Malaysian J Pathol 2009; 31(1) : 77 – 80

CASE REPORT

Myoid hamartoma of breast with chondroid metaplasia: a case report

Joon Joon KHOO *MBBS*, *MPath*, Rizal-Imran ALWI* *MD*, *MSurg* and Iratina ABD-RAHMAN* *MD*

*Monash University, Johor Bahru and *Sultanah Aminah Hospital, Johor Bahru, Malaysia*

Abstract

Breast hamartoma is an uncommon poorly recognised benign breast neoplasm. Hamartoma displaying marked smooth muscle components known as myoid hamartoma of the breast is a much rarer entity. We present a case of myoid hamartoma of breast with chondroid differentiation in a 46-year-old woman. The painless breast lump was circumscribed and mammography showed a well-encapsulated large, dense mass with no calcification. Core needle biopsy was reported as fibroadenoma. The lesion was excised. Microscopically, it composed of many groups of mammary glandular components with dense fibrous stroma, adipose tissue and marked groups of smooth muscle fibres. Foci of chondroid differentiation were noted in the lesion. The smooth muscle cells showed strong and diffuse immunoreactivity for vimentin, myogloblin, α-smooth muscle actin, desmin and CD34 and failed to express pan-cytokeratin or S100 protein. The ducts lined by epithelial cells were reactive to pan-cytokeratin while the myoepithelial cells were reactive to S100 protein. The various immuno-histochemical staining as well as the cyto-histological changes encountered in myoid hamartomas are discussed with clinical, radiological and pathological correlation to differentiate it from other benign and malignant breast lesions.

Key words: Breast, myoid hamartoma and chondroid differentiation

INTRODUCTION

Hamartoma of the breast is an uncommon lesion. Amongst its variants, muscular (myoid) hamartoma is exceedingly rare. We present a case of myoid hamartoma with chondroid metaplasia.

CASE REPORT

A 46-year-old female presented with a left breast lump for a duration of one year. The lump was painless and had been slowly enlarging. Her medical and family histories were not significant. Physical examination revealed a 9 cm mobile, circumscribed lump at the upper outer quadrant of her left breast. Mammography showed a dense well-encapsulated mass with no calcifications, in the outer quadrant of the left breast. Breast ultrasonography confirmed the solid breast mass.

Pathological findings

Core needle biopsy under ultrasound guidance showed a few mammary lobules and ducts lined by epithelial-myoepithelial cells and some fibrous stroma with no evidence of malignancy. It was reported as fibroadenoma. The patient underwent wide local excision of the mass. Macroscopically, the tumour was round, firm with smooth margins, measuring 9 x 6 x 6 cm. The cut surface showed homogenous grey rubbery solid tissue (Fig. 1). Microscopically, the lesion was well-circumscribed and contained mammary lobules, ducts, dense fibrous stroma and fatty tissue mingled with many bundles of smooth muscle fibres (Fig. 2). No cellular atypia or significant mitotic activity was seen. Foci of cartilage were present in a haphazard manner in the lesion (Fig. 3). No calcification was present.

Immunohistochemical investigation showed strong and diffuse immunoreactivity for vimentin, myogloblin, α-smooth muscle actin, desmin and CD34 in the smooth muscle cells. These smooth muscle cells failed to express pan-cytokeratin or S100 protein. However, the ducts lined by epithelial cells were reactive to pan-cytokeratin while the myoepithelial cells were reactive to

Address for correspondence and reprint requests: Assoc. Prof. Dr. Khoo Joon Joon, School of Medicine and Health Sciences, Monash University, JKR 1235, Bukit Azah, 80100, Johor Bahru. Tel: +607-2196060; Fax: +607 2190601; Email: khoo.joon.joon@med.monash.edu.my

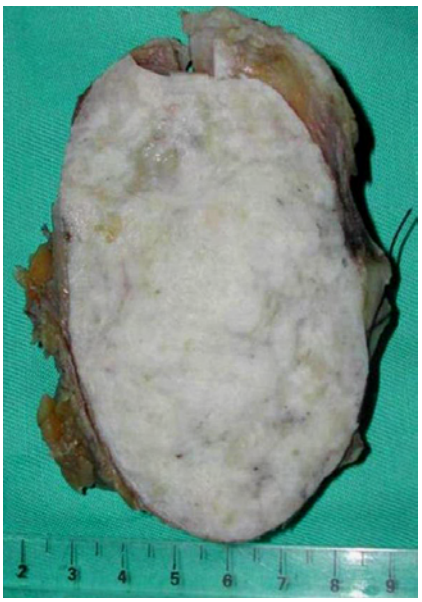

FIG. 1: Well-circumscribed solid tumour.

S100 protein. The lesion was histologically diagnosed as myoid hamartoma with chondroid differentiation.

DISCUSSION

Breast hamartoma is uncommon and a poorly recognised benign breast lesion. Arrigoni[1] first coined the term breast hamartoma in 1971 although it had been described earlier under various terms since 1904 by Albrecht.[2] Breast hamartoma encompasses a collective overgrowth of mature tissues lacking in organisation. The tissues include benign ductal and lobular units, adipose tissue, fibrous stroma and smooth muscle tissue. Hamartoma with a marked component of smooth muscle tissue is known as myoid hamartoma. Myoid hamartomas are very rare variants of breast hamartoma. Various theories had been proposed to explain the presence of this heterologous component of smooth muscle. Amongst the theories is the differentiation from a common stromal cell to evolve into smooth muscle cells.[3,4] The expression of CD34 in smooth muscle cells in myoid hamartoma helps support this origin from a common stromal cell. This also explains the presence of a variety of heterologous components viz. cartilage and bone[5] found in breast hamartomas and other breast stromal tumours. Our case had components characteristic of a myoid hamartoma with presence of cartilage. Very few cases have been reported with the presence of cartilage in myoid hamartomas of breast. The few cases reported were variously called as benign mesenchymomas,[6] chondrolipomas[7] or chondromatous hamartoma.[8]

Clinically, myoid hamartomas present as firm, mobile, well-defined, non-tender breast lumps which may be mistaken as fibroadenoma. Mammography usually reveals a sharply delineated dense mass, occasionally with calcifications, none of which are usually suspicious. Ultra-sonographic examination normally confirms the solid nature of the lesion. Fine needle or core needle biopsies may not reveal the diagnosis but contain benign breast components which may be reported as fibroadenoma, as in our case. Cytology of myoid

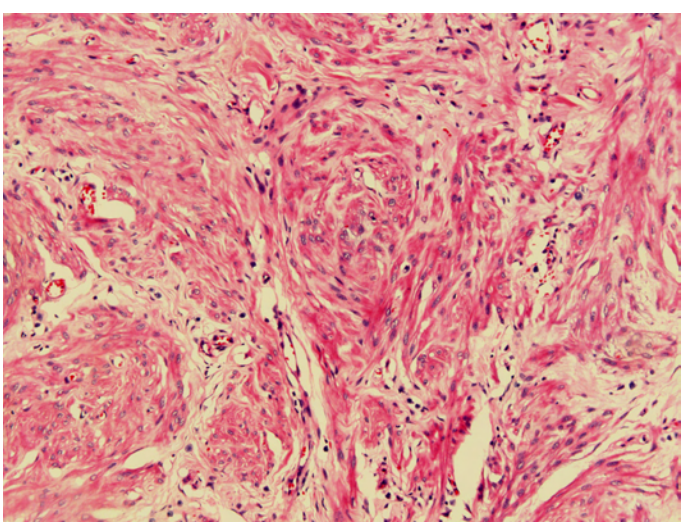

FIG. 2: Tumour shows benign ductal and lobular units, adipose tissue, fibrous stroma and bundles of smooth muscle tissue in a disorganised pattern (H&E, original magnification X 40).

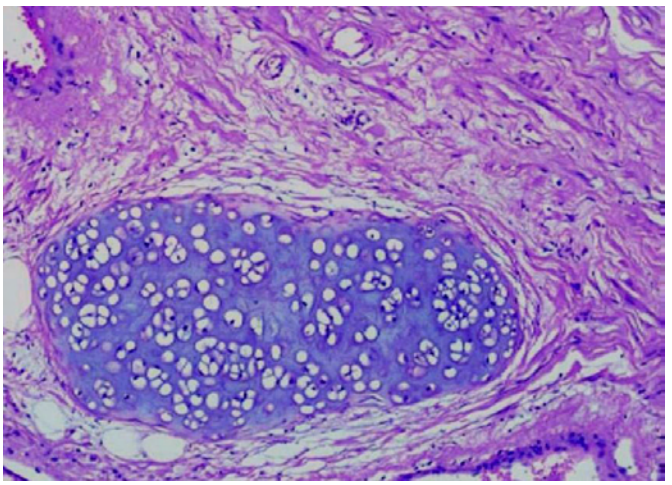

FIG. 3: Cartilage present in a haphazardly manner in the lesion (H&E, original magnification x 100)

hamartoma is also non-specific and overlaps with other benign breast lesions. Herbert *et al*[9] reviewed eight cases of breast hamartoma and found none of them had a preoperative FNA diagnosis of hamartoma.

Definitive diagnosis of myoid hamartoma is made by histology and immunohistochemistry. Various differential diagnoses for myoid hamartoma include fibroadenoma with smooth muscle metaplasia, leiomyoma, benign nerve sheath tumour, pleomorphic adenoma of breast and fibromatosis. Other malignant breast lesions that need to be considered include mesenchymal metaplastic carcinomas with chondroid and osseous components.

Myoid hamartoma is differentiated from fibroadenoma by the lack of an intracanalicular or pericanalicular pattern of ductal and stroma proliferation. It also differs from leiomyoma by containing entrapped normal ductal and lobular units amongst the smooth muscle bundles, not seen in leiomyoma. The spindle cells in myoid hamartoma are reactive to smooth muscle markers but not to S100 protein. This excludes benign nerve sheath tumour and pleomorphic adenoma of the breast. Myxoid and cartilaginous areas are usually found in the latter. The spindle cellular proliferation in fibromatosis is of an infiltrative pattern with varying cellularity. This is not seen in myoid hamartoma. Mesenchymal metaplastic carcinomas show presence of infiltrating ductal carcinoma with heterologous mesenchymal elements that may range from benign appearing chondroid and osseous components to malignant chondrosarcoma and osteosarcoma. Myoepithelial cells are absent in these metaplastic tumours but will invariably be present in myoid hamartoma. Myoid hamartomas are benign breast lesions with low risk of recurrences.[10] It is also very exceedingly rare but coincidental malignancies have been reported.[11,12,13] Thus, wide excision of the lesion with detailed histopathological examination is recommended treatment for myoid hamartomas.

In conclusion, myoid hamartomas can present as painless breast lumps which may be misdiagnosed preoperatively. Diagnostic modalities like mammography, ultrasonography or fine needle aspiration cytology may not give the definitive diagnosis. Detailed histopathological examination with immunostaining investigation is essential to diagnose this rare lesion and also to exclude any concurrent malignancies and differentiate it from malignant breast lesions with chondroid or osteoid metaplasia.

REFERENCES

1. Arrigoni MG, Dockerty MB, Judd ES. The identification and treatment of mammary hamartoma. Surg Gynaecol Obstet 1971;133:577-82.
2. Albrecht E. Uber hamartome (in German) Verh Dtsch Ges Pathol 1904;7:153-7.
3. Magro G, Bisceglia M, Michal M, Eusebi V. Spindle-cell lipoma-like tumour, solitary fibrous tumour and myofibroblastoma of the breast: a clinico-pathological analysis of 13 cases in favour of a unifying histogenetic concept. Virchows Arch 2002; 440:249-60.
4. Magro G, Bisceglia M. Muscular hamartoma of the breast. Case report and review of the literature. Pathol Res Prac 1998;194 (5);349-55.
5. Tse GMK, Law BKB, Ma TKF, Chan ABW, Pang LM, Chu WCW, Cheung HS. Hamartoma of the breast: a clinicopathological review. J Clin Pathol 2002;55:951-4.

6. Chalkiadakis G, Petrakis I, Chrysos E, Tzovaras G, Datseris G. A rare case of benign mesenchymoma of the breast in a man. Eur J Surg Oncol 1999; 25(1): 96-7.
7. Fushimi H, Kotoh K, Nishihara K, Fujinaka H, Takao T. Chondrolipoma of the breast: a case report with cytological and histological examination. Histopathology. 1999 Nov;35(5):478-9
8. Sakamoto G, Furusawa H, Sakuma H, *et al*. Breast hamartoma (in Japanese). Geka Chiryou 1998;78:318-21.
9. Herbert M, Schvimer M, Zehavi S, Mendlovic S, Karni T, Pappo I, Sandbank J. Breast hamartoma: Fine needle aspiration cytologic finding. Cancer 2003; 99(4): 255-8.
10. Stafyla V, Kotsifopoulos N, Grigoriadis K, Bakoyiannis CN, Peros G, Sakorafas GH. Myoid hamartoma of the breast: A case report and review of the literature. Breast J. 2007;13(1):85-7.
11. Ruiz-Tovar J, Reguero-Callejas ME, Aláez AB, Ramiro C, Rojo R, Collado MV, González-Palacios F, Muñoz J, García-Villanueva A. Infiltrating ductal carcinoma and ductal carcinoma in situ associated with mammary hamartoma. Breast J. 2006;12(4):368-70.
12. Mathers ME, Shrimankar J. Lobular neoplasia within a myoid hamartoma of the breast. Breast J. 2004;10:58-9.
13. Tse GMK, Law BKB, Pang LM, Cheung HS. Ductal carcinoma in situ arising in mammary hamartoma. J Clin Pathol 2002;55:541-2.