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Case Report

Breast hamartoma: Unusual radiological presentation

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ABSTRACT

Breast hamartomas are uncommon slowly growing lesions. Imaging findings are specific and usually relay on common mammographic picture of breast within breast appearance. I present a case of 48 years female patient, with recent history of palpable right breast mass, the imaging findings are atypical for breast hamartoma. The unusual presentation of breast hamartomas necessitates biopsy to exclude tumor. Incidence of malignancy is low, however has been reported before. Characteristic radiological imaging can help to minimize unnecessary surgery and morbidity.

Case report

A 48-years-old woman presented with a 1-week history of right breast mass. She has two children aged 19 and 15 years old. The menstruation is irregular with menarche was at 13 years old. She is not taking any hormonal medication. There is no family of breast cancer but father was with pancreatic cancer, paternal grandmother was with uterine cancer. Mother was with lung cancer. There are no other diseases, no allergies, no regular medication. No history of chronic medication was given, especially the oral contraceptive pill. She had no history of breast trauma. On examination, there was about 10 cm mass in the right upper lateral quadrant at 9-11 o'clock and about 3 cm from the areola, the mass is mobile against the skin and underlying tissue. The nipples and skin are unremarkable, no discharge. There are no enlarged axillary lymph nodes in either axilla or supraclavicular regions.

Standard full field digital mammography (FFDM) and ultrasound (US) were requested and reveals the followings: Regarding mammography: A circumscribed rounded high density heterogeneous mass surrounded by a thin capsule was noted at upper outer quadrant of the right breast around 9-10 o'clock. No overlying suspicious microcalcification, no skin thickening or edema (no acute inflammation) (Fig. 1). Ultrasound reveals an ill-defined rounded-shaped heterogeneous predominantly solid mass lesion with variable sized and shaped cystic areas is seen at the upper outer quadrant of right breast measures 6.0 × 4.0 × 3.5 cm in maximum diameters shows scanty internal vascularity within (Fig. 2), no associated suspicious axillary lymph nodes, the imaging features conclude B-IRADS 4 lesion and biopsy is requested.

Further management with magnetic resonance imaging (MRI) of the breast shows; A large right breast mass lesion is seen at the deep retro areolar region encroaching the upper outer quadrant around 9-10 o'clock position measures

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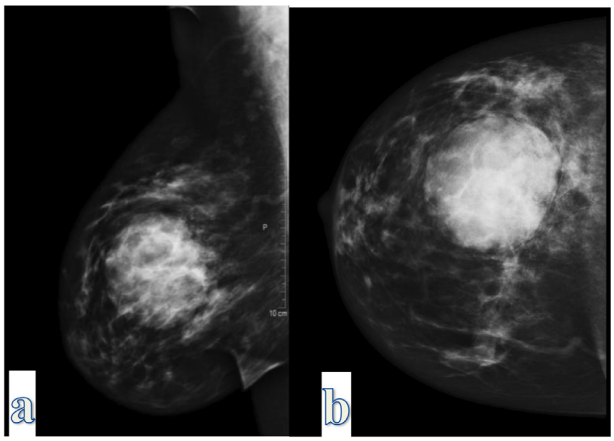

Fig. 1 – FFDM: (a and b) Mediolateral oblique (MLO) and craniocaudal (CC) mammograms of right breast shows a high density heterogeneous rounded circumscribed mass is seen at the upper outer quadrant of the right breast. FFDM, full field digital mammography.

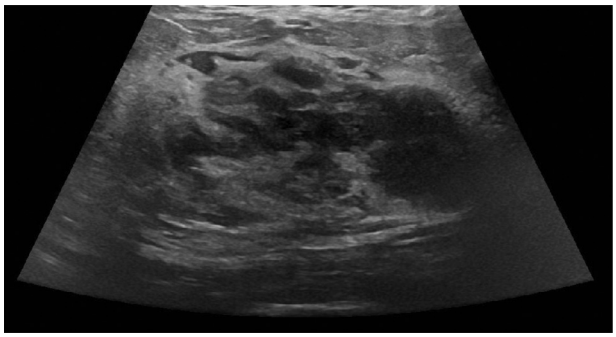

Fig. 2 – Gray scale ultrasonography of the right breast upper outer quadrant shows a well-defined heterogeneous predominantly solid isoechoic mass lesion with variable sized and shaped cystic areas.

7.0 × 6.5 × 5.5 cm eliciting predominant low T1-weighted images (T1WIs) signal intensity (SI) with scanty anteriorly located high T1WIs SI. Heterogeneous low and high SI- at T2-weighted images (T2WIs), short tau inversion recovery (STIR) images, diffusion weighted images (DWIs), and apparent diffusion coefficient map images (ADC map). Heterogeneous postcontrast enhancement noted at postcontrast images. The possibility of phyllodes tumor is raised based on size and growth of the lesion as felt recently by the patient, remote possibility of barest cancer should be excluded. Core biopsy and wide local excision is advised (Fig. 3).

US-guided core biopsy is carried out and biopsy results come as large right breast lump is formed by benign mixed stromoepithelial proliferations. The lesion is relatively well-defined and formed by a disordered, variably sized nodular aggregates of ductal and lobular structures along with variable combination of associated background dense fibrocollagenous stroma and dilated ducts. The specialized periductal/perilobular stroma is evident in most places and likewise, scattered aggregates of adipocytes and smooth muscle fibers are also present. No ductal epithelial hyperplasia is seen within the lesion. No benign microcalcification is noted. No focal stromal cell hyperplasia, significant cellular pleomorphism or significant mitotic activities are found. No atypia is seen. Neither in-situ nor invasive malignancy found. Biopsy results conclude the lesion is a hamartoma of the breast.

After US-guided core biopsy, the patient is admitted for right breast wide local excision of the mass. The patient returns for follow-up after excision of a large hamartoma in the right breast, the scar is well-healed, no palpable masses or lymph nodes, no skin or nipple changes, no nipple discharge.

Neither the mammogram nor the MRI shows the typical description of usual hamartoma. The regular hamartomas in mammogram usually gives the typical term of breast within breast appearance with large radiolucent component representing the fat component which is not found in our case. The second unusual look is the MRI images especially of T1WIs that fat SI supposed to be bright and in this case it showed almost homogenous low SI of fibroadenoid tissue and fine imperceptible steak of fat component seen. The preserved regular outline and smooth capsule with mobility during examination raise the benign criteria in this mass.

Discussion

Breast hamartomas are uncommon benign slowly growing well circumscribed breast lesions. They are also known as fibroadenolipomas [1,2,3], they were initially termed “hamartomas” by M G Arrigoni et al. in 1971 [4,3].

They typically seen in middle aged women older than 35 years of age [5,6] with incidence around 4.8% overall benign breast lesions, however the incidence likely increased due to breast cancer screening programs [6].

Breast hamartomas presentation commonly came up as asymptomatic, others presented by painless soft breast lump or unilateral breast enlargement without a palpable mass [4].

On physical examination, lesions are usually soft, mobile, and easy to compress [4]. They can be easily mistaken with other benign lesions such as fibroadenoma or phyllodes [2].

Regarding pathology, all components of hamartomas are normal component of normal breast tissue even fibrocystic foci can be seen within them similar to normal breast tissue that is why named hamartoma [7,2,3]. The term fibroadenolipoma refers to a benign proliferation process of fibrous, glandular, and fatty tissue surrounded by a thin capsule of connective tissue likely of pseudo capsule rather that true one. Cowden syndrome is a kind of syndrome associated with multiple hamartomas [7,2,3]. This is why it difficult to be diagnosed pathologically as its pathological appearance is similar to that of normal breast tissue on fine needle aspiration [2].

Biopsy is important to prove that these lesions are benign and not to be mistaken for other lesions [2]. The carcinoma is rarely to arise within hamartoma; few cases are reported with invasive ductal carcinoma arising within a breast hamartoma. It is believed that no recall is required in classical look of hamartoma in mammogram; however, lesions with abnormal growth pattern and atypical features a biopsy is needed

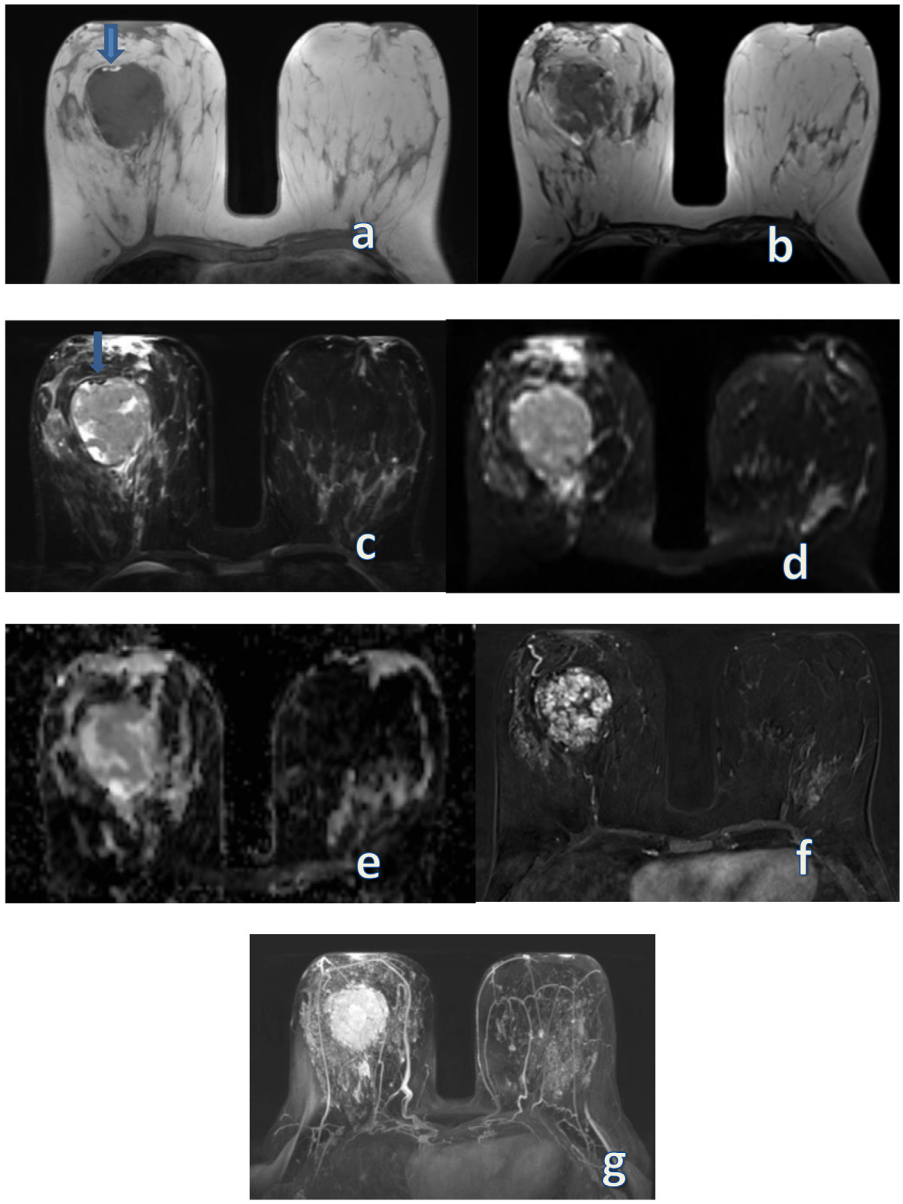

Fig. 3 – Axial T1WI spin echo nonfat-suppressed unenhanced image (TR/TE, 260/2) shows a rounded shape, circumscribed mass with predominant low signal intensity and fine streak of high SI at most anterior part (arrow) (a). Axial nonfat-suppressed fast spin echo T2-weighted MRI (TR/TE, 4800/79) shows a mass with mixed signal intensity (b). Axial STIR images shows the mass with mixed signal intensity and thin streak noted anteriorly of fat suppression corresponding to high signal seen in T1WIs (arrow) (c). Axial DWIs (d) and ADC mapping (e) show no diffusion restriction. Axial dynamic contrast-enhanced fat-suppressed T1-weighted image shows intense heterogeneous enhancement (f) confirmed by dynamic contrast-enhanced maximum intensity projection (MIP) images (g).

as breast carcinoma can develop within hamartoma [3]. Concomitant presence of phyllodes tumors and hamartoma of the breast has been reported [8].

Hamartomas are typically large at presentation time. The mammographic picture usually typical and presented by a well-circumscribed, round or oval mixed density solid mass (of both fat and fibroglandular elements - the fat component appears radiolucent and the soft tissue component appears radiodense) surrounded by a thin pseudocapsule. The classic description is the term breast within a breast appearance [7,9,3]. In case hamartoma contains more fibroglandular tissue, it will appear to be dense; which can be mistaken with fibroadenoma [10,3]. In cases with dense breast, it appears as heterogeneously increased asymmetric density without pseudocapsule and will be difficult to be detected [11,12].

In US, picture ranges from well encapsulated and well defined isoechoic solid mildly heterogeneous mass (with both hyperechoic and hypoechoic components) to ill-defined mass resembling normal breast tissue, the margins are often difficult to delineate. It may show intralesional microcalcification.

It is difficult to be measured in case pseudocapsule is not apparent [3,5,6,13,14].

On MRI, hamartomas are usually seen as well-demarcated masses with heterogeneous structure and SI, displaying variable degree of intensity on T1WIs and T2WIs based on proportion of fibrous, glandular, and fatty tissue [3,15,16].

Due to its characteristic imaging appearance the diagnosis of hamartoma supposed to be straightforward. In rare cases like our case, a differential diagnosis may include the followings: Fibroadenoma and phyllodes tumor (both of them should not contain internal fat), lipoma (homogenous fat with imperceptible soft tissue component) [3,4,17].

Conclusion

Breast hamartomas are uncommon slowly growing breast lesions with characteristic radiological appearance. Unusual presented cases can be mistaken with fibroadenoma, phyllodes tumor, and breast cancer. The unusual presentation and rare incidence of concomitant malignancy require biopsy to reach diagnosis. Characteristic radiological imaging can help to minimize unnecessary surgery and morbidity.

REFERENCES

[1] Feder JM, De paredes ES, Hogge JP. Unusual breast lesions: radiologic-pathologic correlation. Radiographics 1999;19:S11–26 Spec No.

[2] Adrada B, Wu Y, Yang W. Hyperechoic lesions of the breast: radiologic-histopathologic correlation. AJR Am J Roentgenol 2013;200:W518–30.

[3] Lee EH, Wylie EJ, Bourke AG, De Boer WB. Invasive ductal carcinoma arising in a breast hamartoma: two case reports and a review of the literature. Clin Radiol 2003;58(1):80–3.

[4] Arrigoni MG, Dockerty MB, Judd ES. The identification and treatment of mammary hamartoma. Surg Gynecol Obstet 1971;133(4):577–82.

[5] Chao TC, Chao HH, Chen MF. Sonographic features of breast hamartomas. J Ultrasound Med 2007;26(4):447–52.

[6] Rohini A, Prachi K, Bhargavi V. Multimodality imaging of giant breast hamartoma with pathological correlation. Int J Basic Appl Med Sci 2014;4:278–81.

[7] Conant EF, Brennecke CM. Breast imaging, case review. Mosby Inc; 2006. ISBN:0323017460.

[8] Vial MC, Nabi C, Jarry C, Oddó D, Camus M. Concomitant phyllodes tumour and hamartoma of the breast. Int J Radiol Radiat Ther 2017;3(3):00065.

[9] Chao TC, Chao HH, Chen MF. Sonographic features of breast hamartomas. J Ultrasound Med 2007;26:447–52.

[10] Presazzi A, Di Giulio G, Calliada F. Breast hamartoma: ultrasound, elastosonographic, and mammographic features. Mini pictorial essay. J Ultrasound 2015;18:373–7.

[11] Sanal HT, Ersoz N, Altinel O, Unal E, Can C. Giant hamartoma of the breast. Breast J 2006;12:84–5.

[12] Liu G, Wang ZL, Zhang MK, He Y, Liu Y. Breast hamartoma: ultrasound, elastosonographic, and contrast-enhanced ultrasound features. J Cancer Res Therap 2019;15(4):864.

[13] Park SY, Oh KK, Kim EK, Son EJ, Chung WH. Sonographic findings of breast hamartoma: emphasis on compressibility. Yonsei Med J 2003;44:847–54.

[14] Wong KW, Ho WC, Wong TT. MRI of muscular hamartoma of the breast. Australas Radiol 2002;46:441–3.

[15] González, L, Rueda, R, Linares, P, & Álvarez, M (2010, March). Importance of magnetic resonance imaging in the diagnosis of multiple small biliary hamartomas (von Meyenburg complexes).

[16] Nam SY, Han BK, Lee S, Lee KEuropean Congress of Radiology 2010. MR findings of hamartoma of the breast: a report of two cases. J Korean Soc Magn Resonance Med 2012;16(3):271–5.

[17] Mizuta N, Sakaguchi K, Mizuta M, Imai A, Nakatsukasa K, et al. Myoid hamartoma of the breast that proved difficult to diagnose: a case report. World J Surg Oncol 2012;10:12.