Case report

A case report of breast Myofibroblastoma: A bad looking benign tumor.

Abstract:

This study aims to analyze the relevance of the correct evaluation in the breast pathology, using a standardized method for reporting breast imaging studies, the Breast Imaging Report And Data System (BI-RADS). Myofibroblastoma(MFB) of the breast is a rare, benign, mesenchymal tumor of breast, can be a diagnostic challenge for the non-experienced general radiologist or radiology resident, due to its clinical, mammographic and ultrasonographic characteristics. In this report case we present a 57-year-old women with a breast lump and non-specific imaging findings, through her mammographic and ultrasonographic evaluation, requiring histopathological correlation, making the diagnoses of MFB, leading to lumpectomy as treatment.

Key words:Myofibroblastoma of the breast; benign breast tumor; BI-RADS; mammography; ultrasound.

1. INTRODUCTION

Breast cancer is the most diagnosed cancer in women in the United States of America and some other countries. Imaging techniques and categorization systems have advanced by great steps in the last decades, however, there are some lesions that can still cause confusion and mimic malignancy. The report presents a case of a women with a left breast lump and pain; ultrasound and mammography were consistent for perform a histopathological correlation.

2. PRESENTATION OF THE CASE

57-year-old women with unremarkable health story presented to the Family Medicine Clinic for a 1 year of mild pain in the left breast, as well, in the last month she discovery the presence of a lump. Physical examination revealed a solid andmobile tumor in the upper external quadrant of the left mammary gland, a diagnostic mammogram and ultrasound was requested.

Mammogramfindings were negative formasses, malignant calcifications, asymmetries, or pathological lymph nodes (Image 1), otherwise, the ultrasound revealed a hypoechogenic mass in the 02:00 Radio in the left breast (Image 2), the shape was irregular, and margins were non-circumscribed, parallel orientation, posterior shadowing was present and absent vascularity (Image 3).

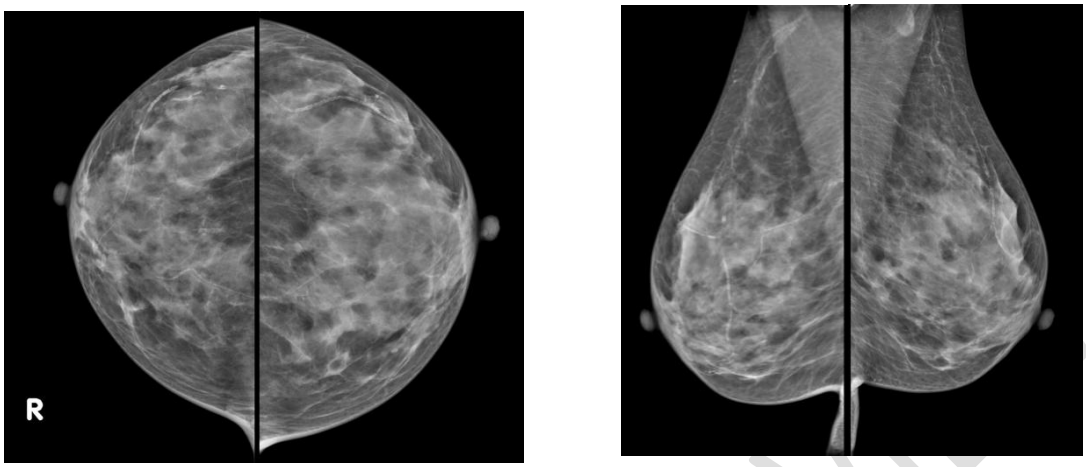

Image 1.- Bilateral mammogram with breast heterogeneously dense.

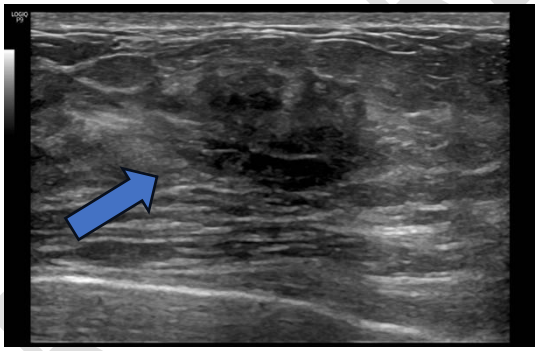

Image 2.- Grayscale ultrasound in the 02:00 Radio in the left breastthe shape was irregular, and margins were non-circumscribed, parallel orientation, posterior shadowing was present (Blue arrow).

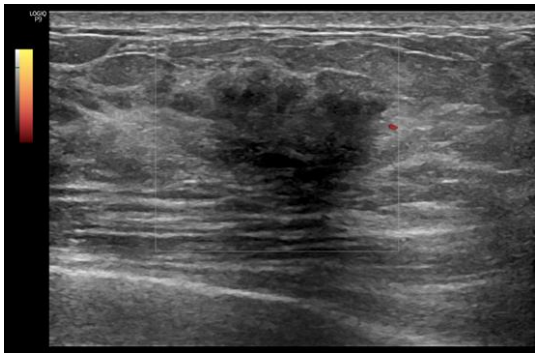

Image 3.- Doppler Color ultrasound with absent vascularity.

Imaging findings suggest a probably malignant etiology, so it was decided to take an ultrasound guided biopsy of the tumor (Image 4). Three tissue samples of a filiform solid and white tissue wereanalyzed (Image 5).

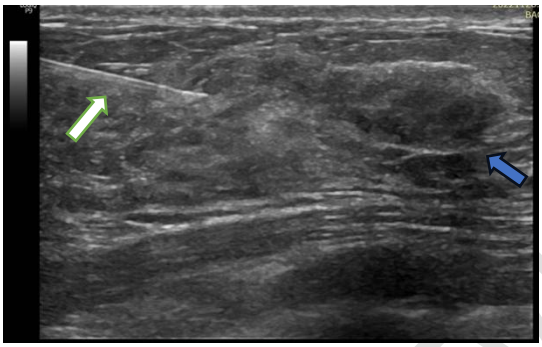

Image 4.- Grayscale ultrasound guided biopsy of the tumor shows the needle (Withe arrow) and the nodule (Blue arrow).

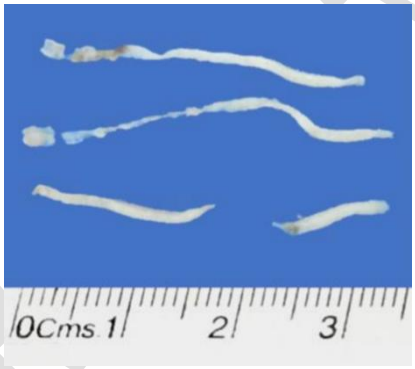

Image 5.-Macroscopic view shows three solid and withe tissues.

The histological sections after hematoxylin and eosin staining show a myofibroblastic reactive proliferation without atypia. No malignant cells where found (Image 6 and 7).

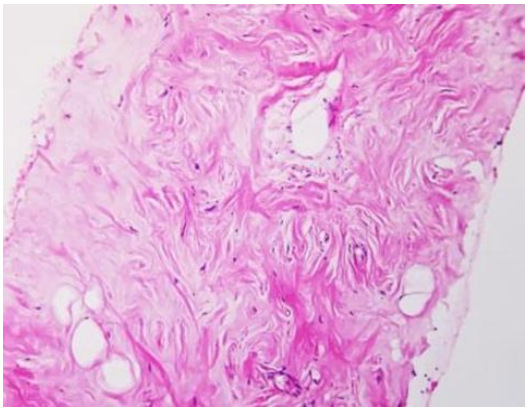

Image 6.- Biphasic fibroepithelial proliferation of ducts and stroma, hematoxylinand eosin 40x.

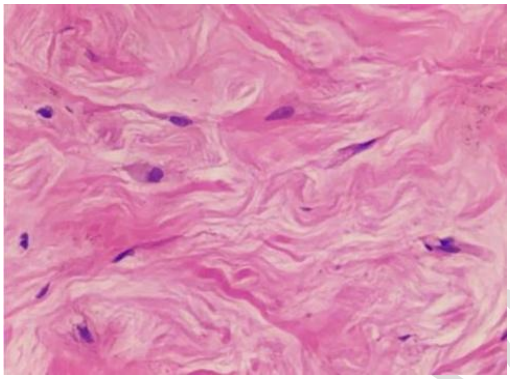

Image 7.- Ductal epithelial cells without atypia, hematoxylin and eosin 400x.

Myofibroblastic tumor of the breast was diagnosed, and patient underwent lumpectomy without complications.

3.- DISCUSSION

Breast cancer is the most common cancer in women, the incidence of which continues to increase worldwide. Imaging screening has contributed to substantial reductions in breast cancer mortality, resulting in an increased prevalence of benign biopsies statistically [1].

Irregular hypoechoic masses on breast ultrasound are usually considered suspicious lesions. If the lesions combine other features of malignancy such as spiculated margin, nonparallel orientation, and posterior shadowing, they are considered moderate and highly suspicious for malignancy (BI-RADS categories 4b and 4c) or highly suggestive of malignancy (BI-RADS category 5) [2]. Such lesions are initially determined to be suspicious, at which point sonographically guided core needle biopsies are performed [3].

MFB is a rare, benign, mesenchymal tumor of breast [4]. MFB was first described by Wargotz et al in 1987 as a distinct stromal tumor of the breast [5]. There have been <90 case reports of mammary MFB reported till date after being first described as a distinct entity in 1987 [6].More recently, these tumors have been noted at extramammary sites as well, and the term Mammary-type MFB is often used when referring to this group of tumors [5]. While earlier studies reported a

male predominance, this tumors may also occur in female patients [5], as in the case of this patient.

Clinically, these tumors present as slow growing, painless masses, without evidence of local lymphadenopathy, in middle-aged patients [4]. In our case, the patient had a noncyclic breast pain mass, which increases the predictive value for malignancy.

The typical imaging appearance of breast MFB is a well-circumscribed, gently lobulated mass with macroscopic fat and variable density on mammography [7].

Discrete lesions detected by palpation or on routine mammography are different entities in women who are less than 30 years of age, 31 to 50 years, or older than 50 years. On a statistical basis, 9 of 10 new nodules in premenopausal women are benign.[8].

Breast MFB demonstrates similar benign imaging findings on ultrasound, a parallel, circumscribed, heterogeneous or hypoechoic mass with variable posterior features, soft elastography features and mild internal vascularity. Posterior features, if present, are generally posterior acoustic shadowing secondary to acoustic impedance caused by the increased internal cellular density of the mass relative to the surrounding normal fat lobules and fibroglandular tissue[7]. Posterior acoustic shadowing may indicate pathologic changes inciting desmoplastic reaction that can attenuate the ultrasound beam and are described in both benign and malignant conditions [9].The vascularity is reported in the literature as predominantly peripheral vessels [7]. Myofibroblastomas may have non-circumscribed margins, and this feature gives them a more aggressive imaging appearance[10]. We found a mass, the shape was irregular, and margins were non-circumscribed, parallel orientation, posterior shadowing was present and absent vascularity, this features, usually make us suspect malignancy.

The literature on the MRI appearance of myofibroblastomas is limited, as thismodality is not frequently used in the evaluation of these tumors[10].

The variability in imaging appearance in addition to the clinical presentation of an enlarging palpable mass frequently prompts image-guided biopsy. Percutaneous biopsy using US guidance is a common way to acquire tissue for pathologic evaluation [10].

Microscopic examination typically reveals uniform, slender spindle cells morphologic features of myofibroblast admiced with broad bands of hyalinized collagen[5]. Lesional cells of breast MFB show immunoreactivities for myofibroblastic markers, such as desmin, smooth muscle actin, and muscle specific actin. Besides, most MFB are positive for CD34, BCL-2, vimentin and

hormonal receptors like estrogen receptor, progesterone receptor and androgen receptor[7]. The microscopic description in our case demonstrated mammary parenchyma with fibroblastic/myofibrophblastic spindle cell proliferation mixed with few acini and ducts. The stromal cells presented abundant, syncytial cytoplasm and fusiform nuclei in a coma. They were found in a hyalinized matrix. No mitosis, stromal overgrowth, necrosis, or heterologous changes were identified in this material. All ducts preserved their myoepithelial cells.

Even though myofibroblastomas are benign tumors, surgical excision is frequently the treatment of choice despite pathologic diagnosis at core biopsy[10].

Spindle cell lesions of the breast comprise a wide variety of conditions, either benign, locally aggressive, or malignant. Among the differential diagnoses are Pseudoangiomatousstromalhyperplasia, Fibromatosis, Spindle cell lipoma, Leiomyoma, Invasive lobular carcinoma and Metaplasic spindle cell carcinoma.

As members of a multidisciplinary team, radiologists should be aware of the histopathologic features of commonly encountered breast diseases and their expected imaging appearances to ensure appropriate radiologic-pathologic concordance after percutaneous biopsy and to optimize patient care [11].

4.- CONCLUSION

Imaging studies are constantly evolving, prioritizing the most important public health problems, such as breast cancer.

The American College of Radiology has proposed a standardized method for reporting breast imaging studies, using the BI-RADS, currently based on the fifth edition, categorizing lesions, and providing predictive values for malignancy.

Breast MFB is a rare, benign, and asymptomatic tumor, however, it can sometimes show characteristics of malignancy, through mammographic and ultrasonographic evaluation.

The clinical and imaging characteristics evaluated in this patient, were suggestive for malignancy, so it was required histopathological correlation, and lumpectomy was subsequently performed as definitely treatment.

This case is a clear example of the multidisciplinary work that must be carried out, for the diagnosis and treatment of breast pathology.

Consent

We as authors declare that written informed consent was obtained for publication of this case report and accompanying images.

Ethical approval

As per international standard or university standard written ethical approval has been collected and preserved by the author.

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