

In Situ Ductal Carcinoma Arising in Benign Phyllodes Tumor in 19-Year Old Patient: A Case Report

19 Yaşındaki Olguda Benign Filloïd Tümör İçinde Gelişmiş İn Situ Duktal Karsinom: Olgu Sunumu

Muhammet Kadri Çolakoğlu¹, Erdinç Yenidoğan², Gökhan Giray Akgül¹, Sultan Çiğdem Irkkan³, Yılmaz Özdemir¹, Mehmet Ali Gülçelik¹, Mithat Çamlıbel¹

¹Ankara Onkoloji Eğitim ve Araştırma Hastanesi, Genel Cerrahi Kliniği, Ankara, Türkiye

²Gaziosmanpaşa Üniversitesi Tıp Fakültesi, Genel Cerrahi Anabilim Dalı, Tokat, Türkiye

³Ankara Onkoloji Eğitim ve Araştırma Hastanesi, Patoloji Kliniği, Ankara, Türkiye

ABSTRACT

Phyllodes tumors are fibroepithelial lesions and malign forms are rare neoplasms with lower than 1% of all primary breast tumors. Malign forms are usually behaves like sarcomas because they occur in the stroma of the breast. Also proliferation of epithelium occurs and even it is less often, the epithelial component of phyllodes tumors can transform into malignancy too. This epithelial malignancies are usually in the form of infiltrative carcinomas and non-invasive tumors arising in benign phyllodes tumors are much rarer but can be seen. Literature include very few cases about this situation and cases are usually old woman. We report a 19-year old patient who was diagnosed with ductal carcinoma in situ arising in benign phyllodes tumor of the breast.

Key words: Phyllodes tumor, breast, intraductal, carcinoma

ÖZET

Filloïd tümörler fibroepitelyal lezyonlardır ve malign formları nadir görülen neoplazmlar olup tüm primer meme kanserlerinin %1'inden azını oluşturur. Malign formları genellikle sarkomlar gibi davranırlar çünkü memenin stromasından köken alırlar. Aynı zamanda epitelyal proliferasyon azda olsa ortaya çıkabilir ve filloïd tümörlerin bu epitelyal komponenti maligniteye dönüşebilir. Bu epitelyal malignensiler çoğunlukla infiltratif karsinom formundadır, aynı zamanda benign filloïd tümörlerden köken alan non-invaziv tümörler nadirde olsa görülebilir. Literatürde bu durumla ilgili çok az vaka mevcut olup vakalar genellikle yaşlı kadınlardır. Burada memenin benign filloïd tümöründen köken almış duktal karsinoma in situ tanısı konmuş 19 yaşındaki hastamızı sunduk.

Anahtar sözcükler: Filloïd tümör, meme, intraduktal, karsinom

Introduction

Phyllodes tumors are a group of uncommon breast tumors involving biphasic proliferation of stroma and breast epithelium (1). The majority present a benign process but with increasing cellularity, invasive margins and actual sarcomatous behaviour, they can represent different characteristics from borderline to a malignant process (2, 3). Histologically they seem similar to fibroadenomas but are typically organized in leaf-like structures because of more cellular stroma. They usually appear as a fast growing, firm and well demarcated mass. While local excision is adequate for benign phyllodes tumors, surgical margins must be over 1 cm for borderline tumors. Malignant phyllodes tumors are treated like sarcomas and en bloc surgical resection is recommended. Recurrence rates for benign, borderline and malignant phyllodes tumors are %17, %25, %27, respectively (4, 5). Malignant transformation of the tumor usually occurs in the stromal part of the tumor but the epithelial component of phyllodes tumors can transform into a malignancy too (6). Even this transformation is rare, most of them are infiltrative ductal carcinomas (2). Documented literature about ductal carcinoma in situ arising in phyllodes tumor is a rare situation (7-16). We report a 19-year old patient who was diagnosed with ductal carcinoma in situ arising in a benign phyllodes tumor of the breast.

Case Presentation

A 19-year old woman who discovered a painless mass in her right breast was admitted to Ankara Oncology Training and Research Hospital. She had no family history of cancer. The mass had grown rapidly over a 1 month period and was palpated in the upper outer quadrant of the right breast. It was well-defined, freely movable and 2.0x2.0 cm in size. The tumor was nonadherent to the skin and there were no palpable lymph nodes in the axilla or supraclavicular fossa on physical examination. Breast ultrasonography showed a 23x12 mm in size, regular, heterogenous, hypoechoic mass in her right breast and the radiology department suggested excision of the lesion. Mammography was not performed because of patient's age. The serum levels of tumor markers (CA 15-3, CEA) were within normal range. The tumor was locally excised under local anaesthesia. The patient had a rapid recovery and was discharged on the same day.

This case was presented at 16th Annual Meeting of the European Society of Surgery, 22-24 November 2012, İstanbul, Turkey.

Bu olgu, 16. Avrupa Cerrahi Derneği Yıllık Toplantısı'nda sunulmuştur, 22-24 Kasım 2012, İstanbul, Türkiye.

Address for Correspondence/Yazışma Adresi:

Erdinç Yenidoğan, Gaziosmanpaşa Üniversitesi Tıp Fakültesi, Genel Cerrahi Anabilim Dalı, Tokat, Türkiye

Phone / Tel.: +90 356 212 32 12 e-mail / e-posta: claritromisin@yahoo.com

Received / Geliş Tarihi: 08.06.2013
Accepted / Kabul Tarihi: 16.09.2013

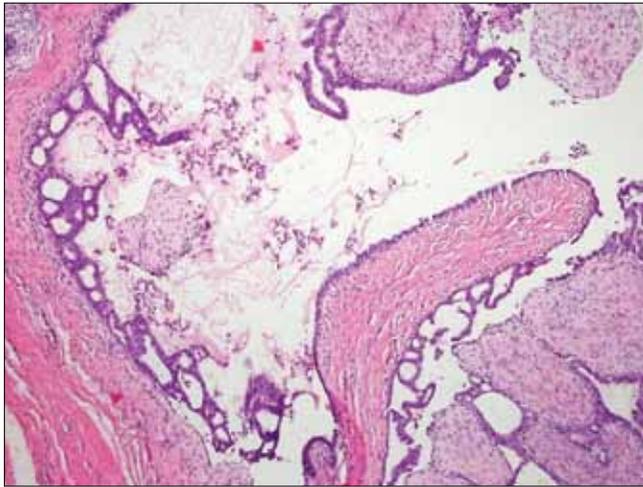


Figure 1. A mildly cellular, phyllodes tumor stroma is seen to be accompanied by a proliferation in the epithelial component

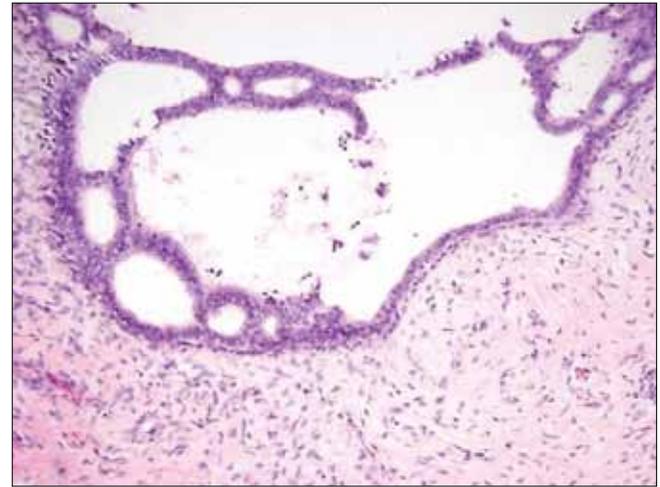


Figure 2. On high power view, epithelial cells form rigid bars and cribriform lumina consistent with ductal carcinoma in situ

The final pathology result was benign phyllodes tumor. The tumor was 18 mm in greatest diameter and was well-demarcated. Histologically, the tumor consisted of both epithelial and stromal elements. Stromal elements showed mild cellularity and 1-2 mitoses per 10 high power fields. Expression of Ki-67 nuclear antigen was also examined and Ki-67 proliferative activity index was %5-10 in the stromal component. A focus of an 8 mm ductal carcinoma in situ nuclear grade 2, with a cribriform pattern was observed in the ductal part of the tumor (Figure 1, 2). Immunohistochemically, estrogen and progesterone receptors were positive in the ductal carcinoma in situ component. Based on these findings, the tumor was diagnosed as ductal carcinoma in situ arising in a benign phyllodes tumor.

Consequently, we administered radiation therapy and endocrine therapy with tamoxifen citrate to our patient for in situ carcinoma and she remains well during a 3 year follow-up period.

Discussion and Conclusions

Phyllodes tumors of the breast are fibroepithelial lesions that account for fewer than 1% of all breast neoplasms. They are usually classified into three categories like benign, borderline and malignant. This classification is based on some histological factors such as stromal cellularity, cellular atypia, mitotic activity, stromal overgrowth, tumor necrosis and the nature of the tumor margins (6). Because malignant transformation of a phyllodes tumor mostly occurs in the stromal component, many studies are centred upon this component.

The defining features of ductal carcinoma in situ include; malignant cytologic features (monomorphic or pleomorphic), involvement of two duct cross-sections and/or the sum of the duct diameters involved in the lesion greater than 2 mm, and malignant cells confined to the basement membrane inside the duct. Ductal carcinoma in situ arising from the ducts in phyllodes tumors should be differentiated from the usual epithelial hyperplasia. Usually, hyperplasia of epithelial cells show overlapping proliferation. It was the rigid epithelial bars and cribriform lumina that signified the lesion as atypical epithelial hyperplasia and with the size of the lesion being 8 mm, it reached the definition of ductal carcinoma in situ.

Nio et al. (17) reported 53-year old female patient and Yamaguchi et al. (5) reported 53-year old female patient both with a benign phyllodes tu-

mor with ductal carcinoma in situ. Quinlan-Davidson et al. (18) reported a 53-year old female patient with a borderline phyllodes tumor with tubular carcinoma and lobular carcinoma in situ. Neto et al. (19) reported a 66-year old female with the coexistence of benign phyllodes tumor and synchronous, independent and invasive ductal carcinoma in separate breasts. Although the median age of occurrence of disease is 40–50 years, and the documented literature about ductal carcinoma in situ arising in phyllodes tumor is a rare situation especially in older patients, our case illustrates that this situation can be seen in younger ages. Moreover, our case presented here is the youngest patient with ductal carcinoma in situ arising in phyllodes tumor according to documented in the literature (7-19).

There are different opinions about the carcinomas arising from phyllodes tumor. Malignant transformation of epithelial hyperplasia in the phyllodes tumor is one of them. In 2005, Tan et al. (20) studied the pathology specimens of 335 Asian women with phyllodes tumor and reported the epithelial hyperplasia rate as 74% (247 cases). Even though it is a reliable hypothesis, the relationship between phyllodes tumors and carcinomas is still unknown. Nomura et al. (7) reported a 75-year old case with ductal carcinoma in situ arising in a malignant phyllodes tumor and estrogen and progesterone receptors were both negative in that case.

A variety of therapies were applied to the various cases. These are local excision and local radiation therapy, mastectomy, and axillary lymph node dissection. It appears that mastectomy or local excision was selected according to the size of the phyllodes tumor. Axillary dissection was applied for large phyllodes tumors, but no lymph nodes involved in the cases. Also post-surgical radiation therapy and endocrine therapy were applied. The prognosis for cases of ductal carcinoma in situ within phyllodes tumors is generally favorable, with no deaths yet reported. Axillary lymph node dissection is not part of the standard treatment for phyllodes tumors as lymph node spread is rare, and may thus be restricted to patients suspected of having lymph node involvement by image diagnosis (5, 9, 16).

In situ carcinomas, even infiltrating ones, arising in phyllodes tumors cannot be detected preoperatively in many of the cases. In all patients with suspected phyllodes tumors, even young ones like this case, the radiologists must be aware of the possibility of concurrent carcinoma or in situ carcinoma. It is very difficult to identify this kind of tumor

preoperatively because, in many cases, phyllodes tumors encircle the actual malignant or premalignant lesion. Also histopathological examination must be done meticulously because it is very easy to overlook small in situ lesions under the actual pathologic diagnosis of benign phyllodes tumor. As in the stromal component, the epithelial component must be carefully investigated for malignancy.

Conflict of Interest: No conflict of interest was declared by the authors.

Peer-review: Externally peer-reviewed.

Informed Consent: Written informed consent was obtained from patients who participated in this case.

Author Contributions: Concept - M.K.Ç., E.Y.; Design - M.K.Ç., E.Y.; Supervision - M.A.G., M.Ç.; Funding - M.K.Ç., E.Y.; Materials - M.K.Ç., E.Y.; Data Collection and/or Processing - M.K.Ç., Y.Ö., S.Ç.I.; Analysis and/or Interpretation - S.Ç.I., M.A.G., M.Ç.; Literature Review - M.K.Ç., E.Y., G.G.A.; Writer - M.K.Ç., E.Y.; Critical Review - M.A.G., M.Ç.

Financial Disclosure: The authors declared that this study has received no financial support.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Hakem değerlendirmesi: Dış bağımsız.

Hasta Onamı: Yazılı hasta onamı bu olguya katılan hastalardan alınmıştır.

Yazar Katkıları: Fikir - M.K.Ç., E.Y.; Tasarım - M.K.Ç., E.Y.; Denetleme - M.A.G., M.Ç.; Kaynaklar - M.K.Ç., E.Y.; Malzemeler - M.K.Ç., E.Y.; Veri toplanması ve/veya işleme - M.K.Ç., Y.Ö., S.Ç.I.; Analiz ve/veya yorum - S.Ç.I., M.A.G., M.Ç.; Literatür taraması - M.K.Ç., E.Y., G.G.A.; Yazıyı yazan - M.K.Ç., E.Y.; Eleştirel İnceleme - M.A.G., M.Ç.

Finansal Destek: Yazarlar bu çalışma için finansal destek almadıklarını beyan etmişlerdir.

References

- Ozzello L, Gump FE. The management of patients with carcinomas in fibroadenomatous tumors of the breast. *Surg Gynecol Obstet* 1985; 160:99-104. (PMID: 2982218)
- Rosen PP. *Rosen's breast pathology*. 2nd ed. Philadelphia: Lippincott-Raven, 2001:325-364.
- Moffat CJ, Pinder SE, Dixon AR, Elston CW, Blamey RW, Ellis IO. Phyllodes tumours of the breast: a clinicopathological review of thirty-two cases. *Histopathology* 1995; 27:205-218. (PMID: 8522284) [CrossRef]
- Tavassoli FA, Devilee P. Pathology and genetics. Tumours of the breast and female genital organs. World Health Organisation classification of tumours. Lyon: IARC Press; 2003:99-103.
- Yamaguchi R, Tanaka M, Kishimoto Y, Ohkuma K, Ishida M, Kojiro M. Ductal carcinoma in situ arising in a benign phyllodes tumor: report of a case. *Surg Today* 2008; 38:42-45. (PMID: 18085361) [CrossRef]
- Parker SJ, Harries SA. Phyllodes tumours. *Postgrad Med J* 2001; 77:428-435. (PMID: 11423590) [CrossRef]
- Nomura M, Inoue Y, Fujita S, Sakao J, Hirota M, Souda S, Ohshima M. A case of noninvasive ductal carcinoma arising in malignant phyllodes tumor. *Breast Cancer* 2006; 13:89-94. (PMID: 16518067) [CrossRef]
- Seemayer TA, Tremblay G, Shibata H. The unique association of mammary stromal sarcoma with intraductal carcinoma. *Cancer* 1975; 36:599-605. (PMID: 168959) [CrossRef]
- Grove A, Deibjerg Kristensen L. Intraductal carcinoma within a phyllodes tumor of the breast: a case report. *Tumori* 1986; 72:187-190. (PMID: 3010519)
- Knudsen PJ, Ostergaard J. Cystosarcoma phylloides with lobular and ductal carcinoma in situ. *Arch Pathol Lab Med* 1987; 111:873-875. (PMID: 2820345)
- de Rosa G, Ferrara G, Goglia P, Ghicas C, Zeppa P. In situ and microinvasive carcinoma with squamoid differentiation arising in a phyllodes tumor: report of a case. *Tumori* 1989; 75:514-517. (PMID: 2557696)
- Schwickerath J, Blessing MH, Wolff F. A rare clinical manifestation of a combination tumor of cystosarcoma phylloides malignum and an intraductal cancer. *Geburtshilfe Frauenheilkd* 1992; 52:557-559. (PMID: 1327943) [CrossRef]
- Deodhar KK, Baraniya JB, Naresh KN, Shinde SR, Chinoy RF. Cancerization of phyllodes tumour. *Histopathology* 1997; 30:98-99. (PMID: 9023568) [CrossRef]
- Nishimura R, Hasebe T, Imoto S, Mukai K. Malignant phyllodes tumour with a noninvasive ductal carcinoma component. *Virchows Arch* 1998; 432:89-93. (PMID: 9463593) [CrossRef]
- Lim SM, Tan PH. Ductal carcinoma in situ within phyllodes tumour: a rare occurrence. *Pathology* 2005; 37:393-396. (PMID: 16194856) [CrossRef]
- Parfitt JR, Armstrong C, O'malley F, Ross J, Tuck AB. In-situ and invasive carcinoma within a phyllodes tumor associated with lymph node metastases. *World Surg Oncol* 2004; 2:46. (PMID: 15601470) [CrossRef]
- Nio Y, Iguchi C, Tsuboi K, Maruyama R. Ductal carcinoma in situ arising within a benign phyllodes tumor: A case report with a review of the literature. *Oncol Lett* 2011; 2:223-228. (PMID: 22866068) [CrossRef]
- Quinlan-Davidson S, Hodgson N, Elavathil L, Shangguo T. Borderline phyllodes tumor with an incidental invasive tubular carcinoma and lobular carcinoma in situ component: a case report. *J Breast Cancer* 2011; 14:237-240. (PMID: 22031807) [CrossRef]
- Neto GB, Rossetti C, Souza NA, LA Fonseca F, Azzalis LA, Junqueira VB, Valenti VE, de Abreu LC. Coexistence of benign phyllodes tumor and invasive ductal carcinoma in distinct breasts: case report. *Eur J Med Res* 2012; 17:8. (PMID: 22534285) [CrossRef]
- Tan PH, Jayabaskar T, Chuah KL, Lee HY, Tan Y, Hilmy M, Hung H, Selvarajan S, Bay BH. Phyllodes tumors of the breast: the role of pathologic parameters. *Am J Clin Pathol* 2005; 123:529-540. (PMID: 15743740) [CrossRef]