CASE REPORT
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Breast myofibroblastoma in a woman: a case report

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ABSTRACT

Breast myofibroblastoma is a rare benign neoplasm of mesenchymal origin with fibroblastic and myofibroblastic characterizations. Myofibroblastoma has a higher incidence in men between the ages of 50 and 70 years and is less common in women. It is described as a solitary, unilateral, painless and mobile tumor, with a firm consistency and slow growth. Microscopically, it is a non-encapsulated tumor, with lobular growth, consisting of spindle cells organized in short, intersecting fascicles and interrupted by bundles of hyalinized collagen. On ultrasound, it can manifest as a hypoechoic solid mass, well circumscribed, homogeneous and similar to fibroadenoma; whereas, on mammography, a single, well-defined, rounded or discretely lobulated lesion can be observed, without calcifications. We report here the case of a 58-year-old patient with no previous breast complaints, who presented with changes in ultrasound and mammography examinations performed for breast cancer screening. The examinations revealed a suspicious lump in the left breast, classified as BIRADS 4C. Core biopsy described a low-grade spindle cell neoplasm, showing no signs of invasion, with immunohistochemistry results suggesting myofibroblastoma. As treatment, a sectorectomy was performed, and the reevaluated material confirmed the diagnosis of myofibroblastoma due to the positive expression of the markers calponin, CD34, BCL2 and CD99.

KEYWORDS: myofibroblastoma; breast cancer; fibroadenoma.

INTRODUCTION

Myofibroblastoma is a rare benign mesenchymal tumor with fibroblastic and myofibroblastic features derived from the breast stroma[1], where its description was first published in 1987 by Wargotz et al[2]. It probably originates from fibroblasts. Neoplastic spindle cells derive from mesenchymal spindle cells, therefore, the differential diagnosis from metaplastic carcinoma, low-grade sarcoma and myofibroblastic tumor[1,3]. It is described as a solid nodule without capsules and having a slow and painless growth pattern, and it can be of varying sizes, with an average of 5 cm[4,5]. It has a higher incidence between 50 and 70 years of age in men[6], however, this does not exclude cases in women, as in the present case report, with more and more cases in this population due to mammography screening[7,8].

CASE REPORT

CLKS, 58 years old, female, white, two pregnancies, two vaginal births, smoker, no comorbidities. Family history of father with non-Hodgkin lymphoma at age 73. She sought medical attention due to changes in breast ultrasound and mammography examinations for breast cancer screening. There were no previous breast complaints. The mammogram revealed a slightly irregular, dense nodular image in the inferior-medial quadrant of the left breast measuring 7x6 mm classified as BIRADS 0. Ultrasound revealed a solid, hypoechoic, irregular nodule with a posterior acoustic shadow measuring 6x4x3 mm in the same topography of the left breast classified as BIRADS 4C (Figure 1). Physical examination was without palpable lesions. Core biopsy of a suspicious nodule was performed, and the anatomopathological result showed a low-grade spindle cell neoplasm, without atypia, mitosis or necrosis (Figure 2). Immunohistochemical analysis showed a solid nodule of a possibly benign nature with no evidence of *in situ* or invasive carcinoma in the sample and with the markers SMA positive, desmin positive, CD34 negative, S100 negative and B-catenin negative, in line with the diagnosis of myofibroblastoma. Among the differential diagnoses, leiomyoma, desmoid-type fibromatosis or metaplastic carcinoma-like fibromatosis could be considered. Magnetic resonance imaging of the breasts showed discrete and symmetrical parenchymal background enhancement

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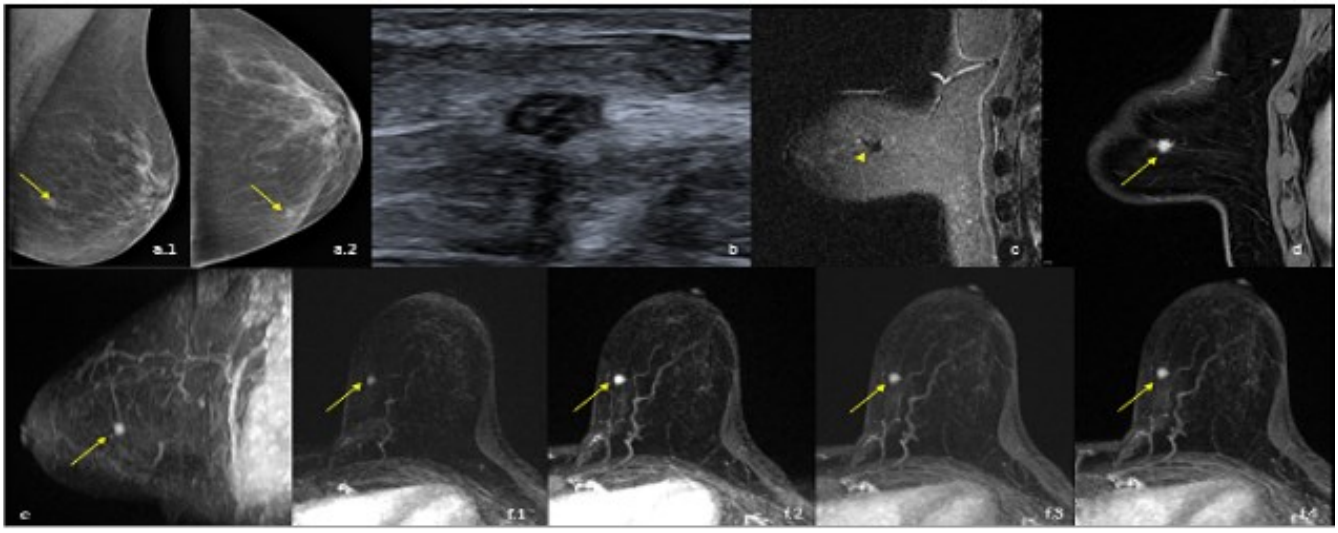

Figure 1. Nodule in the left breast (arrows). a.1, a.2) mammogram: identifies the irregular nodule, new in the comparative analysis with a previous examination (not shown). b) ultrasound: shows the irregular nodule, confirming the suspicious mammographic finding. c, d) magnetic resonance imaging: characterizes the irregular morphology (arrowhead) of the nodule (c: pre-contrast STIR), with intense contrast enhancement (d: post-contrast T1). e, f) magnetic resonance imaging: post-contrast MIP reformats (e: sagittal) demonstrate a highly vascularized nodule in the left breast, with early (f.1: early phase) and persistent (f.1 to f.4: MIP of acquisitions of post-contrast dynamic study) enhancement.

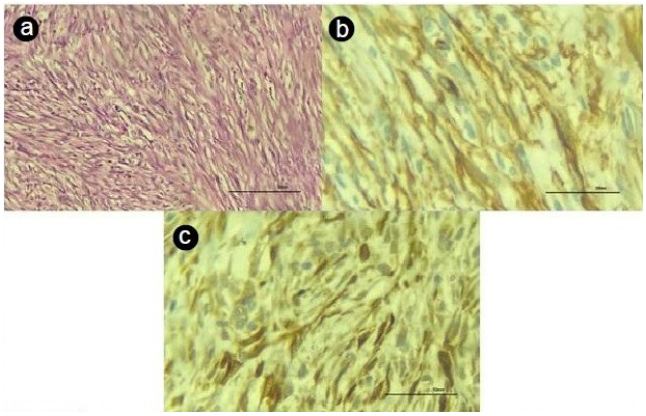

Figure 2. Histopathologically (Fig. a, Hematoxylin & Eosin, 400x), the tumor consists of soft, oval to fusiform cells, with pale to eosinophilic cytoplasm, arranged randomly or in short fascicles that intersect with hyalinized collagen bundles. In immunohistochemistry, the tumor characteristically expresses CD34 (Fig. b, 400x) and myofibroblast markers, such as calponin (Fig. c, 400x). Source: Dr. Livia Volta, Pathologist.

and the presence of an irregular, microlobulated, hypointense nodule on T2 with homogeneous, early and persistent enhancement (type d curve), located in the middle third of the junction of the medial quadrants of the left breast measuring 8x6x5 mm, corresponding to the biopsied nodule. As treatment, a previously needled sectorectomy was performed on the left breast and the material was sent for a new anatomopathological study, which described a white, irregular lesion measuring 10x10x5 mm, with free margins and absence of necrosis and mitosis. The result was compatible with myofibroblastoma in view of the positivity for the previously described markers.

DISCUSSION

Myofibroblastoma is a tumor of neoplastic spindle cells that has mesenchymal origin and displays myofibroblastic differentiation[9]. It is a rare benign tumor of uncertain etiology. Originally, it mainly affected men between 60 and 70 years old. Today, it is known that it also occurs in women aged between 25 and 87 years. Thus, the case described here is within the age range observed for tumor involvement[10,11].

Myofibroblastoma is characterized as a solitary, unilateral, painless and mobile tumor, with a firm consistency and slow growth, where it can take months to years to evolve[3,12,13]. There is no preference for race, and it is not associated with genetic predisposition[13].

Its size can vary from millimeters to approximately 11 cm or more, with lipomatous or mucoid areas, without cystic degeneration, necrosis or hemorrhage[11,13]. It can be round or oval in shape and have an extramammary location, most commonly along the breast line[9,11,13].

Microscopically, it appears as a non-encapsulated tumor with lobular growth of spindle cells organized in short intersecting fascicles and interrupted by hyalinized collagen bundles[11]. It usually does not have mitoses or vascular lymphatic invasions[13]. It may have a variable vascular component, formed by small- to medium-sized vessels and numerous mast cells[13]. There are no breast ducts or lobules within the tumor[11]. In the case described above, the patient presented with neoplasia without atypia, mitosis or necrosis, in accordance with the characteristics usually presented in the literature.

At the ultrasound level, it manifests as a hypoechoic solid mass, well circumscribed, homogeneous and very similar to fibroadenoma[10,13]. On mammography, a single, well-defined, rounded or slightly lobulated lesion can be observed, without calcifications[3,10,11].

Myofibroblastoma has great inter- and intralesional morphological variability, giving rise to several histological variants.

According to some studies, most classic myofibroblastomas are positive for vimentin, desmin, actin, CD34, estrogen receptor (ER)/progesterone receptor (PR) and, in some cases, positive for CD99, CD10, CD68 and BCL2. Other studies show little or no reactivity for S-100 protein, cytokeratin, ER and PR[9,10,11,13].

Differential diagnosis should be performed with regard to other spindle cell lesions of the breast. However, because of the CD34 negativity in this case report, the main differential diagnosis was from fibromatosis, which unlike myofibroblastoma has a malignant character, recurrence and is CD34 negative[13].

The best therapeutic approach for breast myofibroblastoma still consists of surgical removal of the tumor[14].

CONCLUSIONS

Myofibroblastoma is a rare benign tumor of mesenchymal origin that normally affects men. Its etiology and pathogenesis are uncertain. The incidence in females has increased in recent years because of breast cancer screening mammograms. Immunohistochemistry is mandatory for an adequate differential diagnosis from malignant tumors, with surgical excision presented as the standard and curative treatment. Its scientific relevance lies in the scarcity of reports in the literature about the involvement of this tumor in women.

AUTHORS' CONTRIBUTIONS:

RRR: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. CBL: Conceptualization, Methodology, Project administration, Visualization, Writing – original draft. VQC: Conceptualization, Methodology, Project administration, Visualization, Writing – original draft. LENT: Conceptualization, Methodology, Project administration, Visualization, Writing – original draft. CSB: Conceptualization, Methodology, Project administration, Visualization, Writing – original draft. SRF: Conceptualization, Methodology, Project administration, Visualization, Writing – original draft.

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