

## Case Report

# Huge triple-negative phyllodes breast cancer: a case report

Zhouci Zheng<sup>1</sup>, Qiaolin Wu<sup>2</sup>, Yixiang Jin<sup>1</sup>, Wenxu Jin<sup>1</sup>, Qingxuan Wang<sup>1</sup>, Yefeng Cai<sup>1</sup>, Endong Chen<sup>1</sup>, Xiaohua Zhang<sup>1</sup>

Departments of <sup>1</sup>Surgical Oncology, <sup>2</sup>Anesthesiology, The First Affiliated Hospital of Wenzhou Medical University, Wenzhou, Zhejiang, China

Received January 30, 2017; Accepted July 1, 2017; Epub October 15, 2017; Published October 30, 2017

**Abstract:** Phyllodes breast tumor is a rare entity of breast cancer. Less than 1% of primary-breast-tumor patients will manifest phyllodes breast carcinoma. To date, no such case report has been published in Asia. A 59-year-old Chinese woman developed a huge mass in her left breast because of phyllodes tumor. The initial symptom of the patient was a solid mass fixed in her left breast. The postsurgical histopathologic results and immunohistochemical stains were consistent with a triple-negative phyllodes breast tumor. The patient received cytotoxic chemotherapy for one course and was recommended to undergo regular examinations every 3 months. Preoperative diagnosis of phyllodes breast tumor remains difficult given its atypical characteristics and unpredictable clinical behaviors at first presentation. Appropriate surgery is the cornerstone of treatment for those patients. Moreover, adjuvant chemotherapy is important in postsurgical treatment for triple-negative breast cancer patients.

**Keywords:** Phyllodes breast tumor, triple-negative breast cancer, core-needle biopsy, mastectomy, adjuvant therapy

### Introduction

Breast carcinoma is the most prevalent type of malignancy in women [1, 2]. Less than 1% of primary-breast-tumor patients will develop phyllodes breast carcinoma [3]. Giant triple-negative phyllodes breast carcinoma is a rare entity of phyllodes breast tumor and is difficult to distinguish from benign tumor. A systematic literature review found that the present study is the first case to be reported in Asia.

### Case presentation

A 59-year-old Chinese female came to our hospital to seek medical assistance for a solid mass in her left breast. She first noticed the egg-sized mass 1 year ago, but barely paid attention to the initial lump and did not seek consult. In the past several months, the mass enlarged rapidly, and breast skin appeared red without any pain or discomfort.

The patient does not smoke or drink alcohol. She underwent an appendectomy for acute

appendicitis 10 years ago. Family history did not include malignancies among first-degree relatives, and the patient denied any previous tumor-related medical history.

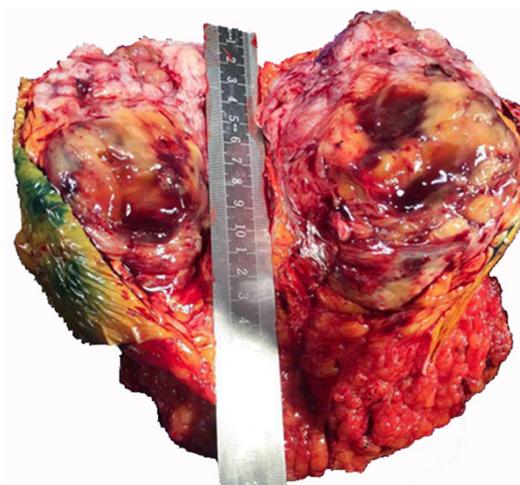
Physical examination revealed an average-sized, elderly female with no acute signs of distress. With thin skin and superficial vein engorgement, the enlarged left breast was totally subverted by the medium-hard neoplastic lump that measured 14 cm×12 cm×8 cm. The mass appeared fixed to the surrounding tissues (**Figure 1**). Several enlarged axillary-lymph nodes were palpated at left axilla. The right breast was normal upon examination.

Peripheral blood count was within normal range, and tumor-marker tests revealed an abnormal increase in carcinoembryonic antigen level at 53.3 ng/ml. Ultrasonography showed a highly vascularized irregular shaped, heterogeneous, and hypoechoic mass in the left breast. The mass was highly suspected to partly infiltrate into the surrounding pectoral

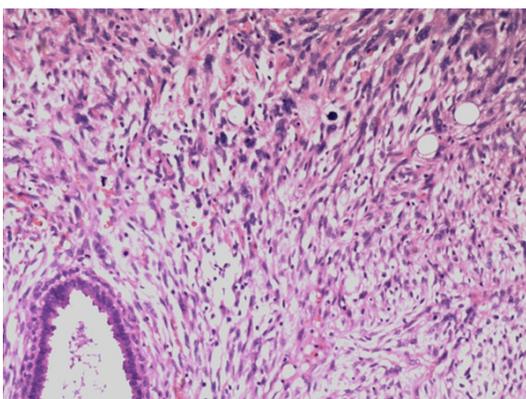
## A case report of phyllodes breast cancer



**Figure 1.** Malignant phyllodes tumors of the left breast with a diameter of 14 cm in a 59-year-old patient.



**Figure 2.** The resected specimen after total left mastectomy.



**Figure 3.** The histopathological results showed a huge tumor with high stromal hypercellularity and the presence of benign glandular elements.

muscle layer. PET/CT showed a massive area of pathological accumulation of tracer  $^{18}\text{F}$ -

fluorodeoxyglucose in the left breast with sporadic photopenic portions. Left axillary lymph nodes also exhibited a transient volume increase and pathologic tracer accumulation. No other significant abnormal tracer accumulation was reported.

A diagnosis of left breast malignant carcinoma without distant metastasis was suggested. Then, a total left mastectomy with left axillary sentinel-node biopsy was performed. The resected specimen was a huge mass with multiple necrotic lesions (**Figure 2**), and none of the 26 left axillary lymph nodes was involved. Other surrounding tissues were free of invasion.

The histopathological results (**Figure 3**) showed a 14.5 cm×12.5 cm×8.3 cm tumor with high stromal hypercellularity and the presence of benign glandular elements. The margins of specimen were free of disease.

Immunohistochemical stains on neoplastic cells were positive for smooth muscle actin and vimentin, negative for S100, estrogen receptor, progesterone receptor, and human epidermal growth factor receptor-2, thereby suggesting a triple-negative cancer. Ki-67 proliferation rate ranged from 25% to 35%, and findings were consistent with a malignant phyllodes triple-negative breast cancer.

After the surgery, the patient received adjuvant chemotherapy (Doxorubicin and Cyclophosphamide follow by weekly Paclitaxel). No severe side effect was mentioned and the patient's condition is getting better. We recommended biochemical and ultrasound examinations every 3 months in the first year after surgery for the surveillance of contralateral breast.

### Discussion

Phyllodes breast tumor is one rare type of breast tumor that usually presents as a large lump. Phyllodes breast tumor is reported to account for 0.3% to 0.5% of all breast cancers [4]. Previous studies have revealed that phyllodes breast tumor occurs in humans of all ages, but most patients are middle-aged females. Reports indicate that the mean patient age varies from 30 years to 52 years [4-6]. The proportion of malignant phyllodes tumors ranges from 8% to 45% [7]. Compared with

## A case report of phyllodes breast cancer

**Table 1.** Clinical information and diagnosis of giant malignant phyllodes breast tumor for reported cases

Source	Gender	Age (yr)	Site	Mass size (mm)	Ultrasonography	Immunohisto-chemistry staining	Pathology result	Surgical treatment	Postsurgical treatment	Outcome
Present case	Female	59	Left breast	145×125×83	A highly vascularized, heterogeneous, and hypoechoic mass	SMA (+) Vimentin (+) S100 (-) ER (-) PR (-) HER2 (-) Ki-67: 25-30%	Malignant phyllodes triple-negative breast cancer	Total mastectomy with axillary sentinel-node biopsy	Chemotherapy (Doxorubicin and Cyclophosphamide follow by weekly Paclitaxel)	Up to now, the patient is still free of disease
Alberto T 2015	Female	33	Right breast	400×300×100	A nodular blood flow in the heterogeneous lesion	Desmin (-) Vimentin (+) SMA (+) S100 (-) Ki-67: 25-30%	Malignant phyllodes tumor with lympho node metastasis	Total mastectomy	Chemotherapy (Adriamycin and ifosfamide) and radiotherapy	Patient was symptom-free at 18-months follow-up
Lori F 2016	Female	22	Right breast	170×190×100	A lobulated heterogeneous mass with indistinct borders	Ki-67: 5-15%	Borderline malignant phyllodes tumor	Partial mastectomy	No	NA
Takenaka 2011	Female	57	Right breast	215×160×90	NA	SMA (+) Vimentin (+) S100 (-) CD34 (-)	Malignant phyllodes tumor	Total mastectomy	No	Patient was symptom-free at 17-months follow-up
Arcuri MF 2007	Female	47	Right breast	280×210×150	NA	NA	Malignant phyllodes tumor	Total mastectomy	No	NA

SMA: smooth muscle actin, ER: estrogen receptor, PR: progesterone receptor, HER-2: human epidermal growth factor receptor-2.

## A case report of phyllodes breast cancer

other types of breast cancer, patients with malignant phyllodes tumor can enjoy a relatively optimistic prognosis. The overall 5 year survival rate of malignant phyllodes tumor is reported to range from 54% to 82% after surgery [8]. This article presents a case of giant triple-negative malignant phyllodes breast cancer in a Chinese elderly female who, through systematic literature review, is the first case of this rare condition to be described in Asia (Table 1).

To choose an appropriate surgical treatment and follow-up therapy protocols, the preoperative diagnosis should be achieved correctly and promptly. Auxiliary examinations could help differentiate phyllodes tumor from benign breast diseases. Ultrasonography reveals that phyllodes tumors are hypoechoic, heterogeneous, and highly vascularized masses with lobulations and irregular margins compared with fibroadenomas [9]. Radiologically, magnetic resonance image can be a useful tool. The signals of different histologic-grade phyllodes tumors change from T2-weighted to enhanced images [10, 11]. However, the cornerstone of diagnosis is pathological examination. Core-needle biopsy is an important diagnostic method for excluding potential malignancy and reducing the number of unexpected reoperations for post lumpectomy local recurrences. Compared with the low sensitivity of fine-needle aspiration cytodiagnosis, core-needle biopsy is superior in correctly diagnosing phyllodes tumor [12]. Komenaka IK [13] reported that core-needle biopsy established the diagnosis with a 99% sensitivity in one case series.

The common treatment for phyllodes tumor is surgery. Recent studies have found that mastectomy cannot significantly prolong the long-term survival rates [8], yet low local recurrence rates have been reported with mastectomy [14]. Accordingly, a wide excision with a resection margin of more than 2 cm for phyllodes tumor was recommended in most studies [5, 6]. In our case, keeping a resection margin of more than 2 cm was hardly possible for the phyllodes tumor because of the large tumor size. Hence, we performed a total left mastectomy on the patient. Left axillary-sentinel-node biopsy was also performed to exclude the suspected potential lymph-node metastasis based on the PET/CT finding. Previous works

have reported that approximately 10% of phyllodes tumor patients may present with axillary lymphadenopathy, but no more than 1% may be positive on histology [15]. Therefore, axillary-lymph-node dissection is unnecessary for all the patients.

Postsurgical chemotherapy and radiotherapy are not often performed for malignant phyllodes tumor. Only few cases have reported the use of chemotherapy or radiotherapy in phyllodes patients [8, 16]. However, the role of chemotherapy and radiotherapy remains under debate. In the present case, given the highly aggressive behavior of triple-negative breast cancer, postsurgical chemotherapy was indispensable. Chemotherapy is the most common adjuvant systemic treatment available for most patients with early stage triple-negative breast cancer [17]. Cytotoxic therapies achieved better tumor regression and could prolong the disease-free survival and overall survival rates of patients [18].

In conclusion, phyllodes breast tumor is a rare form of breast tumor. Current examination methods cannot distinguish phyllodes tumor from benign breast disease very well. As for the giant phyllodes breast cancer, a total mastectomy should be recommended to keep the resection margin negative. Adjuvant chemotherapy, especially the cytotoxic chemotherapy, is necessary in postsurgical treatments for triple negative breast cancer patient.

### Acknowledgements

We acknowledge support from the First Affiliated Hospital of Wenzhou Medical University. This work was supported by a grant from the Major Science and Technology Projects of Zhejiang Province (2015C03052), Wenzhou Science and Technology Planning Project (Y20160126), and Scientific Research Incubator Project of The First Affiliated Hospital of Wenzhou Medical University (NO. FHY-2014018).

### Disclosure of conflict of interest

None.

**Address correspondence to:** Drs. Endong Chen and Xiaohua Zhang, Department of Surgical Oncology, The First Affiliated Hospital of Wenzhou Medical

## A case report of phyllodes breast cancer

University, Wenzhou, Zhejiang, China. Tel: +86-577-55579462; Fax: +86-577-55579462; E-mail: chenendong.oncology@gmail.com (EDC); Tel: +86-577-55579463; Fax: +86-577-55579463; E-mail: zxhoncology0577@126.com (XHZ)

### References

- [1] Siegel RL, Miller KD and Jemal A. Cancer statistics, 2016. *CA Cancer J Clin* 2016; 66: 7-30.
- [2] Chen W, Zheng R, Baade PD, Zhang S, Zeng H, Bray F, Jemal A, Yu XQ and He J. Cancer statistics in China, 2015. *CA Cancer J Clin* 2016; 66: 115-132.
- [3] Macdonald OK, Lee CM, Tward JD, Chappel CD and Gaffney DK. Malignant phyllodes tumor of the female breast: association of primary therapy with cause-specific survival from the surveillance, epidemiology, and end results (SEER) program. *Cancer* 2006; 107: 2127-2133.
- [4] Ben Hassouna J, Damak T, Gamoudi A, Chargui R, Khomsi F, Mahjoub S, Slimene M, Ben Dhiab T, Hechiche M, Boussen H and Rahal K. Phyllodes tumors of the breast: a case series of 106 patients. *Am J Surg* 2006; 192: 141-147.
- [5] Salvadori B, Cusumano F, Del Bo R, Delledonne V, Grassi M, Rovini D, Saccozzi R, Andreola S and Clemente C. Surgical treatment of phyllodes tumors of the breast. *Cancer* 1989; 63: 2532-2536.
- [6] Reinfuss M, Mitus J, Duda K, Stelmach A, Rys J and Smolak K. The treatment and prognosis of patients with phyllodes tumor of the breast: an analysis of 170 cases. *Cancer* 1996; 77: 910-916.
- [7] Liang MI, Ramaswamy B, Patterson CC, McKelvey MT, Gordillo G, Nuovo GJ and Carson WE 3rd. Giant breast tumors: surgical management of phyllodes tumors, potential for reconstructive surgery and a review of literature. *World J Surg Oncol* 2008; 6: 117.
- [8] Chaney AW, Pollack A, McNeese MD, Zagars GK, Pisters PW, Pollock RE and Hunt KK. Primary treatment of cystosarcoma phyllodes of the breast. *Cancer* 2000; 89: 1502-1511.
- [9] Xiao M, Zhu Q, Jiang Y, Li J, Wang H, Zhang J, You S and Liu H. Local recurrent phyllodes tumors of the breast: clinical and sonographic features. *J Ultrasound Med* 2015; 34: 1631-1638.
- [10] Tan H, Zhang S, Liu H, Peng W, Li R, Gu Y, Wang X, Mao J and Shen X. Imaging findings in phyllodes tumors of the breast. *Eur J Radiol* 2012; 81: e62-69.
- [11] Alhabshi SM, Rahmat K, Abu Hassan H, Westerhout CJ and Chandran PA. Advanced MRI applications and findings of malignant phyllodes tumour: review of two cases. *Jpn J Radiol* 2013; 31: 342-348.
- [12] Foxcroft LM, Evans EB and Porter AJ. Difficulties in the pre-operative diagnosis of phyllodes tumours of the breast: a study of 84 cases. *Breast* 2007; 16: 27-37.
- [13] Komenaka IK, El-Tamer M, Pile-Spellman E and Hibshoosh H. Core needle biopsy as a diagnostic tool to differentiate phyllodes tumor from fibroadenoma. *Arch Surg* 2003; 138: 987-990.
- [14] Zissis C, Apostolikas N, Konstantinidou A, Griniatsos J and Vassilopoulos PP. The extent of surgery and prognosis of patients with phyllodes tumor of the breast. *Breast Cancer Res Treat* 1998; 48: 205-210.
- [15] Chen WH, Cheng SP, Tzen CY, Yang TL, Jeng KS, Liu CL and Liu TP. Surgical treatment of phyllodes tumors of the breast: retrospective review of 172 cases. *J Surg Oncol* 2005; 91: 185-194.
- [16] Hawkins RE, Schofield JB, Wiltshaw E, Fisher C and McKinna JA. Ifosfamide is an active drug for chemotherapy of metastatic cystosarcoma phyllodes. *Cancer* 1992; 69: 2271-2275.
- [17] Elias AD. Triple-negative breast cancer: a short review. *Am J Clin Oncol* 2010; 33: 637-645.
- [18] Joensuu H and Gligorov J. Adjuvant treatments for triple-negative breast cancers. *Ann Oncol* 2012; 23 Suppl 6: vi40-45.