



# Myofibroblastoma

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## ABSTRACT

Myofibroblastoma of the breast is a rare benign mesenchymal tumor. We report a 61-year-old male case who presented to the orthopedic clinic with right shoulder pain. The physical and clinical examination was normal and he was referred to our clinic. Excision was performed and there were no postoperative complications.

**Keywords:** Myofibroblastoma, ultrasonografi, breast

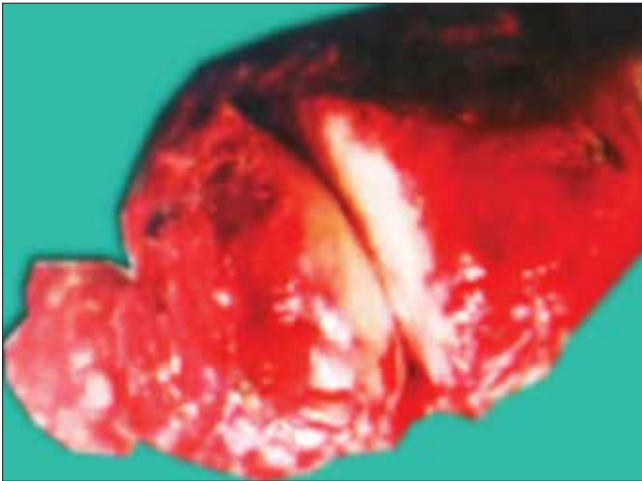
## Introduction

Myofibroblastoma of the breast is an uncommon benign stromal tumor. Myofibroblastoma belongs to the benign mesenchymal tumor class that shows deletion of the 13q.14 region, together with cellular angiofibroma and spindle cell lipoma (1). It is usually seen in menopausal women and elderly men. Physical examination reveals a solid and mobile mass on palpation (2, 3). Ultrasonography, mammography, and magnetic resonance (MR) imaging can be used for the diagnosis. These tumors can be confused with various lesions on imaging. For example, they need to be differentiated from hamartoma and fibroadenoma on mammographic and ultrasonographic images (3, 4).

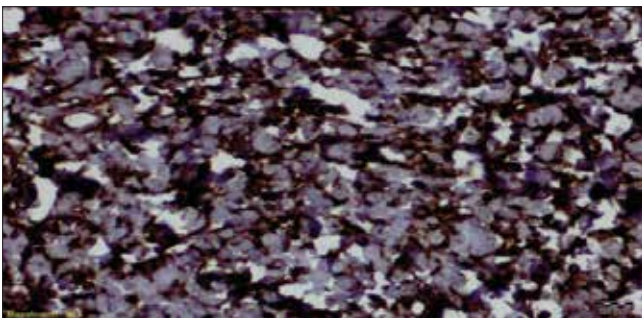
Myofibroblastomas develop via the paracrine and autocrine secretion of cytokines and their transformation into certain growth factors. Myofibroblastoma types are cellular, infiltrative, collagenous, fibrous, lipomatous, myxoid, epithelioid and deciduoid. Structural collagen bands are histologically composed of bipolar spindle cells (4). Before planning surgical excision, a Tru-cut biopsy can be performed to obtain a histological diagnosis. The treatment is excisional biopsy of the lesion.

## Case Report

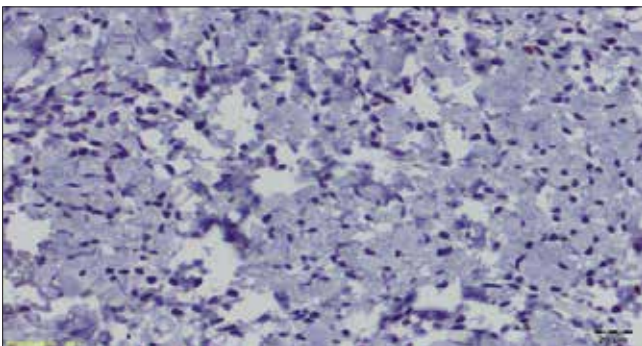
A 61-year-old patient who presented to the orthopedic outpatient department with the symptom of right shoulder pain was referred to our clinic after a mass was found in the right breast. Physical examination revealed a mass about 7 cm in size in the right breast. The mass was mobile and painless with well-defined borders. The axilla examination was normal. The left breast was also normal. The mass was excised. The macroscopic appearance was a gray-white encapsulated mass 8x7x1.5 cm in size with a regular outer surface demonstrating occasional capillaries and a yellow-brown area. We palpated a mass 7 cm in size during the examination but we observed during surgery that there were parts of the mass that extended towards breast tissue and that we had not been able to palpate. The removed mass was therefore measured as 8 cm. The sections revealed yellow-brown grey-white areas and nodular structures with a mean diameter of 0.3 cm (Figure 1). Microscopically, hyalinized collagen bands were seen in various areas between neoplastic cells with abundant eosinophilic cytoplasm together with epithelioid cells making up more than 50%. Spindle cells were present between hyalinized collagen bands. Immunohistochemical staining was conducted and revealed that SMA, HMB-45, Ki-67, Pancytokeratin and Protein S-100 were negative while CD34 was positive. The pathology result was consistent with myofibroblastoma (Figure 2-6). No recurrence was found in the post-operative 3-year follow-up of the patient. Patients gave orally informed consent.



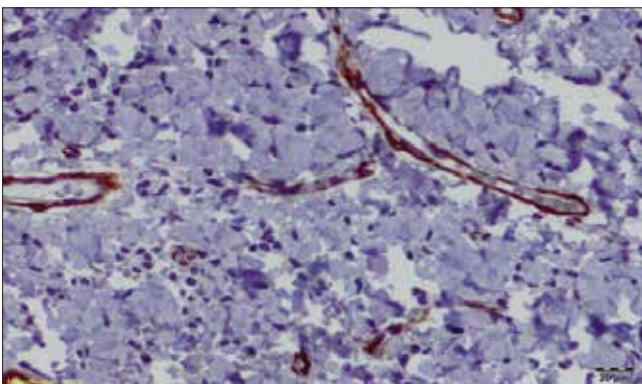
**Figure 1.** Excised tissue



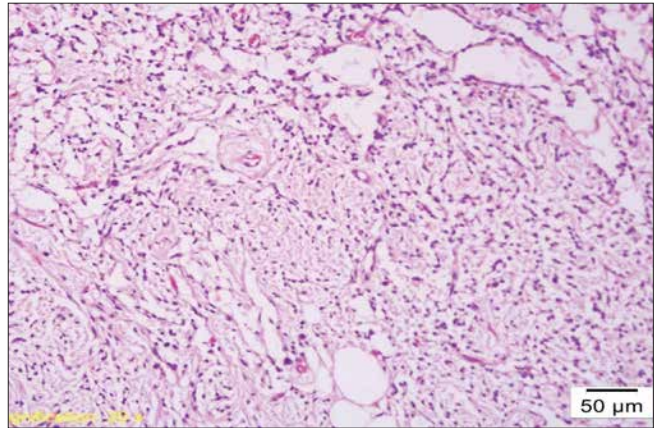
**Figure 2.** Diffuse and strong positive immunoreactivity for CD34 in mammary myofibroblastoma, (Immunohistochemistry-avidin biotin technique, x200)



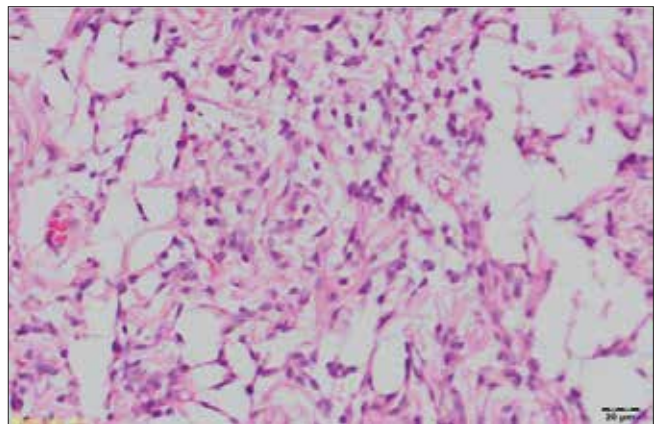
**Figure 3.** immunohistochemical staining for Ki67, mitotic rate is under <1%



**Figure 4.** Negative immunoreactivity for SMA



**Figure 5.** The lesion shows bundles of slender, uniform, spindle shaped cells typically arranged in clusters and bands of hyalinized collagen distributed throughout the tumor, HE, x200



**Figure 6.** Mammary myofibroblastoma with admixed lipocyte groups tumor composed of a homogeneous population of spindle-shaped cells with ovoid nuclei and pale cytoplasm, HE, 400x

## Discussion

Myofibroblastoma was first identified by Wagortz in 1987. This tumor is a rare benign mesenchymal lesion (2).

Myofibroblastoma can be confused with leiomyoma, benign fibrous histiocytoma, solitary fibrous tumor and spindle cell lipoma. It is most commonly seen in women and men aged 40 to 87 years. Myofibroblastoma is usually identified as an asymptomatic, slow growing mass, more commonly in females. It is a solid, palpable and mobile mass on clinical examination. The lesion diameter is usually between 1 and 3 cm but masses with a diameter up to 13 cm have been reported (2, 3). Although it is commonly seen in the breast, it has also been reported in the axilla, tonsil, lung, testis, popliteal space, rectum and meninges (2, 3). A mobile, painless mass 8 cm in size was found on physical examination in our case. Rare benign masses of the breast are being detected with the increased use of mammography and ultrasonography in diagnosis of breast cancer (2, 3, 5). Myofibroblastoma is a heterogeneous round tumor with a well-defined border but without calcification on mammography images. These lesions can be confused with other benign lesions of the breast such as leiomyoma, hematoma, abscess, neurofibroma, lymphangioma and cystic fibroadenoma on mammography. The lesions can also mimic malignant tumors of the breast such as sarcoma, lymphoma, malignant fibrous histiocytoma, phyllodes tumor, and breast cancer on mammography (3, 6). Ultrasono-

nography is another important imaging method for breast lesions and can differentiate between solid and cystic masses. Distal acoustic attenuation can sometimes be expected on ultrasonographic imaging due to the combination of fat tissue and other tissue types in these lesions. Although a mixed echo pattern is seen, the tumor has well-defined borders. Finding a cyst in the male patient breast on ultrasonographic investigation is rare. Ultrasonographic evaluation of the male patient breast is a limited imaging method (5). There can be confusion with other masses such as hamartoma, fibroadenoma, or lipoma on imaging (3, 7). Radiological imaging is nonspecific in myofibroblastoma and needle biopsy is necessary for the diagnosis. Excisional biopsy also enables both diagnosis and treatment of the lesion (8). Our patient was informed regarding excisional biopsy and imaging methods. The patient asked for an excisional biopsy so that the diagnosis could be made as quickly as possible and underwent the excisional biopsy the next day, following hospitalization. Spindle cells that appear round in short, strong, irregularly divided fascicles and separated by thick eosinophilic collagen bands are among the pathologic characteristics of myofibroblastoma. Spindle cells, nuclear polymorphism, high mitotic activity and atypical mitotic figures are present in malignant tumors. When the diagnosis of myofibroblastoma cannot be made with microscopic examination, immunohistochemical investigation can be conducted with antibody panels for differentiation from other lesions of the breast (3, 7). Actin, desmin, vimentin, CD34, CD99, CD10, estrogen, progesterone receptors and bcl-2 protein positivity is variable in smooth muscle cells in myofibroblastoma while hcal desmon, S protein, pancytokeratin and c-Kit are negative (4, 6, 7). CD34 is positive at a rate of 89% and desmin at a rate of 91% while both are negative in 3% of the cases. Rb expression loss occurs at a rate of 92% (9). Various immunohistochemical investigations were conducted in our case and SMA, HMB-45, Ki-67, Pancytokeratin, and Protein S-100 were found to be negative. Treatment is by excision of the lesion. Excisional biopsy was performed in our case. No recurrence was found during the 3-year follow-up.

In conclusion, myofibroblastoma is an encapsulated lesion with a good cleavage plane. Surgery is recommended in the treatment. The resection margin is free. Recurrence is not possible after surgical treatment. Additionally, malignant transformation has not been reported yet. However, patients should be followed-up for a minimum of 24 months (4).

**Informed Consent:** Informed consent was obtained from patients.

**Peer-review:** Externally peer-reviewed.

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