# Desmoid-Type Fibromatosis Mimicking Breast Carcinoma Arised in the Chest Wall after Breast Biopsy: A Case Report

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**ABSTRACT**

**Introduction:** Desmoid-type fibromatosis (DTF) is a slow-growing locally infiltrative fibrous tumor. It constitutes 0.03% of all neoplasms. Most of the DTF occur in the abdominal wall. DTF of chest wall is a rare extra-abdominal fibromatosis (8-10% of all cases).

**Case presentation:** We report a case of 41 year-old female with DTF of the right chest wall who had a history of an excisional biopsy of the right breast mass three years ago. She presented with a lump in the right chest wall mimicking breast lesion around the line of the previous excision. Mammography findings were reported as BIRADS-4, suspicious for breast carcinoma. But, the excisional biopsy was diagnosed as "DTF" histopathologically.

**Conclusion:** DTF is a rare locally aggressive tumor that may mimic malignancy due to it's clinical, radiological and histopathological findings. Although the etiology of DTF is not clear, most of the cases with DTF have a history of trauma or operation similar to our case. Thus, it is noteworthy that a comprehensive clinical history will contribute the accurate diagnosis of DTF.

**Keywords:** Breast, chest wall, desmoid, fibromatosis.

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## INTRODUCTION:

DTF, also called deep fibromatosis or desmoid tumor is a slow growing locally infiltrative tumor that is characterized by fibroblastic and/or myofibroblastic cell proliferation. [1, 2] It has a high tendency to local recurrence without metastatic potential. [1]

DTF has three subtypes according to the localization of the tumor as abdominal, extra-abdominal and intra-abdominal DTF. [3] Most of the DTF occur in the abdominal wall. [4] DTF of chest wall is a rare extra-abdominal fibromatosis (8-10% of all cases). [4] Herein, we present a case of DTF of the chest wall developed after breast biopsy, mimicking breast carcinoma clinically and radiologically in a 41 year-old female.

**CASE REPORT:**

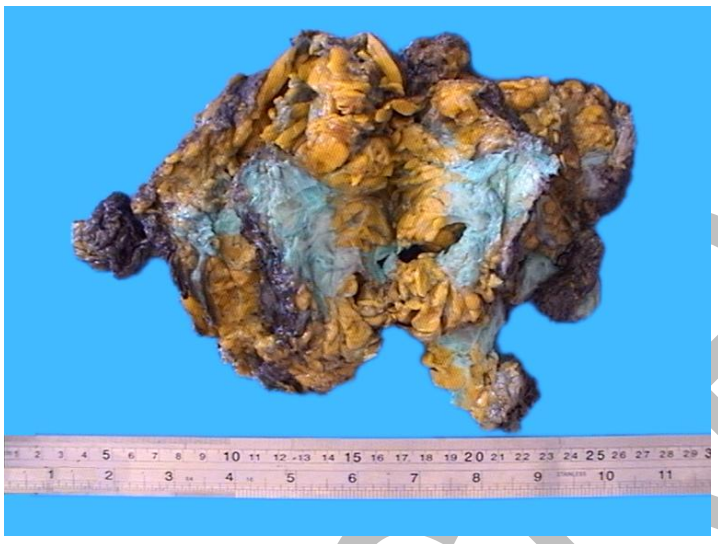
A 41-year-old female patient who presented with a mass in the right breast was admitted to our hospital. It was ascertained that she had a history of an excisional biopsy of the right breast diagnosed as "fibrocystic changes" histopathologically three years ago. It was elicited during clinical history that the lump had arised in the line of previous excision two months ago. And, a tru-cut biopsy had been performed that had been diagnosed as "benign mesenchymal spindle cell lesion" histopathologically.

At physical examination a line of incision was detected in the junction of lower-inner quadrant and lower-outer quadrant of the right breast and a hard solid mass was palpated under the incision scar tissue.

Mammography revealed a solid lesion of 30x25x24 cm with irregular margins in the inferior part of the right breast. And, the mammography findings were reported as BIRADS-4, suspicious for malignancy. Then, an excisional biopsy was performed.

Macroscopically, the operation material was composed of skin and subcutaneous tissue with the dimensions of 18.5x14.2x5.3 cm. A solid lesion with irregular margins of 6.5x6.5x3 cm was detected in the cut surface of the biopsy material (Figure 1).

**Figure 1:** The macroscopic photograph of the lesion with infiltrative borders.



The biopsy was sampled near totally but no breast tissue was observed microscopically. A tumor was detected in the fibroadipose tissue composed of bundles of spindle and/or stellate-shaped cells with no cytological atypia that had infiltrative borders, histopathologically (Figure 2-3). Also, the tumor contained some coarse collagen bundles and numerous vessels. No mitosis or necrosis was observed.

**Figure 2:** The microscopic photograph of the tumor composed of mostly spindle cells infitrating the adjacent adipose tissue, (Hematoxylin&Eosin stain, x40).

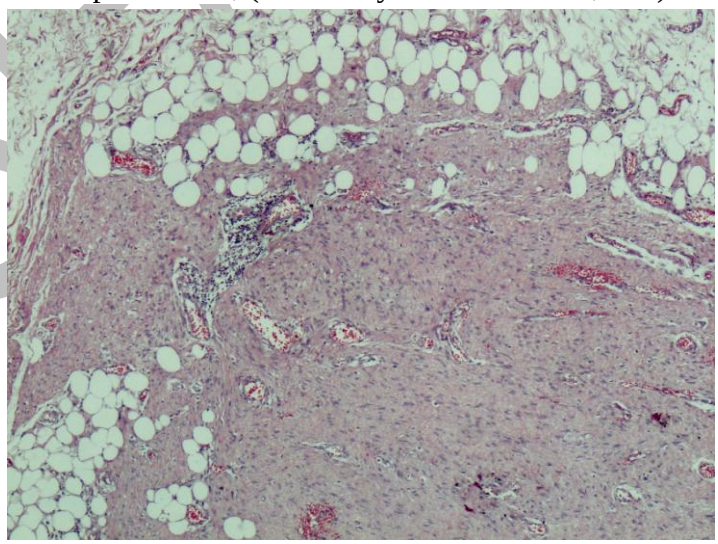
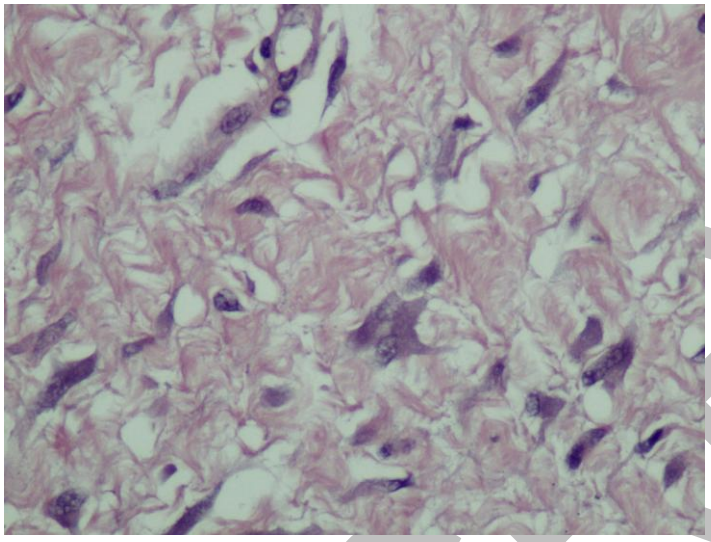
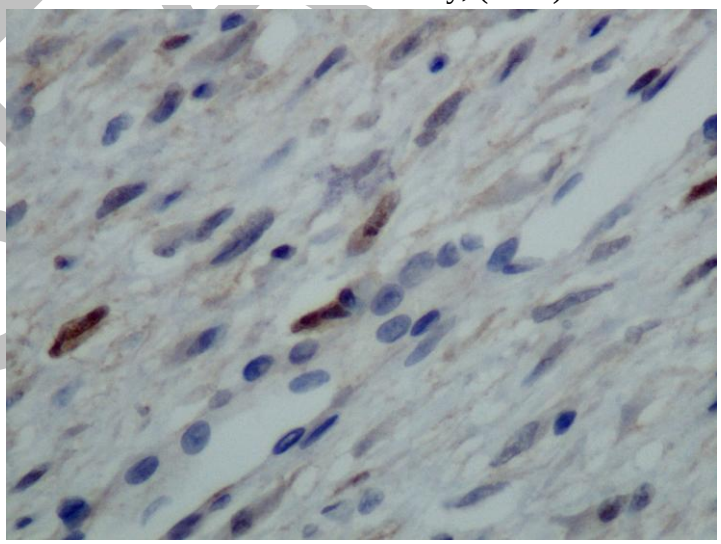


**Figure 3:** The high-power field showing the stellate-shaped cells of the tumor, (Hematoxylin&Eosin stain, x400).



Immunohistochemically, the tumor cells showed nuclear positivity with beta-catenin (Figure 4) and reactivity with vimentin, SMA, and desmin. CD34, S100 and pancytokeratin were negative. The histopathological and immunohistochemical features were compatible with DTF.

**Figure 4:** The nuclear positivity in some tumor cells with beta-catenin immunohistochemically, (x400).



**DISCUSSION:**

DTF is a relatively rare tumor that constitutes 3.5% of fibrous tumors, and 0.03% of all neoplasms. [1] Abdominal DTF is the most common type that is thought to be originated from the musculoaponeurotic structures. [3]

Abdominal DTF usually develops during pregnancy or postpartum period. Thus, it is suggested that the hormonal effect may have a role in the pathogenesis of the DTF. Intra-abdominal DTF may arise in the mesentery, pelvis and/or retroperitoneal region that may reach out to a huge size and can apply pressure or show invasion to the adjacent vascular structures and the vital internal organs. It is reported that a history of previous abdominal surgery is usually present in the majority of the patients with intra-abdominal DTF. In addition, it is reported that mesenteric fibromatosis is frequent in the patients with Gardner's syndrome in the literature. [1]

Extra-abdominal fibromatosis usually develops in the shoulder, back, thighs, conjunctiva, head and neck region, mediastinum, or chest wall. [3] DTF of the chest wall is usually seen at the average age of 39 years (range from 10-78 years) and occurs a little more in women than in men. It accounts for 8-10% of all DTF cases. [4] The diameter of it generally varies between 5-10 cm, and it is indicated that it may reach out 20 cm. [3] DTF of the chest wall is reported to occur due to the breast surgery, thoracotomy, and even a simple injection. [1]

DTF is a locally infiltrative tumor that has a high recurrence risk ranges from 25% to 75%. [1] Although DTF has no metastatic potential, it may cause significant morbidity and even death by local invasion to the nearby organs, blood vessels and nerves. [1, 3] Survival at five years is more than 90%. It is known that spontaneous regression may occur in some cases of DTF that are untreated or performed partial excisions, however the main therapeutic approach is the widest possible excision. In addition, use of radiotherapy, tamoxifen, doxorubicin and methotrexate is indicated for the recurrence free disease control. [1, 3, 5]

Histopathologically, DTF shows infiltrative borders and consists of spindle and stellate shaped cells with vesicular nuclei containing small nucleoli without prominent nuclear atypia. Myxoid change and keloid-like collagen may accompany the tumor cells. [3] Mitosis can be seen in

cellular DTF but atypical mitosis and necrosis are unusual findings. DTF is found to occur basically due to the mutations of APC and beta-catenin genes that have interrelation. [1] DTF shows variable cytoplasmic immunostaining with beta-catenin, however only nuclear staining is considered to be specific for the diagnosis. At least focal SMA and desmin reactivity may be detected in DTF, but CD34, keratins, EMA, CD117 and S100 are usually negative immunohistochemically. [3]

The localization of the lesion and the clinical history should be taken into consideration as well as histopathological and immunohistochemical findings while diagnosing DTF. Also, the monomorphic spindle cell lesions as scar tissue, nodular fasciitis, schwannoma, neurofibroma, monophasic synovial sarcoma, low-grade myxofibrosarcoma, low-grade malignant peripheral nerve sheath tumor, solitary fibrous tumor, gastrointestinal stromal tumors etc. should be excluded. [3] The immunohistochemical markers and histopathological features that have been mentioned before can aid in the differential diagnosis.

**CONCLUSION:**

DTF is a rare locally aggressive tumor that may mimic malignancy due to it's clinical, radiological and histopathological findings. Although the etiology of DTF is not clear, most of the cases with DTF have a history of trauma or operation similar to our case. Thus, it is obvious that a comprehensive clinical history will contribute the accurate diagnosis of DTF.

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