Hamartomas of the Breast: A Mimic of Fibroadenoma and Cytological Pitfall

**Case**

Hamartoma is a rare benign lesion of the breast, accounting for around 4.8% of all benign breast lesions.\(^1\)\(^2\) Pathologically, hamartomas lack a distinctive feature. It is important to recognize this poorly recognized benign lesion as clinically and cytologically hamartomas may mimic other benign entities.\(^3\) We present here a case of a hamartomas of the breast in an 18 year old female which was reported as fibroadenoma radiologically and on fine needle aspiration cytology (FNAC).

The index case was an 18 year old female presented with bilateral breast swellings since 4 years. Ultrasound of both breasts was done, which revealed multiple well defined hypoechoic lesions, ranging in size from 9 × 6 mm to 17 × 10 mm, in bilateral breasts. An impression of multiple fibroadenomas was suggested on radiology. FNAC was done from the right breast swelling, which showed cellular smears comprising of sheets and clusters of benign ductal epithelial cells, with interspersed myoepithelial cells and stromal fragments in a background of bare bipolar nuclei [Figure 1a-c]. No stromal changes/increase in stromal cellularity were noted. An impression of fibroadenoma of breast was suggested based on these cytological findings.

Subsequently, excisions of bilateral breast swellings were done. Grossly, two globular grey white soft tissue masses were received, each measuring 2 × 1.8 × 1.5 cm. Cut surface was homogenous grey-white. On histopathology, sections showed a well circumscribed lesion, showing terminal ductal lobular units arranged in a disorganised architecture, along with dense hyalinized stroma admixed with fibroadipose tissue [Figure 1d-f]. Based on these histopathological findings, a final diagnosis of hamartoma of the breast was given.

**Discussion**

The word “hamartoma” was first coined by Arrigoni et al.\(^4\) in 1971. The word is Greek in origin and means “bodily defect”. Hamartomas are benign non-neoplastic lesions, composed of disorganised mixture of elements which are endogenous to a particular site.\(^1\) Pathologically, breast hamartomas are composed of admixture of benign epithelial elements, fibrous and fatty tissue. The exact pathogenesis for development of breast hamartoma is still unknown, but it is said to be a developmental anomaly. They are commonly observed in premenopausal women, but they are known to occur in as young as teenagers.\(^1\) The present case was that of an 18 year old female. Clinically, they present as painless, mobile soft to firm swelling, mimicking a fibroadenoma,\(^5\) which was also the scenario in the present case.

On ultrasound, hamartomas are well circumscribed lesions with a smooth outer border and hyperechoic or heterogenous internal echogenicity.\(^6\) Sometimes, they might appear to be homogeneously dense if rich in fibrous tissue, mimicking a fibroadenoma radiologically. Cytological techniques, although useful in diagnosing most breast lesions; may not be able to differentiate hamartomas from other benign entities like fibroadenoma.\(^1\)\(^-\)\(^6\)

Grossly, hamartomas are round to oval masses and can be as large as 20 cm in size. The cut surface may resemble that of normal breast parenchyma or fibroadenoma, depending upon the consistency of the lesion.\(^1\) Originally, hamartomas were defined as clinically discrete nodules which are composed of variable amount of epithelial tissue in a fibrofatty stroma.\(^4\)\(^-\)\(^7\) The presence of lobules within a fibrotic stroma that surrounds and extends to between individual lobules and also obliterate the interlobular specialised loose stroma, is characteristic of hamartomas. However, this feature may also be seen in sclerosing lobular hyperplasia. The absence of adipose tissue in stroma and frequent association with fibroadenoma can help differentiate between sclerosing lobular hyperplasia and hamartoma.\(^1\)\(^-\)\(^5\)\(^,\)\(^7\)

Adipose tissue in the stroma of hamartomas is commonly reported. In most studies, adipose tissue is present in more than 90% of the cases, although volume of adipose tissue is generally...
10-20% of the lesion volume. In the present case also, adipose tissue was seen within the stroma, clinching towards the diagnosis of hamartoma. Pseudo-angiomatous stroma, epithelial hyperplasia and cystic changes with or without concomitant apocrine metaplasia are also a common feature of breast hamartoma. However, these changes were not observed in the present case. Other rare features have also been described in the literature, which include microcalcification, myoid differentiation, stromal edema and stromal giant cells.

The accurate diagnosis of hamartoma is important because of problems of recurrence, which actually represent multifocality as true recurrence is not known in a hamartomatous lesion. Multiple breast hamartomas are also associated with Cowden syndrome which is also known as Multiple Hamartoma syndrome. Genetic data is in breast hamartomas is limited. However, genetic alterations involving chromosomal regions 12q12-15 and 6p21 have also been described in literature.

Hamartomas of breast are rare, composed of normal breast components including glandular, fatty and fibrous tissue in varying proportions. It is under-diagnosed and often under-reported, as it is often missed on radiology as well as on FNAC. The pathologist needs to be aware of this entity; and whenever fibrous tissue within the lobules, or fibrous tissue and fat in the stroma is seen, it should clinch towards the possibility of a hamartoma.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

Akanksha Bhatia1, Ravi Hari Phulware2, Arvind Ahuja1, Manju Kaushal3

1Department of Pathology, PGIMER, ABVIMS, RML Hospital, New Delhi, India,
2Department of Pathology, AIIMS, Rishikesh, Uttarakhand, India,
3Department of Cytopathology, PGIMER, ABVIMS, RML Hospital, New Delhi, India

Address for correspondence: Dr. Ravi Hari Phulware, Assistant Professor, Department of Pathology, All India Institute of Medical Sciences (AIIMS), Rishikesh - 249 203, Uttarakhand, India.
E-mail- ravipaarti@gmail.com

REFERENCES
1. Amir RA, Sheikh SS. Breast hamartoma: A report of 14 cases of an under-recognized and under-reported entity. Int J Surg Case Rep 2016;22:1-4.
2. Sevim Y, Kocaay A, Eker T, Celasin H, Karabork A, Erden E, et al., Breast hamartoma: A clinicopathologic analysis of 27 cases and a literature review. Clinics (Sao Paulo) 2014;69:515-23.
3. Herbert M, Schvimer M, Zehavi S, Mendovic S, Karni T, Pappo I, et al. Breast hamartoma: Fine-needle aspiration cytologic finding. Cancer 2003;99:255-8.
4. Arrigoni MG, Dockerty MA, Judd ES. The identification and treatment of mammary hamartomas. Surg Gynecol Obstet 1971;133:577-82.
5. Tatar C, Erozgen F, Tuzun S, Karsidag T, Yilmaz E, Aydn H, et al. Surgical approach to breast hamartoma and diagnostic accuracy in preoperative biopsies. J Breast Health 2013;9:186-90.
6. Chao T, Chao H, Chen M. Sonographic features of breast hamartomas. J Ultrasound Med 2007;26:447-52.
7. Fisher CJ, Hanby AM, Robinson L, Millis RR. Mammary hamartoma- review of 35 cases. Histopathology 1992;20:99-106.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online
Quick Response Code:
Website: www.jcytol.org
DOI: 10.4103/JOC.JOC_138_20

How to cite this article: Bhatia A, Phulware RH, Ahuja A, Kaushal M. Hamartomas of the breast: A mimic of fibroadenoma and cytological pitfall. J Cytol 2020;37:210-1.
Submitted: 01-Aug-2020; Accepted: 19-Sep-2020; Published: 31-Oct-2020