International Journal of Basic and Applied Medical Sciences ISSN: 2277-2103 (Online)
An Open Access, Online International Journal Available at http://www.cibtech.org/jms.htm
2014 Vol. 4 (1) January-April, pp.278-281/Rohini et al.
Research Article

MULTIMODALITY IMAGING OF GIANT BREAST HAMARTOMA WITH PATHOLOGICAL CORRELATION

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ABSTARCT
Breast hamartomas are relatively rare benign tumours contains fat, fibrous and glandular tissues. Since hamartomas do not have specific diagnostic histological features, the clinical and radiological findings are important in their diagnosis. Hence it is important to know the imaging features of hamartomas and the role of multimodality imaging in diagnosing these lesions and to differentiate from the malignant lesions. Here we are presenting a case of a 37 year old female who presented with a large, mobile, painless left breast mass. *Mammogram*, *ultrasound* and *Magnetic resonance imaging* of the breast were done followed by surgical resection of the lesion. The pseudocapsule with heterogenous parenchymal pattern was revealed in all the imaging modalities. In addition, the characteristic breast in breast appearance and the compressibility were clearly demonstrated on *mammogram* and *ultrasonography* respectively. The internal lobulations and the benignity of the lesion are better revealed by *MRI*. The lesion was histopathologically confirmed to be fibroadenolipoma of the breast.

Keywords*: Hamartoma, Fibroadenolipoma, Breast in Breast*

INTRODUCTION
The breast hemartomas are benign masses (0.1-0.7% incidence), initially identified by Arrigon *et al.,* in 1971. The tumors present as painless, mobile masses with well-defined borders. They contain variable amounts of glandular, fat and fibrous elements. The presence of normal breast parenchyma in association with other components limits the pathological diagnosis of the tissues. The clinical and radiological features, their correlation is utmost important for the diagnosis of these lesions. The *mammographic* and *ultrasonographic* (*USG*) findings of these masses are well-described in literature and adequate for the diagnosis of most of these masses. *Magnetic resonance imaging (MRI)* further adds to the diagnosis especially in masses with atypical presentation and in women where *mammography* is contraindicated like during pregnancy and lactation (Tzu-Chieh, 2007; Tse, 2002**).**

CASES
A 37 year old married female presented with a 10 year history of palpable left breast mass in the upper and outer quadrant which showed gradual increase in size. She has no local pain or tenderness and no history of trauma or fever. On physical examination there is asymmetrical enlargement of the left breast and no puckering of the skin or no nipple retraction. On palpation the mass is painless, oval, smooth, soft and mobile.

The family history, medical history and the laboratory tests were unremarkable. Patient underwent *Mammography, USG and MRI* studies followed by surgical resection and the specimen was sent for histopathological examination.

RESULTS
Imaging features
The *craniocaudal* and the *mediolateral oblique mammograms* showed a large, well-defined, well-marginated, heterogenous mass in the left breast upper and outer quadrant with central extension. The mass revealed opaque and radiolucent components within with sharply defined pseudocapsule (Figure 1).

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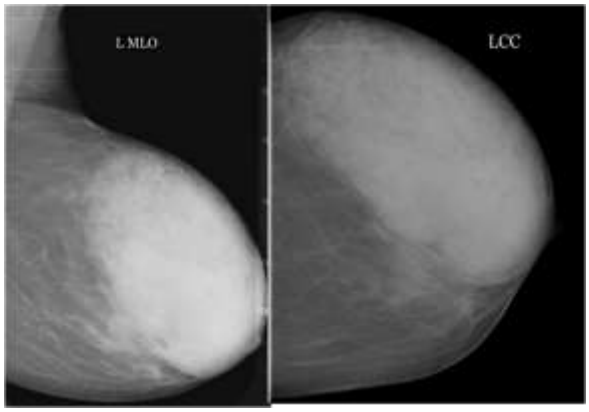

Figure 1: *Mammogram:Mediolateral oblique (LMLO)* and *craniocaudal (CC)* views of the left breast show a large, oval, encapsulated mass of mixed fat and soft tissue opacities in the upper outer quadrant. This appearance is consistent with "breast within breast" lesion

The breast sonogram revealed a mixed echogenic mass measuring 6 x 11 cm (length x width) with fat, fibrous and glandular pattern (Figure 2). The width of the lesion is more than the depth. The compressibility of the lesion is demonstrated on *sonography*.
The fat and fibro-glandular components are well demonstrated on MRI and as well the capsule and the compressed adjacent normal breast parenchyma by the mass (Figure 3). The *kinetic study* revealed *type I* and *type II* curves and no *diffusion restriction*.

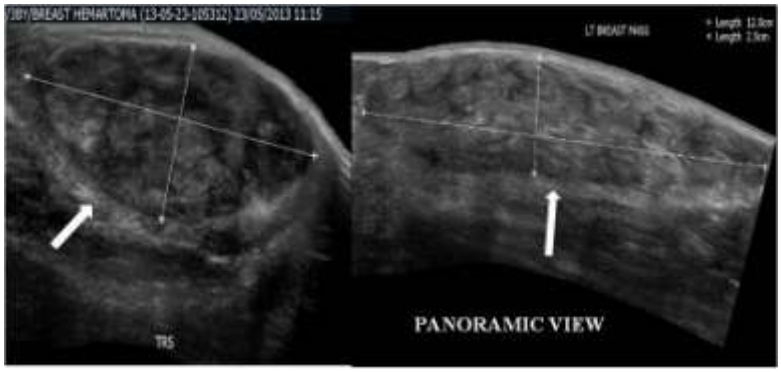

Figure 2: *Ultrasonogram*: A well defined, well-circumscribed, oval mass with heteroechoic internal pattern and peripheral *echogenic* halo

Figure 3: *Magnetic resonance imaging: T1W, T2W* fat suppressed and post contrast images reveal a well-defined, well marginated mass with fat, glandular and fibrous component with post contrast enhancement. Fat suppressed images confirm the fat component within the mass

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Pathological evaluation

Lumpectomy of the mass was done (Figure 4). At pathological analysis varying amount of fat, fibrous and glandular tissues were identified (Figure 5).

Figure 4: Surgical specimen

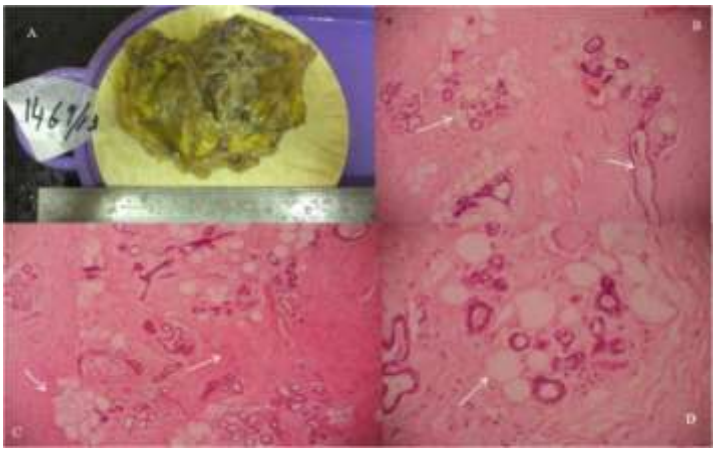

Figure 5: *Photograph* (a) of the gross specimen shows fat, fibrous and normal breast glandular parenchyma. *Photomicrograph* (B, C, D) shows apocrine metaplasia, cystic dilatation of the glands, adipose tissue and dense fibrous tissue

DISCUSSION

Breast hamartomas are also known as fibroadenolipoma, lipofibroadenoma and adenolipoma, as these lesions contain various amounts of fat, glandular components and fibrous tissue. The risk of malignancy in Hamartoma is very rare and develops from the glandular component. Rarely present in coexistence with lobular carcinoma and invasive ductal carcinoma (Gulnur, 2011).

These lesions can be incidental findings or present as palpable lesions. They are frequently seen in middle aged women during 4^{th}-5^{th} decade due to involution of the breast tissue which makes these lesions more apparent with asymmetrical enlargement. These lesions are frequently unilateral and may develop in ectopic breast tissue. Histologically these lesions contain fibrous, fat and epithelial components (Gulnur, 2011). There are no characteristic diagnostic histological features. Hence the role of *FNAC* (Fine needle aspiration cytology) and *true-cut biopsy* is very limited in diagnosis. The clinical and imaging features are very crucial in diagnosing the Hamartoma (Tse, 2002; Herbert, 2003).

On *mammogram* the appearance of Hamartoma is characteristic. It is referred as breast in breast lesion and is seen as a well-defined, round to oval, heterogeneously opaque mass with a mixture of fat and fibroglandular tissue. The mass is surrounded by a thin opaque pseudocapsle (Gulnur, 2011; Feder, 1999). The lobulated densities scattered within the encapsulated fat are called slice of salami. Calcifications are

of rare appearance. The typical features are seen in large lesions and in 10-60% of hemartomas (Tse, 2002).

Sonography reveals heterogenous masses composed of echogenic fibrous and hypoechoic glandular components. Hamartoma are compressible lesions and this property can be demonstrated on *sonogram* by change in the shape of the lesion and presence of perilesional halo which is due to the compression of the surrounding normal breast parenchyma. This is due to the proliferation of the fat containing normal breast tissue (Tzu-Chieh 2007).

MRI reveals internal fat intensities, heterogenous contrast enhancement and smooth capsule. The lobular pattern is well demonstrated in *MRI*. There is overlapping of findings of fibroadenoma and these lesions which can be differentiated by the capsule and lobular pattern. In addition the fat component and the benignity of the lesion are demonstrated on *MRI* (Gulnur, 2011).

Atypical Hamartomas are also reported and the atypical features include dense mass with benign calcifications. The atypical *sonography* features include hyperechoic mass with posterior shadowing similar to carcinoma (Park, 2003).

Conclusion

The breast hamartomas are benign breast masses. Characteristic radiological features together with clinical findings are important to reach a correct diagnosis, since the inconclusiveness of the pathological examination. Multimodality imaging approach is useful especially in small lesions; in addition in lactating and pregnant women *USG* and *MRI* would provide additional information where *mammographic* examination is not preferred.

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