Clinical Case Report

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Recurrent malignant phyllodes tumor of the breast
A case report

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Abstract

Rationale: Phyllodes tumor is a rare fibro epithelial neoplasm of the breast. They resemble fibroadenomas clinically and can be mistakenly ignored sometimes.

Patient concerns: We report the case of a young woman with her first presentation to hospital due to a hypoglycemia and she underwent 2 excised fibroadenomas in the same breast before diagnosed of malignant phyllodes tumor. She was complaining about 2 masses presented in her right breast 4 months after mastectomy.

Diagnoses: Recurrent phyllodes tumor of the breast.

Interventions: We conducted an immediate autologous myocutaneous flap transplantation after a wide-excision. Postoperative radiotherapy was recommended.

Outcomes: She was in good general condition without tumor relapses during 8 months of follow-up.

Lessons: Recurrent fibroadenomas in the same breast, especially those of large size with rapid growth rate, suggesting a high transformation possibility from fibroadenoma to phyllodes tumor. We recommend an extended tumor resection and immediate or delayed reconstruction of the breast for the recurrent phyllodes tumor with separately multiple relapses.

Abbreviation: TRAM = transverse rectus abdominus myocutaneous flap.

Keywords: breast, fibroadenoma, hypoglycemia, phyllodes tumor, recurrence

1. Introduction

Phyllodes tumors are rare fibroepithelial tumors that account for <1% of all breast tumors. They resemble fibroadenomas clinically and can be mistakenly ignored sometimes. Studies have revealed the transformation possibility from fibroadenoma to phyllodes tumor.[1] Here we present a breast malignant phyllodes tumor patient who previously underwent 2 excised fibroadenomas in the same breast, and like some giant phyllodes tumors, her first presentation to hospital was due to a hypoglycemia.

2. Case report

A 27-year-old woman was admitted to the hospital with 2 masses in her right breast for 1 month. She reported her 3 previous right breast surgeries (Table 1) and had no family history of breast cancer. Despite having aware of the tumor for >5 years, she had not sought medical attention until her loss of consciousness due to a hypoglycemic attack in November 2009. In the previous 2 surgeries, she underwent partial mastectomy and histopathological examination revealed benign fibroadenomas. Total mastectomy was performed in the third time because of the large size of the mass (11 × 9 cm). Microscopic examination confirmed the diagnosis of malignant phyllodes tumor.

Physical examination revealed 2 masses in her right breast. One (6 × 4 cm) was palpated in the lower inner quadrant, covered with dark red skin, and the other (4 × 3 cm) in the lower outer quadrant. Lymph nodes in the axillary and other superficial areas were not palpable. Ultrasound examination revealed low-density masses with distinct boundary (Fig. 1). Computed tomography (CT) thorax, abdominal ultrasound, and bone scan showed no evidence of distant metastasis.

The options for treatment were discussed with the patient; an extended tumor resection and sampling of axillary lymph nodes were taken considering the rapid recurrence of the tumor. And the plastic surgery recommended an immediate-based autologous myocutaneous flap transplantation.

Postoperative examination showed a grayish-white, solid, elastic hard tumor with multifocal hemorrhage and necrosis. A high-grade malignant phyllodes tumor was diagnosed after the identification of atypia, marked stromal overgrowth, >10 mitoses per 10 high power fields, and the osteoid formation (Fig. 2). There was no evidence of lymphovascular or neural invasion. The final immunohistochemistry results demonstrated a

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Table 1

Summary of patient's clinical course.

Time	Description	Treatment
2009.11	Diagnosis of fibroadenoma	Partial mastectomy
2010.10	Diagnosis of fibroadenoma	Partial mastectomy
2016.6	Diagnosis of malignant phyllodes tumor	Mastectomy
2016.10	Local recurrence	Admission
2016.11	Diagnosis of recurrent malignant phyllodes tumor	Wide tumor resection and immediate TRAM flap transplantation
2016.11	Flap necrosis of the zone 4	Latissimus dorsi flap restoration

TRAM = transverse rectus abdominus myocutaneous.

Ki-67 index of 30%+ and the absence of MED12 mutations. Adjuvant radiotherapy was recommended because of the malignant character of the recurrent tumor and the limited surgical margins. To date, the patient was in good general condition with no evidence of recurrence.

3. Discussion

Phyllodes tumors are rather rare neoplasms of the breast accounting for only 0.3% to 1% of all breast tumors, with an annual incidence of about 2 per million women.[2,3] The World Health Organization classified phyllodes tumors into benign, borderline, and malignant categories on the basis of histological characteristics, including the degree of stromal atypia, mitotic activity, stromal overgrowth, and the tumor margins.

A fast-growing breast mass is the most common reason for patients to visit the hospital. One point should be mentioned in this case is our patient's first presence in a local hospital with a loss of consciousness. She had refused medical attention for >5 years until that time, with the mass diameter reached approximately 10 cm. After surgical excision of the tumor, hypoglycemia symptoms disappeared, and she had no past history of mental disease. It turned out to be benign fibroadenoma reported by the patient, but details were not available. It is known that nonislet cell tumor hypoglycemia (NICTH) generally occurs in mesenchymal tumors and hepatocellular carcinomas.[4] Giant phyllodes tumor of the breast can also lead to the development of hypoglycemia, whether it is benign or malignant.[5,6] However, no report of benign fibroadenoma causing hypoglycemia has been described in the literature, as in our case. May be there are some close biological relationships between the 2 fibroepithelial neoplasms, which could account for that, similar to phyllodes tumor, fibroadenoma can also produce hypoglycemia. Unfortunately, we have no more details to confirm the relationship between fibroadenoma and hypoglycemia.

Another interesting point is our patient's previous history of 2 excised fibroadenomas in the same breast, which is indicating the transformation possibility from fibroadenoma to phyllodes tumor. Fibroadenomas are composed of both epithelial and stromal component. A rare subset of fibroadenomas displays increased stromal cellularity, which should be considered as indicative of stromal transformation.[7] Linda et al revealed the transformation of a fibroadenoma into a phyllodes tumor by magnetic resonance imaging,[1] and the final pathology supported this process by demonstrating a portion of original fibroadenoma along the periphery of the malignant phyllodes tumor. Other studies identified that fibroadenomas can progress to phyllodes tumors by conducting clonal analysis.[8]

Surgery is the primary option for the treatment of malignant phyllodes tumor. However, the extent of surgery remains controversial. Excision of the tumor with negative margins of 1 to 2 cm is recommended.[9] Simple mastectomy is preferred if negative margins cannot be obtained. Local recurrence can hardly be avoided although underwent mastectomy, as in our case. However, the best type of surgery for phyllodes tumor with separately multiple relapses is rarely reported in the literature. We recommended an immediate transverse rectus abdominus myocutaneous flap (TRAM) transplantation after an extended resection of the tumor. Unfortunately, our patient developed flap necrosis of the distal zone 4, which was considered the most common complication using the TRAM flap.[10] She underwent latissimus dorsi flap restoration after necrosis removal at 15 days postoperatively and is now in good general condition.

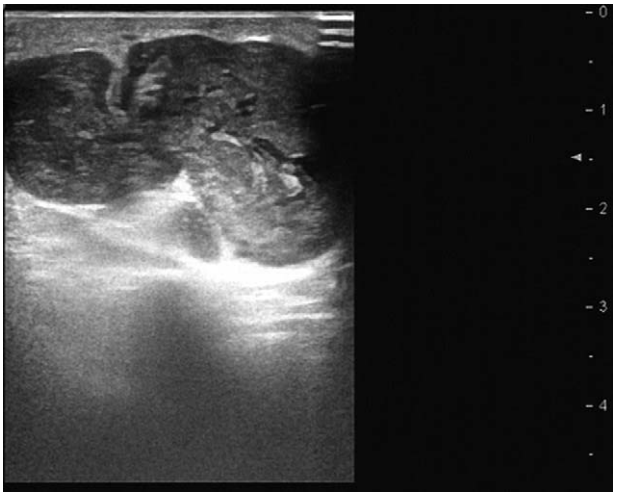

Figure 1. Ultrasound of the breast showed a smooth bordered, low-density and lobulated mass.

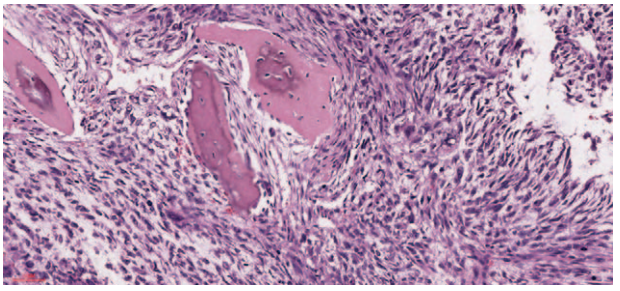

Figure 2. 200× magnification, H&E-stained section demonstrating enlarged spindled cells with high pleomorphism, markedly increased cellularity, and a high mitotic rate.

Separately multiple relapses, close margins, and the absence of MED12 mutations indicated a high risk of local recurrence.[11] We recommended radiotherapy to our patient for local control, although its impact on disease-free or overall survival remains controversial.[9] The role of adjuvant chemotherapy also needs a further study. There is no consensus on the role of chemotherapy in malignant phyllodes tumor.

4. Conclusions

In conclusion, phyllodes tumors should be accurately recognized and effectively treated at first diagnosis, as these tumors have a high risk of recurrence. Overlapping features and the transformation possibility make some fibroadenomas and phyllodes tumors indistinguishable at first presentation. We suggest paying more attention to those with a high incidence of fibroadenomas, so as to make accurately and effectively first diagnosis. Furthermore, standard therapeutic strategy for phyllodes tumor is in urgent need to reduce the risk of tumor recurrence.

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