Bratisl Lek Listy 2010; 111 (5)
271 – 274

CLINICAL STUDY

Phyllodes tumor of the breast; a case series

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Abstract: *Background:* Phyllodes tumor (PT) is a rare neoplasm comprising less than 1 % of all breast tumors. Its clinical spectrum ranges from a benign and locally recurrent form of behavior to malignant and metastatic forms. The aim of the study was to evaluate the clinical characteristics, treatment regimens, survival and late complications in patients with PT.
Patients and methods: We retrospectively reviewed the medical records of 10 women who were treated for PT in our center between 1998 and 2002. All cases were histologically examined by an experienced breast pathologist, and tumors were classified as benign, borderline malignant or malignant according to standard histological criteria.
Results: The median age at diagnosis was 45.5 years (range: 21–69 years). Seven (70 %) of 10 tumors were benign and 3 (30 %) were malignant. The median tumor size was 29 mm (range: 12–80 mm). The least safe margin was 1 cm. Three of 10 patients had malignant PT and underwent simple mastectomy. Local recurrence was determined in no patients. Only one patient had lung metastasis. Median follow-up period was 62 months (range, 12–96 months). The patient with lung metastasis was treated with doxorubicine but died one year after the operation.
Conclusion: PT is a rare neoplasm of the breast. It resembles fibroadenoma. Local excision with appropriate surgical margins seems adequate in all patients *(Tab. 1, Fig. 3, Ref. 15)*. Full Text (Free, PDF) *www.bmj.sk.*
Key words: phyllodes tumor, surgery, prognosis, breast neoplasm.

The most frequently encountered non-epithelial malignancies of the breast are lymphomas, sarcomas, and malignant melanomas. One of the most infrequent neoplasms is the phyllodes tumor (PT) which constitutes only 0.3–0.9 % of all breast tumors (1). PT is a rare fibroepithelial breast tumor that occasionally has an unpredictable clinical behavior. It is generally classified as a benign, borderline, or malignant tumor according to the degree of cellular atypia, mitotic activity, nature of tumor margins, and presence of stromal overgrowth (2). The majority of cases are benign (3). According to Kario et al (4), the most important clinical problem is the discorrelation of histological parameters with clinical course.

In this study, we investigate the histologic features, size, methods of biopsy, and clinical outcomes of 10 patients.

Patients and methods

890 patients had the diagnosis of breast tumor (benign or malign) in our center from 1998 to 2002. Ten (1.12 %) of these patients with PT were retrospectively evaluated in this study. All cases had a palpable mass in the affected breast but no palpable axillary, supraclavicular or cervical lymphadenopathy. Ultrasonography, mammography and chest x-ray radiography were performed for the cases. Chest and abdomen CT scans were performed only for borderline and malignant lesions to rule out a metastatic disease. Excisional biopsy was done for lesions smaller than 5 cm while incisional biopsy for lesions larger than 5 cm. Wide local excision was performed for small lesions, and mastectomy was performed for malignant or large lesions to obtain adequate margins. Lymph node dissection, radiation therapy and chemotherapy were performed in no cases. Median values were used for demographic characteristics. Mortality and survival rates are expressed as percentage. Overall survival rates were estimated by using Kaplan-Meier analysis.

Results

Table 1 shows the split of numbers of cases with PT according to age, sex, biopsy method, classification, safe margin, operation type, recurrence, metastasis and follow-up.

The median age at diagnosis was 45.5 years (range: 21–69 years). Seven (70 %) of 10 tumors were benign, and 3 (30 %) were malignant. The median tumor size was 29 mm (range: 12–80 mm). In 80 % of cases, patients presented with a breast lump. Rapid growth of the whole breast was reported in 30 % of patients, whereas mastodynia was noted in 40 % of cases. Excisional

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Tab. 1. Clinical characteristics of the patients with phylloides tumor.

No	Age	Localisation	Size (mm)	Classification	Biopsy method	Locally recurrence	Safe margin (cm)	Metastasis	Follow up (month)
1	21	R	15	Benign	Excisional	No	1	No	96
2	50	R	39	Benign	Excisional	No	1	No	46
3	32	R	12	Benign	Excisional	No	2	No	84
4*	62	L	31	Malign	Excisional	No	3	No	46
5*	22	R	80	Malign	İncisional	No	2	No	40
6	65	R	32	Benign	Excisional	No	1,5	No	84
7	69	L	28	Benign	Excisional	No	1,5	No	72
8	41	R	25	Benign	Excisional	No	1	No	92
9**	50	R	40	Malign	Excisional	No	1,5	Yes	12
10	23	R	15	Benign	Excisional	No	1,5	No	48

*Underwent simple mastectomy
**Underwent simple mastectomy and lung metastasis appeared one year after the operation.

biopsy was performed in the majority of patients (90 %). Incisional biopsy was done only in one patient whose lesion was 80 mm in diameter. Simple mastectomy was performed in patients with malignant PT (n:3) after biopsy. The least safe margin was 1 cm. Local recurrence was determined in no patients. The tumor metastasized in one patient. The metastasis appeared in the lungs one year after the operation. The latter patient was treated with doxorubicine but died one year later.

Nine patients (90 %) were disease-free at a median follow-up period of 62 months (range, 12–96 months). One patient died due to progressive disease. The estimated overall survival of the whole group was 90 %.

Discussion

Fibroepithelial tumors of the breast represent a heterogeneous group of biphasic neoplasms ranging from benign to malignant tumors. They include fibroadenoma and PT. PTs constitute 0.3 % to 0.9 % of all breast neoplasms (1). The majority of PTs are benign (1–7). Few patients have bilateral tumors (5, 6).

Clinically, PT resembles fibroadenoma but tend to occur in older women. The patients present with a breast lump and rapid growth of the whole breast or mastodynia. On gross inspection, small PT is well circumscribed and generally indistinguishable from fibroadenoma. It is common for a „fibroadenoma“ to be reclassified as PT after excision of a mass reoccurring months or years later. In the study by Hassouna et al (5), 106 patients with PT were reviewed, retrospectively. They reported only nine patients with the history of a benign breast lump, and seven cases were confirmed as fibroadenomas. Thirty-seven percent of the patients with PT had the history of fibroadenoma (6). In our study, eight patients had benign breast lump in their history and 50 % of them had the history of fibroadenoma.

The diagnosis of PT is difficult since the rapid growth and/ /or large size of apparent fibroadenoma may be the only imaging findings suggestive of PT (8, 9). Mammograms are abnormal in 75 % of patients with PT. The most frequent anomaly is the regularly oval margin. However, PT often mimics fibroadenoma at mammography (8, 9). Ultrasonography typically shows a homogeneous, solid-appearing mass with low-level internal echoes, smooth walls, and good through transmission. In our patients, ultrasonographic image showed a well-circumscribed, oval-shaped mass with a slight posterior acoustic enhancement. Please note also the heterogenous hypoechoic texture of the mass (Fig. 1). The role of MRI has not been fully elucidated but the dynamic enhancement patterns may be helpful for the diagnosis of larger tumors (10). The study by Yabuuchi et al (11) evaluates the magnetic resonance imaging findings of PT with regard to histologic grades. Several MR findings, such as signal intensity being higher than that of normal breast tissue on T1-weighted images, cystic change with irregular wall, signal intensity being lower or equal to that of normal breast tissue on T2-weighted images, and/or low ADC on diffusion-weighted images are suggestive of histopathologically malignant PT of the breast. PT arises from periductal stroma and may contain very few lobular elements. Although the histological appearance can be very heterogeneous,

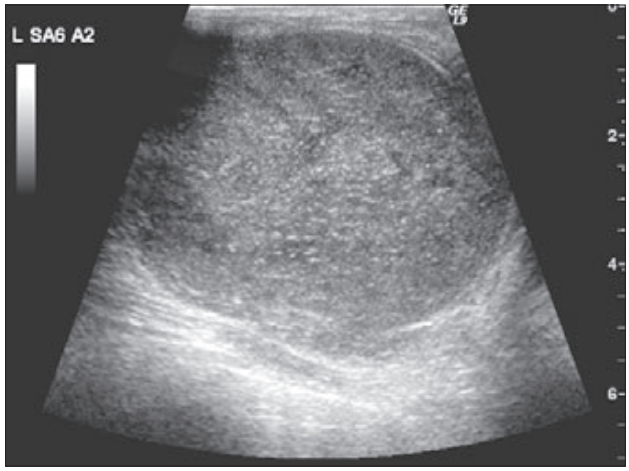

Fig. 1. Fifty-year-old woman with a palpable mass in the left breast. Transverse sonography image shows a well-circumscribed, oval-shaped mass with a slight posterior acoustic enhancement. Please note also the heterogenous hypoechoic texture of the mass. It was confirmed as phyllodes tumour on surgical biopsy.

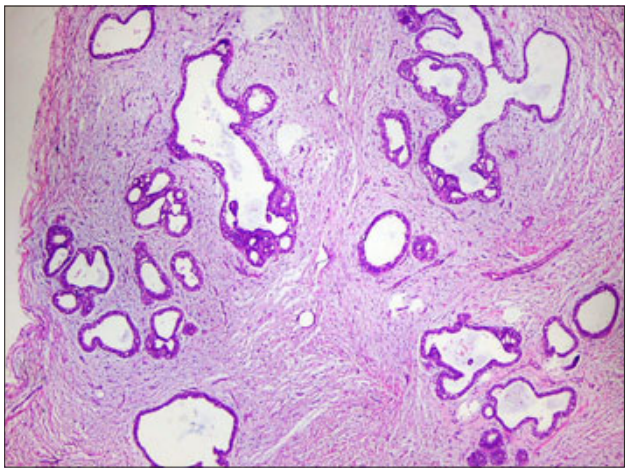

Fig. 2. Stromal hyperplasia pronounced around the epithelial structures in a phyllodes tumor, HE x200.

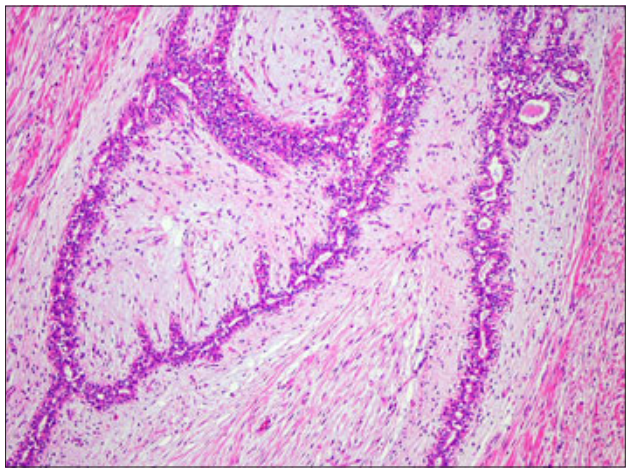

Fig. 3. Proliferative epithelium lining the epithelial clefts is consistent with usual epithelial hyperplasia in a phyllodes tumor, HE x200.

PT is mostly characterized by the expansion and increased cellularity of the stromal component, which can be pronounced in the periductal areas together with the mitotic activity (Fig. 2). In addition, the presence of elongated epithelial-lined clefts is a feature of PT. It is important to distinguish the benign form from the low-grade malignant form of PT since the latter has a potential to metastasize and reoccur locally with high-grade morphology. The mitotic activity of benign PTs is usually very small, i.e. rarely exceeding 1–2/10HPFs. On the other hand, malignant PTs have a marked degree of hypercellularity and their mitotic activity is typically greater than 5 mitoses/10HPFs. Cases with in-between mitotic activity are considered as PTs with low or borderline malignant potential. While epithelial hyperplasia is usually neither a feature of fibroadenoma nor that of benign PT (Fig. 3), it is almost a consistent finding in borderline and malignant forms (2, 4, 6).

Taking this fact into consideration, the initial approach to the management of cases suspected of PT diagnosis should rely on excisional biopsy with at least one-centimeter margins. Although total mastectomy is suggested in cases of tumors being larger than 5 cm or in those of malignant PTs, the relation between the size of the lesion and that of the breast should always be considered. Axillary lymphatic sampling is suggested for patients with palpable axillary lymph node (1–7). Excisional biopsy was performed in patients with benign PT. In our patients, the least safe margin was 1 cm. The patients with malignant PT underwent simple mastectomy.

The surgical margins, tumor size, and tumor grade significantly increase the local recurrence (12) but the type of operation does not significantly correlate with local recurrence rates (13). In our study, no local recurrence was determined but lung metastasis developed in one patient one year after of the operation.

The roles of radiation therapy and chemotherapy are not established. At present, there is no consensus on the benefit of patients with high-grade PT of breast from either of these modalities (14). The role of adjuvant chemotherapy in malignant PT of breast was evaluated in the study by Morales-Vásquez (15) and adjuvant chemotherapy with doxorubicin and dacarbazine was found to be not effective in patient survival. In our patient who developed lung metastasis, the institution of doxorubicin-based chemotherapy did not change the outcome. Although we have no experience in the efficacy of radiotherapy, it should be considered an option in cases with local recurrence.

In summary, PT of breast is a rare neoplasm, and its prognosis and treatment are still debatable. Due to the properties of PT, surgical excision is the mainstay treatment.

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Received December 8, 2009.
Accepted Ferbuary 3, 2010.