infarction.^[8] In our case, there was no history of trauma or previous FNA.

On clinical examination, an infarcted fibroadenoma is likely to be mistaken for an inflammatory lesion because of rapid

enlargement with pain and tenderness, or for carcinoma because of fixation of the mass and lymphadenopathy.^[6] Our case had no history of pain, was an unmarried adolescent girl and the lump was freely mobile.

FNAC is the commonest investigation performed for breast lump. On fine needle aspiration cytology, infarcted fibroadenoma needs to be differentiated from mastitis/abscess, duct ectasia, and even carcinoma. A combination of clinical examination and ultrasound and histology findings are essential for the diagnosis, which can be aided by an awareness of this rare complication. The predominant cytopathological feature of infarcted fibroadenoma are inflammation, necrosis, many ghost-like epithelial cells, worrisome nuclear features of the surviving cells. The necrosis commonly seen in these conditions differ by presence of abundant neutrophils in mastitis. In tuberculosis, the characteristic epithelioid cells, often accompanied by multinucleate giant cells are found. The demonstration of tubercle bacilli by Ziehl Neelsen stain clinches the correct diagnosis. The inspissated secretions of duct ectasia may be confused as necrosis. The typical presentation as a sub-areolar cord like mass in older women is most helpful.^[9,10] The diagnosis of carcinoma should be considered only when the viable tumour tissue is identified along with necrosis.^[11]

Histopathological examination is the confirmatory investigation for infarction of fibroadenoma which shows abundant areas of ischemic necrosis, haemorrhagic areas with partial retaining of the ghost architecture of intracanalicular duct and classic Fibroadenoma features in preserved peripheral area. These features were also seen in our cases which helped us in clinching the diagnosis.

Conclusion

In conclusion we reported a case of infarcted fibroadenoma who had no etiologic factors aiding infarction; hence they were diagnosed as spontaneous infarction in a fibroadenoma of the breast. It is rare complication within fibroadenoma that poses diagnostic dilemma at every

step. It can be diagnosed on FNAC with its characteristic features that can further be confirmed on histology. Hence careful search and possibility of this entity is a must during the diagnosis of breast lump.

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