Case Report
Huge triple-negative phyllodes breast cancer: a case report

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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...
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Fludeoxyglucose in the left breast with spora
dic photopenic portions. Left axillary lymph
nodes also exhibited a transient volume in-
crease and pathologic tracer accumulation. No
other significant abnormal tracer accumulation
was reported.

A diagnosis of left breast malignant carcino-
ma without distant metastasis was suggested.
Then, a total left mastectomy with left axil-
ary sentinel-node biopsy was performed. The
resected specimen was a huge mass with mul-
tiple necrotic lesions (Figure 2), and none of
the 26 left axillary lymph nodes was involved.
Other surrounding tissues were free of in-
vansion.

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 re-
ceptor, progesterone receptor, and human epi-
dermal growth factor receptor-2, thereby sug-
gesting a triple-negative cancer. Ki-67 prolifer-
ation rate ranged from 25% to 35%, and find-
ings were consistent with a malignant phyl-
lodestripe-negative breast cancer.

After the surgery, the patient received adju-
vant chemotherapy (Doxorubicin and Cyclo-
phosphamide follow by weekly Paclitaxel). No
severe side effect was mentioned and the pa-
tient’s condition is getting better. We recom-
ended biochemical and ultrasound examina-
tions every 3 months in the first year after sur-
gery 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 phyl-
lodes breast tumor occurs in humans of all
ages, but most patients are middle-aged fe-
males. 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

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

Figure 2. The resected specimen after total left mas-
tectomy.

Figure 3. The histopathological results showed a
huge tumor with high stromal hypercellularity and
the presence of benign glandular elements.
### Table 1. Clinical information and diagnosis of giant malignant phyllodes breast tumor for reported cases

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

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.

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Disclosure of conflict of interest

None.

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