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Osseous metaplasia in a complex fibroadenoma, A rare finding - A case report with review of literature

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Abstract

Introduction: Osseous metaplasia is one of the rarest pathology in breast lesions. Majority of cases are seen in malignant breast lesions and very few are mentioned with benign lesions of breast. Hence, careful diagnosis is necessary to differentiate it from malignant lesions in the breast.

Case Report: We report a case of complex fibroadenoma with osseous metaplasia in a 42 year old female patient. The patient presented with painless lump in left breastsince6 years. Sonomammography of the lump revealed multiple, well defined, and regularly marginated lesions with areas of calcification, suggestive of benign lesion. Tru-cut biopsy from the lesion was suggestive of benign breast lesion. Excision biopsy of multiple lumps in the left breast was received for histopathological examination, microscopy of which revealed complex fibroadenoma with osseous metaplasia.

Conclusion: Osseous metaplasia is very unusual occurrence in fibroadenoma. Knowledge of this entity is essential to differentiate it from other mimics, especially malignant lesions.

Keywords: Complex Fibroadenoma, Ossification, Sclerosis, Premalignant lesion.

Introduction

Fibroadenoma of the breast is a commonest cause of breast lump. Conventional fibroadenomas known as simple fibroadenoma have characteristic radiological and pathological features. Because of various histopathological findings, different variants are described like juvenile, cellular, giant and complex fibroadenoma [1,2].

Complex fibroadenoma have higher incidence of transforming into malignancy. We present a case of complex fibroadenoma to highlight it rarity as well as differentiation from malignant breast lesions, so as to guide clinician for proper management of patient.

Case Report

A 42 year female patient presented as painless lump in the left breast since 6 years. There was no axillary lymphadenopathy. Sonomammography of the lump revealed multiple, well defined, regularly marginated hypoechoic lesions in the left breast with small areas of calcifications within. Imaging features were in favour of

benign lesion that is BIRADS 2.Outside tru-cut biopsy of the left breast lump revealed extensive collagenization with compressed benign breast duct, suggestive of benign breast lesion. Excision biopsy of left breast lumps was done and specimen was received for Histopathological examination. On gross examination, there were four well circumscribed encapsulated lesions, largest measuring 4×4×2 cm and smaller measuring 2.2x1.7 x1 cm. Cut section of all lesions was grey white with hard gritty areas, also focally cystic areas measuring more than 3mmwere seen.(figure1,2).

Figure 1

Figure 2

Gross - Fig.1 and 2 showing 4 encapsulated lesions, cut section showing gritty areas.

Microscopic features from all the breast lesions revealed well circumscribed benign tumour composed of compressed benign ducts lined by cuboidal epithelium without nuclear atypia. There was cystic change with extensive areas of sclerosis, hyalinization, calcification, and ossification. Nuclear atypia, necrosis and mitosis was not evident. Based on these microscopic features, diagnosis was offered as complex fibroadenoma with extensive sclerosis and ossification (Fig 3 and Fig 4)

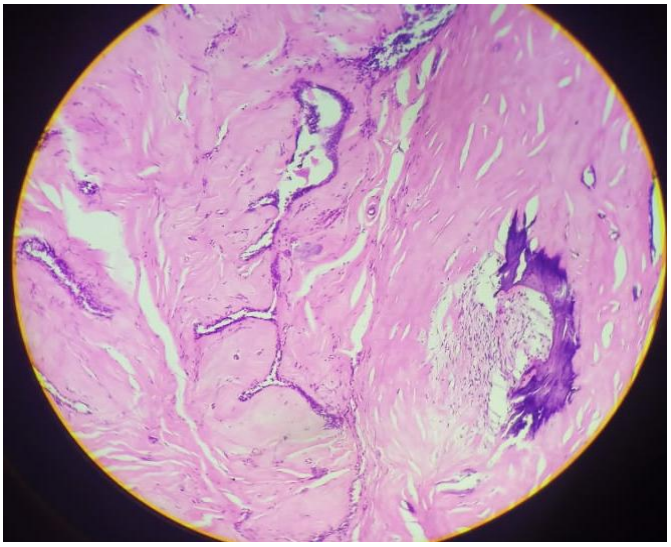

Figure 3

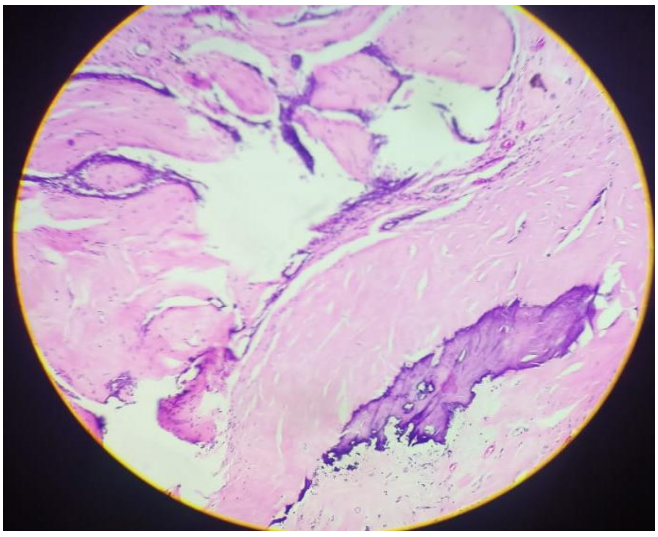

Figure 4

Microscopy – Fig 3 and 4 showing intracanalicular fibroadenoma with extensive sclerosis and ossification (100X H&E)

Discussion

Fibroadenoma has different variants which manifest diverse behaviour and hold potential for malignant transformation, hence accurate diagnosis is essential [(1)]. Complex fibroadenoma was first described by Dupont et al in 1994. They published that complex fibroadenoma constitute 22% of all fibroadenomas[3]. They present in mean age group of 47 years as seen in our case. They have high risk of breast carcinoma[4]. Diagnostic criteria for complex fibroadenoma are cyst >3 mm in diameter, sclerosing adenosis, papillary apocrine metaplasia, and calcification[3]. In our case, there was cystic change measuring more than 3mm in size, extensive sclerosis as well as calcification. In addition, there were areas of ossification, which is rarely documented in the literature. All these findings together are seen in only 5% percentage cases of complex fibroadenoma[5].

Presence of ossification on radiology can lead to high index for suspicion of malignant breast lesion as ossification is commonly associated with malignant breast lesions. Pinto et al have done interesting study, including comparison of complex and simple fibroadenoma and has revealed that complex fibroadenomas are more often larger in size and are solitary[6]. In contrast, in our case, there were multiple complex fibroadenomas, which were smaller in size. Osseous metaplasia has been reported in various benign and malignant conditions, majority are seen in malignant tumours[7,8]. Benign breast lesions with osseous metaplasia include fibroadenoma, pleomorphic adenoma of breast, benign mesenchymoma, phyllodes tumour, fibromatosis, while malignant tumours are fibrosarcoma, metaplastic carcinoma, osteogenic sarcoma, and osteochondrosarcoma[9].

First case of osseous metaplasia was described in early 10th century by Virchows in 1863.He reported that osteoblasts were modified fibroblast, which is transformed by the process of metaplasia. Gal camber et al have proposed that ossification can be arising from fibrous tissue or it may be secondary to cartilage formation[10]. Bone formation in breast stroma can be secondary to inflammation or trauma or chronic ischemia [11,12]. In addition, drugs, metabolic, hormonal and genetic factor, also play a role in osseousmetaplasia[13]. Most cases of osseous metaplasia in fibroadenoma presented with lump in left breast and are middle-aged females[14]. Similar observation was noted in our case. Mammography and ultrasound findings of osseous metaplasia can mimic malignant breast lesions[15]. Hence histopathological examination with wide excision offers a definitive diagnosis in these cases.

Conclusion

Osseous metaplasia is very unusual occurrence in fibroadenoma. Knowledge of this entity is essential to differentiate it from other mimics, especially malignant lesions. Histopathological examination plays an important role in definitive diagnosis and differentiation from malignant lesions, which helps the clinicians for proper management of patients.

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