SELÇUK TIP DERGİSİ
SELCUK MEDICAL JOURNAL
DOI:http:/dx.doi.org/10.30733/std.2024.01798
Selcuk Med J 2024;40(4): 202-204

OPEN

OLGU SUNUMU / CASE REPORT

Malignant Phyllodes Tumor of the Breast with Liposarcomatous Differentiation, A Rare Case

Memenin Liposarkomatöz Diferansiasyon Gösteren Malign Filloides Tümörü, Nadir Bir Olgu

Seda Tas Aycicek[1], Hasan Yaldız[2]

[1]Aksaray Training and Research Hospital, Department of Medical Pathology, Aksaray, Türkiye
[2]Aksaray Training and Research Hospital, Department of General Surgery, Aksaray, Türkiye

ÖZET
Filloides tümörler nadir görülen fibroepitelyal neoplazmlardır ve tüm meme tümörlerinin %1'inden azını oluştururlar. Bu tümörlerde nadiren heterolog sarkomatöz farklılaşma izlenmekte olup çalışmamızda heterolog liposarkom komponenti içeren filloides tümör vakası sunulmaktadır. 86 yaşında kadın, sol memede hızla büyüyen kitle nedeniyle genel cerrahi polikliniğine başvurdu. Mammografik incelemede BI-RADS 4 nodüler lezyon tespit edilmiş olup filloides tümör açısından şüpheli değerlendirildi. Laboratuvarımıza sol modifiye radikal mastektomi materyali gönderildi. Makroskopik incelemede meme dokusu kesitlerinde 9,5x9x8 cm ölçülerinde fokal infiltratif sınır izlenen nodüler kitle tespit edildi. Histolojik kesitlerde hipersellüler, pleomorfik stromaya sahip yer yer filloides tümörün tipik yapraksı mimarisinin saptandığı tümöral lezyon dikkati çekti. Tümörde bir veya daha fazla vakuole sahip berrak sitoplazmalı, hiperkromatik nükleusa sahip lipoblast karakterinde hücreleri içeren iyi diferansiye liposarkom komponenti gözlendi. Tüm bulgular ışığında olgu, heterolog liposarkom komponenti içeren malign filloides tümör olarak raporlandı. Heterolog sarkomatöz farklılaşma gösteren filloides tümörler oldukça nadir olup memede sarkomatöz neoplazi görüldüğünde ayırıcı tanıda filloides tümör dikkate alınmalıdır. Sarkomatöz farklılaşma gösteren filloides tümörünü, primer meme sarkomlarından ayırt edebilmek için, çok sayıda örnek alınarak tümörün benign epitelyal bileşeninin gösterilmesi oldukça önemlidir.

Anahtar Kelimeler: Filloides tümör, meme, liposarkom

ABSTRACT
Phyllodes tumors are rare fibroepithelial neoplasms and comprise less than 1% of all breast tumors. Heterologous sarcomatous differentiation is rarely observed in phyllodes tumors and in this study, a case of phyllodes tumor containing heterologous liposarcoma component is presented. A rapidly expanding mass in the left breast of an 86-year-old woman led to her admission to the general surgery outpatient clinic. A BI-RADS 4 nodular lesion was detected in the mammographic examination and was evaluated as suspicious for phyllodes tumor. Left modified radical mastectomy material was sent to our laboratory. Macroscopic examination revealed a nodular mass measuring 9.5x9x8 cm with focal infiltrative borders in breast tissue sections. In histological sections, the tumoral lesion was noted to have hypercellular, pleomorphic stroma and in some places the typical leaf-like architecture of phyllodes tumor. A well-differentiated liposarcoma component was observed in the tumor, containing lipoblast-like cells with single and multiple vacuoles, clear cytoplasm, and hyperchromatic nuclei. In the light of all the findings, the case was reported as malignant phyllodes tumor containing heterologous liposarcoma component. Phyllodes tumors showing heterologous sarcomatous differentiation are quite rare and when sarcomatous neoplasia is seen in the breast, phyllodes tumor ought to be taken into account while making a differential diagnosis. In order to distinguish phyllodes tumor with sarcomatous differentiation from primary breast sarcomas, it is very important to show the benign epithelial component of the tumor by taking multiple samples.

Keywords: Phyllodes tumor, breast, liposarcoma

Geliş Tarihi/Received: 16 Ekim/October 2024 **Kabul Tarihi/Accepted:** 13 Aralık/December 2024 **Yayın Tarihi/Published Online:** 27 Aralık/December 2024

INTRODUCTION

Phyllodes tumors are uncommon breast tumors that comprise both stromal and epithelial components (1). Less than 1% of breast tumors are phyllodes tumors and only 10% to 15% of phyllodes tumors are malignant (2). The World Health Organization (WHO) has classified phyllodes tumors into three categories: benign, borderline, and malignant, based on their stromal cellularity, stromal nuclear pleomorphism, stromal overgrowth, mitotic activity, and tumor margins. Tumors with all of these features are classified as malignant phyllodes tumors, while tumors with some of these features are classified as borderline phyllodes tumors (3). Regardless of these criteria, the presence of malignant heterologous elements is considered as a malignant phyllodes tumor

Sorumlu Yazar/Corresponding Author: Seda Tas Aycicek, Aksaray Training and Research Hospital, Department of Medical Pathology, Aksaray, Türkiye
e-mail: ssedatas@hotmail.com

Atıf yapmak için/ Cite this article as: Aycicek Tas S, Yaldız H. Malignant Phyllodes Tumor of the Breast with Liposarcomatous Differentiation, A Rare Case. Selcuk Med J 2024;40(4): 202-204

Disclosure: *Author has not a financial interest in any of the products, devices, or drugs mentioned in this article. The research was not sponsored by an outside organization. Author has agreed to allow full access to the primary data and to allow the journal to review the data if requested.*

"**This article is licensed under a** Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)"

(4). The sarcomatous component may exhibit features of angiosarcoma, leiomyosarcoma, liposarcoma, osteosarcoma, chondrosarcoma and rhabdomyosarcoma (5). Phyllodes tumors containing sarcomatous elements are quite rare and we describe a case of phyllodes tumor with a well-differentiated liposarcoma component in this study.

CASE REPORT

A rapidly expanding mass in the left breast of an 86-year-old woman led to her admission to the general surgery outpatient clinic. The patient had a breast mass for 1 year. She applied to the hospital because the increasing size of a mass in the last 2 months. On physical examination, the nipple and breast skin appeared normal and no retraction was detected. On palpation, a mobile, firm mass measuring approximately 7x5 cm was detected at the 2 o'clock position and 4-5 cm away from the areola. It was learned that the patient, who had a known history of hypertension, had previously undergone cholecystectomy. No history of cancer was found. Mammographic examination revealed a BI-RADS 4 nodular lesion in the left breast. The lesion has doubled in size compared to the previous imaging and phyllodes tumor could not be excluded. Left modified radical mastectomy material was sent to our laboratory. On macroscopic examination 9.5x9x8 cm off-white colored tumoral lesion with nodular and cystic areas that extended to the upper and lower outside quadrants was observed in the breast tissue sections. The tumor was well-circumscribed in large areas and focal infiltrative borders were observed. In histological sections, a tumoral lesion with heterogeneous morphology, prominent stromal cellularity and pleomorphism, and in some places the typical leaf-like architecture of phyllodes tumor was noted. 32 mitotic figures were observed in stromal cells in 10 high power fields (HFP). Stromal overgrowth (at least one microscopic area consisting of stroma without an accompanying epithelial component) and necrosis were seen. A small number of benign ductal structures were detected trapped between the stromal cells. A well-differentiated liposarcoma component was observed in the area adjacent to the pleomorphic spindle stromal cells, containing lipoblast-like cells with single and multiple vacuoles, clear cytoplasm, and hyperchromatic nuclei (Figure 1). Fourteen reactive lymph nodes were detected within the axillary fatty tissue. Considering all the data, the case was defined as phyllodes tumor with heterologous well differentiated liposarcomatous component. No recurrence was detected in the 6th month follow-up of the patient.

DISCUSSION

Breast sarcomas are extremely rare tumors, accounting for less than 1% of all breast malignancies (6). These tumors may occur primarily or secondarily. The incidence of liposarcoma among breast sarcomas varies between 2% and 10% in the literature. Some of them develop de novo; some of them occur as phyllodes tumor differentiation (7).

Filloides tumors are rare biphasic tumors of the breast first described as Cystosarcoma filloides by Muller in 1838 (8). These tumors are closely related to fibroadenomas in the spectrum of fibroepithelial lesions. MED12 mutations identified in the stroma of both tumors reinforce this conclusion (9). Filloides tumors are most common in women, around the age of 50, but are rarely observed in men (10,11). Clinically, they manifest as a rapidly expanding mass that is average 4 cm in size. These tumors exhibit different biological behaviors, from benign to malignant. Phyllodes tumor metastasized to the lungs was

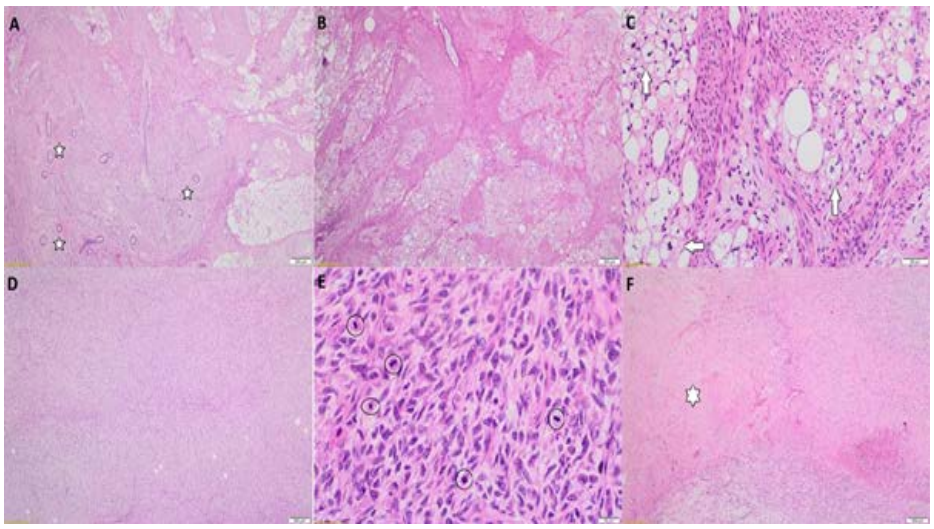

Figure 1. A. Spindle stromal cells and benign epithelial component in phyllodes tumor (Hematoxylin&Eosin, x40 magnification), **B.** Heterologous lipomatous differentiation (Hematoxylin&Eosin, x40 magnification), **C.** Lipoblasts with single and multiple vacuoles (Hematoxylin&Eosin, x200 magnification), **D**. Stromal overgrowth (Hematoxylin&Eosin, x40 magnification), **E.** Increased mitotic activity in stromal cells (Hematoxylin&Eosin, x400 magnification), **F.** Necrosis in the stroma (Hematoxylin&Eosin, x40 magnification).

reported as the first malignant behaving case (12). Histologically, they are fibroepithelial neoplasms with a leaf-like stroma lined by double-layered epithelium (myoepithelial cells and luminal cells), usually with an intracanalicular growth pattern (13). Phyllodes tumors were categorized by the WHO as benign, borderline and malignant based on tumor margins, mitotic activity, stromal cellularity, stromal nuclear pleomorphism, and stromal overgrowth (13). Tumors with all of these features are defined as malignant phylloides tumors. The presence of any of the heterologous elements even in the absence of these histological parameters guarantees malignancy. However, in the WHO 2019 breast tumor classification, it was concluded that well-differentiated liposarcoma differentiation does not have metastatic potential and it was stated that it does not diagnose malignancy alone in the absence of other criteria (13). Malignant stromal transformation in phyllodes tumors usually occurs as fibrosarcomatous differentiation and heterologous sarcomatous elements can rarely be seen. Sarcomatous stromal elements include liposarcoma, leiomyosarcoma, osteosarcoma, angiosarcoma, chondrosarcoma, and rhabdomyosarcoma. Liposarcomatous differentiation can consist of well-differentiated, myxoid, round cell, and pleomorphic liposarcomatous elements (14).

Malignant heterologous elements in Phyllodes tumors are uncommon, and limited information is available to assess the prognosis and adjuvant treatment of these tumors. However, surgical resection is the gold standard for all histological grades and adjuvant treatment can be preferred on a patient basis (15).

CONCLUSION

Malignant phyllodes tumors are rare tumors and may contain of malignant heterologous component. Due to the heterogeneous morphology of these tumors, it is very important to demonstrate the benign epithelial component of the tumor with multiple samplings, especially to distinguish it from primary sarcomas.

Conflict of interest: *The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.*

Financial conflict of interest: *Author declares that he did not receive any financial support in this study.*

Address correspondence to: *Seda Tas Aycicek, Aksaray Training and Research Hospital, Department of Medical Pathology, Aksaray, Türkiye*
e-mail: *ssedatas@hotmail.com*

REFERENCES

1. Bogach J, Sriskandarajah A, Wright FC, et al. Phyllodes tumors of the breast: Canadian national consensus document using modified delphi methodology. Ann Surg Oncol. 2023;30(11):6386–97. doi: 10.1245/s10434-023-13912-7.
2. Chen K, Xu J, Wang W, et al. Clinical outcomes and biomarkers of phyllodes tumors of the breast: A single-center retrospective study. Cancer Med. 2023;12(10):11363–74. doi: 10.1002/cam4.5849.
3. Yoshida M, Shioya A, Morioka E, et al. Giant Borderline Phyllodes Tumor Fungating Through the Skin as Fleshy Polypoid Outgrowths. Cureus. 2024;16(5). doi: 10.7759/cureus.61020.
4. Li W, Ou Q, Li Y, et al. Malignant phyllodes tumor of the breast with predominant osteosarcoma and chondrosarcomatous differentiation: a rare case report and review of literature. Front Oncol. 2024;14. doi: 10.3389/fonc.2024.1372710.
5. Lissidini G, Mulè A, Santoro A, et al. Malignant phyllodes tumor of the breast: a systematic review. Pathologica. 2022;114(2):111. doi: 10.32074/1591-951X-754.
6. Pollard SG, Marks PV, Temple LN, et al. Breast sarcoma. A clinicopathologic review of 25 cases. Cancer. 1990;66(5):941–4.doi:10.1002/1097-0142(19900901)66:5<941::aid-cncr2820660522>3.0.co;2-b.
7. Narla SL, Stephen P, Kurian A, et al. Well-differentiated liposarcoma of the breast arising in a background of malignant Phyllodes tumor in a pregnant woman: A rare case report and review of literature. Indian J Pathol Microbiol. 2018;61(4):577–9. doi: 10.4103/IJPM.IJPM_238_17.
8. Fiks A. Cystosarcoma phyllodes of the mammary gland—müller's tumor: For the 180th birthday of Johannes Müller. Virchows Archiv A. 1981;392:1–6. doi: 10.1007/BF00430543.
9. Carpenter M, Masood S, Sharma S, et al. Malignant Phyllodes Tumor With Chondroblastic Osteosarcomatous Differentiation: A Case Report. Cureus. 2024;16(7). doi: 10.7759/cureus.63915.
10. Hamdy O, Saleh GA, Raafat S, et al. Male breast huge malignant phyllodes. Chirurgia (Bucur). 2019;114(4):512–7. doi: 10.21614/chirurgia.114.4.514.
11. Rodrigues MF, Truong PT, McKevitt EC, et al. Phyllodes tumors of the breast: the British Columbia Cancer Agency experience. Cancer/Radiothérapie. 2018;22(2):112–9. doi: 10.1016/j.canrad.2017.08.112.
12. Lee BJ, Pack GT. Giant intracanalicular fibro-adenomyxoma of the breast. The so-called cystosarcoma phyllodes mammae of Johannes Müller. Am J Cancer. 1931;15(4):2583–609. doi: 10.1097/00000658-193101000-00034.
13. Rakha E, Sasano H, Wu Y. WHO classifcation of tumours editorial board: Breast tumours. WHO classifcation of tumours series. 2019. doi: 10.1111/his.14091.
14. Isotalo PA, George RL, Walker R, et al. Malignant phyllodes tumor with liposarcomatous differentiation. Arch Pathol Lab Med. 2005;129(3):421–2. doi: 10.5858/2005-129-421-MPTWLD.
15. Boutrus RR, Khair S, Abdelazim Y, et al. Phyllodes tumors of the breast: Adjuvant radiation therapy revisited. The Breast. 2021;58:1–5. doi: 10.1016/j.breast.2021.03.013.