

Case Report

Myofibroblastoma of the Breast: A Rare Cause of Breast Lump in a Postmenopausal Woman

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ABSTRACT

A breast mass in a postmenopausal age woman is treated with a high index of clinical suspicion for malignancy. Myofibroblastoma (MFB) of the breast is a very rare benign stromal tumor, predominantly occurring in menopausal women and older men. Owing to its rarity, nonspecific radiology, cytomorphology, and many variants, it can be confused with other malignant and benign breast lesions and hence can be a source of diagnostic pitfall. We present a case of an MFB of the breast in a 55-year-old female, which was detected on a routine screening mammography. Fine-needle aspiration cytology was inconclusive. Final diagnosis was made by histopathology and immunohistochemistry examination. We report this case as the likelihood of encountering MFB has increased in recent years due to routine mammographic screening, and this lesion should be kept in the differential diagnosis of spindle-cell lesions of the breast.

KEYWORDS: Myofibroblastoma, postmenopausal woman, spindle cell tumor

INTRODUCTION

Mammary myofibroblastoma (MFB) is a rare benign tumor of myofibroblastic differentiation which has been described in different sites such as soft tissues, skin, lymph node, and breast.^[1] There have been <90 case reports of mammary MFB reported till date after being first described as a distinct entity in 1987.^[2] They pose a diagnostic challenge in their preoperative diagnosis by fine-needle aspiration cytology (FNAC) or core biopsy as they have to be differentiated from other spindle-cell lesions and myoepithelial tumors of the breast. Moreover, some cases may show diverse morphology and should not be mistaken for malignancy.^[3] The accurate diagnosis of an MFB is seldom made before histopathology examination and immunohistochemistry (IHC). The presence of spindle cells with collagen in the background, low mitotic activity, and CD34 positivity on IHC are the characteristic features of this tumor.^[4] We present one such case of an MFB of breast which was detected initially on mammography.

CASE REPORT

A 55-year-old woman presented with the right breast lump which was detected on routine mammography

screening. On examination, there was a small, mobile, nontender, retroareolar lump noted in the right breast. The mammogram identified a well-defined soft-tissue density in the retroareolar region without any evidence of microcalcification and classified as Breast Imaging Reporting and Data System 4a [Figure 1a]. FNAC was inconclusive. Hence, lumpectomy was planned and intraoperative frozen section diagnosis was requested. The resected tumor measured 2.0 cm × 1.5 cm × 1 cm in size and was well circumscribed, firm and grayish-white with a glistening appearance. Frozen section revealed a spindle-cell tumor with a benign appearance. There was focal nuclear enlargement and presence of focal infiltration into the adipose tissue, but mitotic activity and necrosis were not seen. In view of a predominantly well-circumscribed mass with a benign histology, a diagnosis of benign spindle-cell tumor was rendered. On paraffin sections, the tumor was composed of spindle cells in fascicles traversed by thick ropy

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How to cite this article: Khatib Y, Pandey V, Khade AL, Pandey R. Myofibroblastoma of the breast: A rare cause of breast lump in a postmenopausal woman. J Mid-life Health 2018;9:47-9.

Access this article online	
Quick Response Code: 	Website: www.jmidlifehealth.org
	DOI: 10.4103/jmh.JMH_59_17

collagen fibers at places [Figure 1b-d]. Mitotic figures were occasional $<1/50$ high-power field and the tumor showed many thick-walled blood vessels. Foci of nuclear palisading were also noted and a differential diagnosis of schwannoma was considered. On IHC, the tumor cells expressed CD34 [Figure 2a], vimentin, and smooth muscle actin (SMA) [Figure 2b] and were negative for S100. In view of the immunoprofile and the histology, a final diagnosis of MFB was given. The patient is on follow-up and doing well.

DISCUSSION

In 1981, Toker *et al.*^[5] first reported four cases of benign stromal tumor of the breast with morphologic features similar to spindle-cell lipoma of soft tissue and named them benign spindle-cell tumors of the breast. It was later in 1987 that the term MFB was coined for this distinct entity by Wargotz *et al.*^[2] They reported 16 cases of which 11 were men, highlighting a male preponderance of this tumor. Subsequently, several cases of MFB have been reported in women in the last decade. This increased incidence is attributed to increase in mammographic screening.^[4] In the present case too, the mass was incidentally detected on routine mammography. Magro^[4] reviewed 70 cases of MFB in a recent series and concluded that the tumor shows predilection for older men and postmenopausal women. The age at presentation ranged from 40 to 87 years. There was no known genetic predisposition or associated risk factors; however, few cases were associated with gynecomastia and chest wall trauma. A pathogenetic role of sex steroid hormones has been suggested as most MFB express estrogen, progesterone,

and androgen receptors.^[4] Clinically, the tumor presents as a slow-growing, painless lump which is usually small and may range from 1 to 3.7 cm in diameter.

The imaging findings are nonspecific and mammography usually shows a heterogeneous well-defined tumor without microcalcifications.^[6] On ultrasonography, the tumor is well demarcated and shows a variable and mixed-echo pattern and is often classified as benign.^[6]

Although it is relatively easy to recognize a typical MFB on a resection specimen, diagnosis of the neoplasm on cytology and needle biopsy is challenging and often misinterpreted,^[7] especially when one is dealing with a larger tumor and variant morphology. FNAC attempted in this case was also inconclusive, and hence an intraoperative frozen section was requested. Many authors thus believe that FNAC and needle biopsy lack diagnostic accuracy in these tumors.^[7,8]

Microscopy shows a fairly circumscribed tumor composed of spindle cells in fascicles traversed by thick ropey collagen fibers. Margins are well circumscribed with focal infiltration entrapping benign breast glands and adipocytes at the periphery. Mitotic figures are very few. The tumor can show many histological variants, namely, collagenous/fibrous, cellular, lipomatous, infiltrative, epithelioid, and palisaded.^[3] IHC is necessary for the confirmation of diagnosis especially when faced with a variant morphology.^[3,4,8] These tumors typically express markers of myofibroblastic differentiation, i.e., α -SMA, desmin, vimentin, and CD34.^[3,4]

The differential diagnosis of classical variant of MFB includes a number of proliferative lesions such as nodular fasciitis and pseudoangiomatous stromal hyperplasia and tumors such as schwannoma, myoepithelioma, low-grade stromal sarcoma, and phyllodes tumor.^[3,4] In our case also, focal infiltration into adipose tissue led to a suspicion of low-grade stromal sarcoma which was ruled out because of lack of mitosis, necrosis, and predominant circumscription. Schwannoma was also considered, due to hyalinized vascular walls and focal nuclear palisading but was

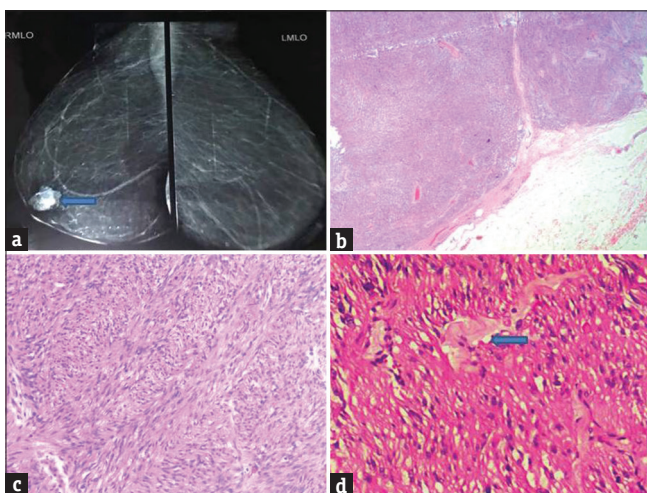


Figure 1: (a) Mammogram showing well-defined soft-tissue density in retroareolar region (arrow) of the right breast. (b) Scanner view showing a well-circumscribed tumor, (H and E, $\times 40$). (c) Low-power view showing a tumor composed of fascicles of benign spindle cells, (H and E, $\times 100$). (d) High-power showing tumor cells interspersed with ropey collagen (H and E $\times 400$)

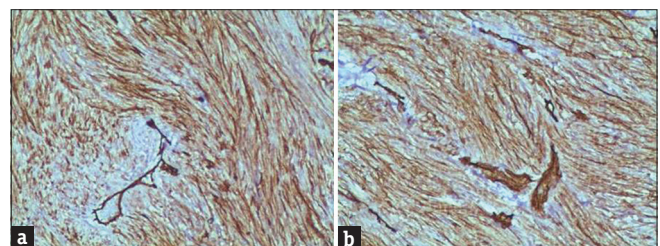


Figure 2: (a) Tumor cells showing CD34 positivity (IHC $\times 100$). (b) Tumor cells showing smooth muscle actin positivity (IHC $\times 100$)

ruled out due to S100 negativity. While confusing a case of MFB with a benign lesion may not affect the treatment modality, misinterpreting it for malignancy may have grave clinical implications. The variants of MFB are usually misinterpreted as malignant tumors. Raut *et al.*^[9] reported a case of MFB which was diagnosed as invasive lobular carcinoma on needle biopsy and underwent lumpectomy with unnecessary sentinel node dissection. Similarly, epithelioid and lipomatous variants misinterpreted as metaplastic carcinoma^[10] have been reported in the past. IHC is therefore imperative for confirmation. The recommended treatment is simple excision as there is no known recurrence potential.^[3]

To conclude, MFB is a well-circumscribed tumor with no recurrence potential or risk of malignant transformation. Hence, one needs to be aware of this entity to avoid overtreatment and unnecessary apprehension.

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.

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