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Case Report Open Access

Immediate Expander Implantation Following Simple Mastectomy of a Seven Kilograms Giant Phyllodes Tumor

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Abstract

We report a case of a 45-year-old Chinese-American woman with a giant phyllodes tumor measuring 29×27×22 cm. The patient relied on traditional Chinese medicine (TCM) and physical massage for more than one year before surgery. A simple mastectomy with immediate expander implantation was performed. During the surgery, a suspicious lymph node was found which might be related to breast massage. We kept superior and inferior skin flaps to cover the skin defect and reconstruct a breast shape one-stage operation.

Keywords: Giant phyllodes tumor; Surgery; Breast massage; Traditional Chinese medicine

Introduction

Breast phyllodes tumor (cystosarcoma phyllodes), originally described by Johannes Muller in 1838, is a rare space-occupying lesion of breast. In the past, physicians used cystosarcoma phyllodes to name this difficultly classified tumor. Because of the tumor's fleshy appearance and macroscopic-cyst tendency, phyllodes tumor has been the currently accepted nomenclature according to the World Health Organization (WHO) [1].

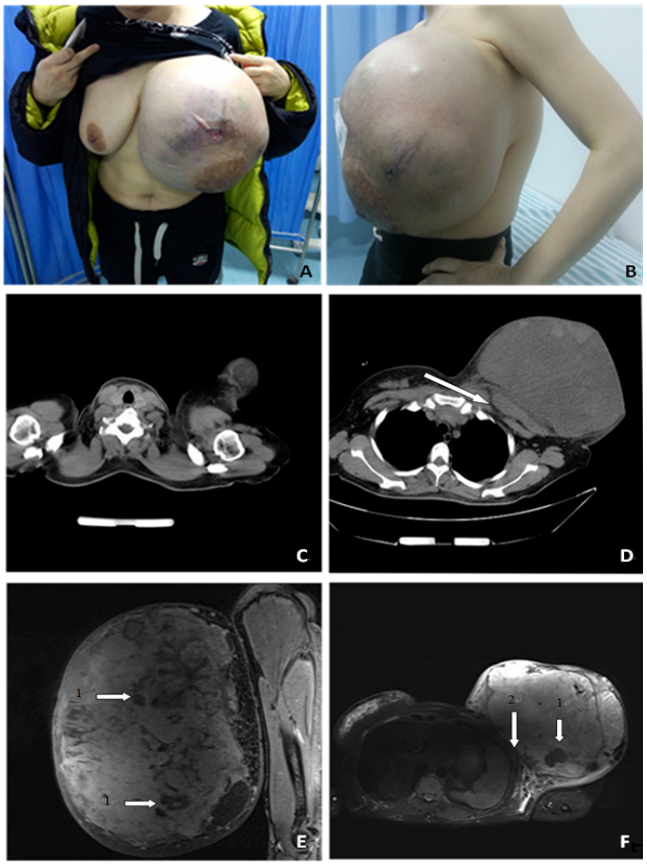

Figure 1: (A) Anterorview of the breast tumor on presentation to our clinic; **(B)** Lateralview of the breast tumor on presentation to our clinic; **(C,D)** CT showed the chest wall was not involved (indicated by arrow **(E,F)** MR showed the giant tumor accompanied by multiple cystic part (indicated by arrows 1). Boundaries are still clear between the giant tumor and pectoralis (indicated by arrow 2).

Phyllodes tumors account for 0.3-0.5% of all breast tumors in females [2,3]. They are classified as benign, borderline, and malignant based on gross and mycroscopic features [1]. Most of them are thought to be benign lesions, but more and more malignant cases have been reported. The principle of the treatment for the tumor, no matter benign or malignant, is extended excision including tumor and adjacent tissues with tumor-free surgical margins [4,5].

Case presentation

The patient is a 45-year-old married woman with two breast-fed children complaint a gradually growing mass in left breast. It had been 2 years since the mass was noticed, without pain or nipple discharge. The patient had relied on Traditional Chinese medicine (TCM) and physical massage for more than one year, while the mass grew sequentially. Two monthes before hospitalizing, the mass grew explosively. She was even hard to hide the huge tumor in the left breast. She denied any weight loss or any other discomfort. She had an excision of another tumor at the similar site in her left breast 7 years ago, which was diagnosed as a fibroadenoma. She had a clean family history and denied all unhealthy habits.

Physical examination at admission

She showed no neurological disorders, but presented with slightly pale complexion. The giant mass in the left chest wall was approximately 30 cm in diameter. The skin on the mass was swollen with high tension, streaked grey and blue, and covered by ulcer (Figure 1A and 1B). There were no palpable lymph nodes in the axillary and other superficial areas.

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Auxiliary examinations

The regular blood tests, ultrasound, computed tomography (CT) scan and magnetic resonance imaging (MRI) were performed. The CT showed a massive tumor in the left chest wall, up to the clavicle, low to the costal margin, right to the left lateral margin of sternum, left to the posterior axillary line (Figure 1C and 1D). The tumor did not invade into the chest wall. The MRI of breast showed the giant tumor contained multiple cystic parts. Boundary was still clear between the tumor and pectoralis (Figure 1E and 1F). The results of blood tests and ultrasound showed no specific.

Surgical procedures

A simple mastectomy was performed, which just moved the patient's breast without axillary lymph node dissection. A portion of the pectoralis major muscle was excised with the tumor to make a safety margin. An enlarged lymph node was found during the operation. The lymph node was removed for frozen section examination. Only a few atypical cells were found. After removal of the tumor, superior and inferior skin flaps were designed to cover the skin defect. These flaps included the healthy skin covering the tumor (Figure 2A). According to the patient's requirements, an expander was implanted in the rear of the pectoralis major muscle (Figure 2B).

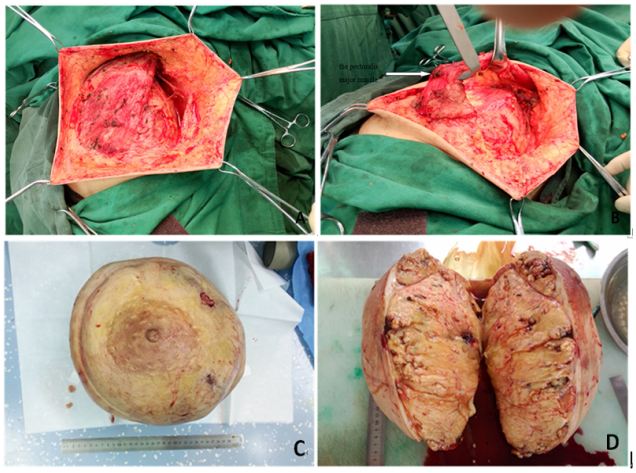

Figure 2: (A) Superior and inferior skin flaps were designed to allow skin approximation and closure after removal of the large tumor. These flaps included skin directly overlying the tumor that appeared normal; **(B)** Prepare the space for breast dilator; **(C)** The resected tumor measured 29 ×27 ×22 cm ex vivo. **(D)** Gross examination of the cut surface showed a grayish-white, solid, elastic hard, multi-lobular tumor with multifocal hemorrhage and necrosis

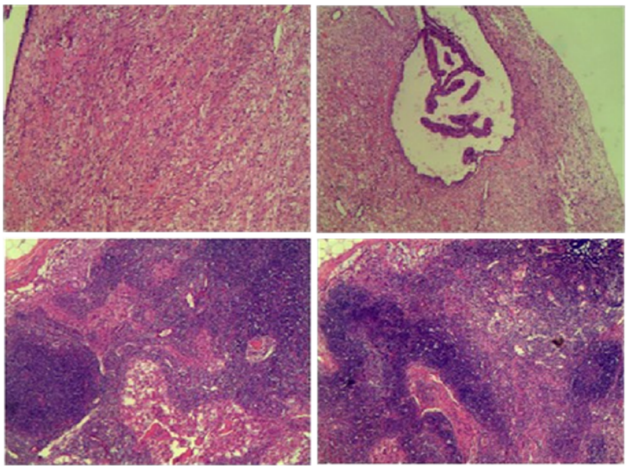

Figure 3: HE Staining result is as follow: The tumor is a giant phyllodes tumor with ductal epithelial hyperplasia and focal papillary hyperplasia. Only a small number of atypical cells can be found in the enlarged lymph node, and it showed chronic inflammation and sinus histiocytosis without tumor metastasis.

Figure 4: Postoperative view

The tumor weighed 7.15 kg and measured 29 ×27 ×22 cm (Figure 2C). It was grayish-white, solid, elastic hard, multi-lobular tumor with multifocal hemorrhage and necrosis in gross (Figure 2D).

*He*matoxylin-eosin staining (Figure 3) showed: The tumor was a giant phyllodes tumor with ductal epithelial hyperplasia and focal papillary hyperplasia. Only a few atypical cells were found in the enlarged lymph node, which might be caused by physical massage. The lymph node showed chronic inflammation and sinus histiocytosis without tumor metastasis.

The patient presented with serious pale complexion, with low hemoglobin at one day after surgery. Low hemoglobin was related to the giant mass in the left breast, erythropoietin was used. The patient recovered successfully without any complication. The flaps healed well (Figure 4). We kept following up and no recurrence was found after six months.

Discussion

Giant phyllodes tumors are those larger than 10 cm in diameter. Pietruszka and Barnes [6] first described the histological criteria for distinguishing between benign and malignant phyllodes tumors in 1978. In 2003, the WHO developed the grading standard of phyllodes tumors [1].

Whether phyllodes tumors are benign or malignant, surgery is always the first choice for treatment. In cases of tumor-free margins less than 1 cm or masses proved to be phyllodes tumors, patients need re-operation. Wide excision with more adequate free margin or mastectomy is necessary for malignant phyllodes tumors [7]. Malignant phyllodes tumors may spread to lung, pleura, bone, brain or other organs though blood instead of the lymphatic system [8], so axillary lymph node dissection is unnecessary when there is no suspicious axillary lymph nodes. Some physical therapies such as breast massage might make axillary lymph nodes to be suspicious by mechanical spreading of the tumor cells or necrotic tissue. The suspicious lymph nodes might lead to excessive axillary lymph node dissection. In 2000, Carter et al.

[9] hypothesized that the presence of epithelial groups, < 1 mm in all cases and usually 100-200 μm in lymph nodes, was mostly caused by benign mechanical transport (BMT) such as needle biopsy or surgical manipulation. They thought that lymphatic transport of epithelial cells displaced by biopsy of the primary breast tumor and breast massage-assisted SLN localization. Then Rosser [10] hypothesized that the breast massage following the injection of a substance used to localize SLNs could cause occult micrometastases. Occult micrometastases could be detected by many means such as evaluation of stained hematoxylin and eosin and immunostains for cytokeratin. With these means, Diaz et al. [11] tested Rosser's hypothesis and made sure that breast massage-assisted SLN localization was a mode of BMT of epithelial cells to SLNs. In the same way, breast massage can also lead to phyllodes tumor cells and/or necrosis tissue flow into SLNs, which may result in dispensable ALND.

After the surgical removal of giant tumor in the chest wall, it was a great challenge for the breast surgeon to repair the skin defect. Superior and inferior skin flaps included autologous skin directly overlied the tumor that appeared normal could be used [12]. The common grafting technique for the skin defect included transplantation with latissimus dorsi myocutaneous flap and rectus abdominis myocutaneous flap [13,14]. Applications of latissimus dorsi and lateral thoracic conjunction flap, scapular and latissimus dorsi conjunction flap, or scapular latissimus dorsi and lateral thoracic conjunction flap had been reported to be chosen for larger surgical wound surface. What's more, if the foregoing flaps were not enough, a combination of latissimus dorsi myocutaneous flap, lateral thoracic skin flap, and rectus abdominis myocutaneous flap [5] could be designed and employed. The flap was designed, based on tumor size, blood supply and patient's constitution. So we could restore the patient's breast in many applications when we removed her breast, improving the quality of patient's survival.

Adjuvant therapies, such as chemotherapy or radiotherapy, were thought of limited value for malignant phyllodes tumors [15]. Some reports showed the chemotherapy didn't improve the survival rate but was useful for palliative treatment [16]. Due to many PgR-positive cases, Rao et al. [17] reported that hormonal therapy might be effective, showing the receptor might be a potential therapeutic target. For example, Medroxyprogesterone acetate (MPA) had been used and been proved to be effective [18].

In addition, to focus on the survival of the flap, we still need to keep an eye on the postoperative complications, such as anemia and low blood sugar [18,19]. The major issue of malignant phyllodes tumors after treatment is local recurrence. Rechecking regularly after operation is the best and indispensable approach.

Based on some cases in the past decade, we concluded that some women suffering huge phyllode tumors might due to lack of knowledge, and paid little attention to health. The confusion was some knowledgeable wemen also suffered huge phyllode tumors. Except unwilling to face the illness, they might be influenced by regional culture and religious belief, and believed in some physical therapies or folk prescriptions. In one case, a woman refused to go to the hospital after she found the lump, but went to six different traditional healers, who prescribed her topical oils, massaged her breast, and performed prayers for her [20]. Unfortunately, the lump was still existed and grew up progressively. Our patient is a Chinese-American. She relied on Traditional Chinese medicine (TCM) at home because of shyness. With the mass continued growing, she was more shy and reluctant to local hospital, keeping taking chances that the tumor might shrink or disappear someday. Now, more and more wemen hope the traditional Chinese medicine can heal all diseases. TCM is always a widely accepted medical treatment in China [21]. The main functions of TCM are qi-tonifying, heat clearing, detoxicating, blood-activiating and stasis-resolving functions [22]. In recent years, TCM is increasingly used as a complementary and alternative approach for control of breast cancer recurrence and metastasis [23], through the clinical effect of TCM on survival lacks evidence from large-scale clinical studies. Different from Western medicine, which adopts ways to block a single transfer in a particular process, TCM adopts to improve the immune system of patients, and to strengthen the body's susceptibility to diseases. TCM also aims at reducing the side effects of radiotherapy and chemotherapy, reversing drug resistance [24]. However, TCM can't cure solid breast tumors and surgery is necessary. Something particularly worthy of mention is that a well-established and orderly system for Chinese medicinal formulae does not exist, which means many implicit prescription patterns have not been fully disclosed. It is necessary to popularize the knowledge about prevention of breast diseases, the skills of breast self-examination and psychological counseling. TCM can be effective only in proper usage.

Conclusions

Giant phyllodes tumors of the breast are rare. This case of giant phyllodes tumor is special by its wide size, related to patient's shyness, fear of breast cancer and blindly rely on TCM or physical massage. The mainstay of treatment is surgical resection. Choice of surgical procedures and status of surgical margins are mainly related to local recurrence and prognosis. Other treatments such as TCM, chemotherapy may be useful in palliation.

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