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Management of Benign Phyllodes Tumor With Close Margins: A Case Presented in Multidisciplinary Session With Clinical Discussion and Decision Making

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ABSTRACT

Background: Phyllodes tumors (PTs) are a small group of fibroepithelial breast lesions, which are classified as benign, borderline, or malignant. Traditionally, a margin of 1 cm has been suggested as the standard of care for all groups of PTs. According to new studies and recent updates, the recurrence rate of benign PT is low and not associated with the surgical margin status. There is still a controversy for PT surgical margin.

Case Presentation: A woman with the primary diagnosis of fibroadenoma in core needle biopsy underwent surgery. The pathology report showed benign PT and margins about 1 mm in some areas. This case was presented in the weekly breast multidisciplinary team session of the Department of Breast Surgery, Tehran University of Medical Sciences.

Question: The question was whether re-excision was necessary to achieve the safe surgical margin.

Conclusion: In accordance with the latest published evidence, the members of the panel decided to accept the margin, informed the patient about the risk of recurrence, and recommended close follow-up.

Introduction

Phyllodes tumors (PT) are rare fibroepithelial tumors that can affect women of all ages, with the median age at presentation being 45 years.[1] Since the description of "cystosarcoma phyllodes" by Johannes Mueller first in 1838, numerous synonyms and histologic classification systems have been introduced. The World Health Organization (WHO) prefers the use of "phyllodes tumors."[2] These tumors are classified as benign, borderline, or malignant based on histologic parameters such as mitotic activity, stromal cell atypia, stromal overgrowth, stromal heterologous component, stromal necrosis, and infiltration of normal breast tissue.[3]

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Core needle biopsy constitutes the pathological basis of the preoperative diagnosis of PT; however, it is not accurate enough to offer perfect guidance for surgical decisions.[4] The high underestimation rate in these conditions makes the surgical planning complicated. When the tumor to breast ratio is too high to allow a satisfactory cosmetic outcome with segmental excision, total mastectomy either with or without reconstruction could be considered.[5] Axillary lymph node dissection is recommended to be performed only for clinically suspicious nodes, although it is unlikely that malignant cells would be found in them.[6] There is no evidence for an effective role of adjuvant chemotherapy in the treatment of PT.[7] Controversy exists as to the size of initial resection and need for revision surgery to achieve adequate margins. Guidelines have advocated wide excision with margins ≥ 1 cm for all kinds of PT.[7,8] However, this cannot always be achieved, as the observation of margins closer than 1 cm in pathologic evaluation is common—a situation that

often questions the necessity of a surgical revision of margins.

Case Presentation

A 46-year-old woman with a family history of breast cancer presented to our breast clinic with a chief complain of the left breast mass. The mass, measuring 20 × 20 mm, was palpable in the upper outer quadrant of her left breast. It was soft, nontender, and mobile with a regular border. No palpable axillary lymph node was found. In mammography, there was an ill-defined mass in the upper outer quadrant of the left breast with a BIRADS score of 3. Ultrasonography reported an oval-shaped, well-circumscribed hypoechoic lesion measuring 19 × 15 mm with lobulated borders at the 2-o'clock position parallel to the skin. Internal vascularity was seen within the mass and ultrasonography did not show any suspicious axillary lymph nodes with scoring of 4a in BIRADS assessment categories. Pathology report of core needle biopsy of the mass was fibroadenoma. The patient underwent surgery out of concern due to the family history. Analysis of permanent pathology sections showed clefts of epithelial cells surrounded by hypercellular stroma. Stromal cells displayed mild pleomorphism with scanty mitotic figures (0-1 per 10 high-power fields [HPF]) with no evidence of necrosis. These findings suggested benign PT. All surgical margins were free, and the closest margins were located at the superior, and lateral area. They were both 1 mm.

Question

The case was presented at the weekly breast multidisciplinary team session at the Department of Breast Surgery, Tehran University of Medical Sciences. The question was whether the patient should be reoperated on to obtain more extensive margins.

Discussion

Each type of PT requires different management. Malignant PTs are characterized by marked stromal cellularity and atypia, infiltrative margins, high mitotic rate (more than 10 mitoses per 10 HPF), and the presence of stromal overgrowth.[9-11] Surgery is the standard treatment for malignant PT. Surgical margins of ≥ 1 cm are accepted by most resources and guidelines.[7, 8, 12-14] The surgery includes breast-conserving surgery or mastectomy depending on the size of the tumor.[9,15-17] It has been accepted that lymph node dissection is not recommended.[6, 12-14] Adjuvant therapies (radiotherapy and chemotherapy) have no clearly defined role in the treatment of nonmetastatic malignant PT. Several studies suggest that adjuvant radiotherapy could reduce local recurrence when adequate surgical margins cannot be achieved.[11,14,18-21] Hormone therapy is not effective against malignant PT.[14, 22, 23] Borderline PTs have a greater degree of stromal cellularity and atypia, a mitotic rate of 4 to 9 mitoses per 10 HPF, microscopic infiltrative borders, and a lack of stromal overgrowth.[9-11] The approaches to breast surgery, axillary management, and the surgical margins in the borderline PT are almost the same as malignant PT.[5-9, 12-14, 17] Previous studies and guidelines suggested that margin-negative excision was not an adequate treatment for borderline PT and often recommended a margin width of at least 10 mm.[7, 8, 24-26] Patients with borderline PTs are usually cured with surgery and should not be offered chemotherapy.[14] The use of radiotherapy for borderline PT is controversial, but several studies recommend it when the sufficient margin cannot be achieved.[11, 14, 18-21] Hormone therapy for borderline PT is ineffective.[14,22,23]

Benign tumors are characterized by an increased stromal cellularity with mild to moderate cellular atypia, circumscribed tumor margins, low mitotic rates (less than 4 mitoses per 10 HPF), and a lack of stromal overgrowth.[9-11] Although surgical management of malignant and borderline PTs are similar, there is a controversy about management of benign PTs. The main discussion is about the surgical margins and the rate of recurrence. In earlier reports, benign, borderline, and malignant PTs had local recurrence rates of 8, 21, and 36 percent.[27,28] A review article studied the relationship between surgical margins and the rate of recurrence in all kinds of PT (Table 1).[29] For many years, the acceptable resection margin for PT has been 10 mm. The authors of some guidelines such as the National Comprehensive Cancer Network (NCCN) and MD Anderson believe that a margin of ≥ 1 cm should be applied to all types of PT.[7, 8] The editors of *Diseases of the Breast* agree with this approach,[12] but the American Society of Breast Surgeons (ASBS) suggests that benign PT diagnosed after excision can be managed with close follow-up.[13] According to Up-To-date, authors accept a narrower but clear margin for benign PT.[14] The reason scientists have agreed with the wide excision is that surgical margin is one of the causes of recurrence.[30-35] Wider excisions appear to reduce the risk of local recurrence, while close margins cause local recurrence in all types of PTs.[30,36] Recent studies have shown that, regardless of surgical margin status, benign PT has a very low rate of local recurrence.[1,24,37-41] Barth and Kim et al showed that no clinical, histologic, or surgical factor influences local recurrence of benign PT.[24,37] Several researchers found that there was no statistical advantage of a 10-mm margin compared with a 1-mm one in benign PT.[29, 31, 37, 42-44] Furthermore, when benign PT is unexpectedly diagnosed at ultrasound-guided, vacuum-assisted excision, clinical follow-up may be preferred over further surgery.[40, 41] There are some data that support the negative margin for benign PT.[24, 42] Cowan et al found that patients with benign PT and positive margins on initial excision might be

Table 2. Main Characteristics of the Studies Evaluating the Diagnostic Value of Mammography

Author	Recurrence in benign PT	Recurrence in borderline PT	Recurrence in malignant PT	Margin definition
Karim et al[51]	3/30 (10%)	3/20 (15%)	2/6 (33%)	10 mm
Bhargav et al[52]	3/7 (42.8%)	2/5 (40%)	4/13 (31%)	10 mm
Guillots et al[53]	7/114 (6.1%)	8/37 (21%)	0/14	10 mm
Lin et al[54]	0/8	3/13 (23%)	6/12 (50%)	10 mm
Kim et al[55]	5/50 (10%)	3/22 (13%)	1/10 (10%)	1 mm
Kim et al[37]	5/145 (3.4%)	6/33 (18%)	7/15 (46%)	1 mm
Sawalhi and Al-Shatti[44]	2/16 (12.5%)	1/9 (11%)	6/17 (35%)	1 mm
Tan et al[56]	48/399 (12%)	16/103 (15%)	16/50 (32%)	Focal involvement of the margin
Tsang et al[57]	15/92 (16.3%)	12/42 (28%)	6/21 (28%)	Focal involvement of the margin
Jang et al[31]	12/82 (14.6%)	9/42 (21%)	10/40 (23%)	Focal involvement of the margin
Nishimura et al[58]	3/29 (10%)	0/11	3/3 (100%)	Focal involvement of the margin
Wei et al[48]	9/80 (11%)	10/63 (16%)	12/49 (24%)	Focal involvement of the margin

managed conservatively.[39] Recent studies suggest that the close follow-up approach could be sufficient in cases of benign PT diagnosed postoperatively, even if margins were < 1 cm.[25, 32, 45, 46] A 1-mm margin in benign PT has been advocated recently.[33, 44, 47-49] It seems that benign PTs are seen differently than borderline and malignant PTs. Onkendi and colleagues showed that the extent of surgical resection does not affect disease-free survival in patients with borderline and malignant PT.[17] Sevinc recommended that revision surgery should not be performed for close or positive surgical margins for benign and borderline PT.[50]

Multidisciplinary team (MDT) recommendation

For this patient with benign PT and 2 close margins about 1 mm, members of breast MDT in Breast Surgery Department, Imam Khomeini Hospital, Tehran University of Medical Sciences, did not recommend re-excision. Factors that helped MDT to accept these margins were the very low rate of local recurrence of benign PT, good prognosis, and the patient's concern. Thus, MDT members decided to accept the margin and informed the patient about the risk of recurrence and the need for follow-up imaging.

Conflict of Interest

The authors have nothing to disclose.

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