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Phyllodes tumors of the breast: a case series of 106 patients

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Abstract

Background: Phyllodes tumors (PTs) of the breast are rare, and their prognosis and treatment are still subject of discussion. The purpose of this study is to clarify therapeutic aspects and prognostic factors of this disease.
Patients and Methods: We retrospectively reviewed the medical records of 106 patients who had histologically confirmed PTs collected over a period of 10 years.
Results: The mean age was 39.5 years (14–71 years). The mean tumoral size was 83 mm (15–250). According to criteria of Azzopardi and Salvadori, tumors were classified into 3 groups: benign (62 cases, 58.4%), borderline (16 cases, 15%), and malignant (28 cases, 26.4%). Eighty-two patients (77.4%) were treated conservatively (62 benign, 11 borderline, and 9 malignant) and 24 (22.6%) by radical surgery (5 borderline and 19 malignant). For malignant PTs treated by enucleation or local excision with or without reexcision of the tumor bed, the 5-year overall and disease-free survivals were 28.5% and 15.6% versus 72.7% and 73.6% when the surgery was radical (mastectomy with or without axillary dissection) ($P = .12$ and $P = .0022$). For the other histotypes, this difference disappeared. The rate of recurrence was 12.2% (13) after a mean follow-up of 39 months (5 benign, 2 borderline, and 5 malignant). The treatment of recurrences consisted of radical mastectomy (8 cases), simple mastectomy (2 cases), and local excision in 3 cases. Eight patients developed metastases, 2 of whom after recurrences. The 5-year overall and disease-free survivals were 86.54% and 78%, respectively. In univariate analysis, age and recurrences are not of prognostic value for survival, whereas tumor size, histotype, necrosis, cytonuclear atypia, tumor margins, and number of mitosis were significant prognostic factors for survival. In a multivariate study, only cytonuclear atypia remained an independent predictor for survival.
Conclusion: According to our results, we recommend for malignant PT a simple mastectomy, whereas for borderline and benign PT, treatment is based rather on wide excision passing in healthy tissue.

Keywords: Phyllodes tumor; Surgery; Prognosis; Breast neoplasm

Phyllodes tumor (PT) is a rare neoplasm of the breast that accounts for 1% of all breast tumors and 2% to 3% of fibroepithelial breast tumors [1–3]. PTs are usually seen in women aged 35 to 55 years, and only a few cases have been reported in men [4–6]. They are usually large tumors associated with skin ulceration in some cases. They are characterized by a leaf-like appearance with more abundant and cellular stroma than that of an adenofibroma. Surgery is the cornerstone of treatment. More than 62 different definitions have been used to define this breast tumor, but because of the lack of standard interpretation of the histological features and small size of reported series, the prognosis and clinical behavior of PTs remain poorly understood. This study aims to examine the clincopathologic features and clinical outcome in 106 cases of PT and determines therapeutic and prognostic aspects of this disease.

Patients and Methods

We retrospectively reviewed the medical records of 106 patients who had histologically confirmed PTs collected

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between 1986 and 2001. The tumours were classified as follows into benign, borderline, and malignant according to standard criteria [1,7]: benign (0–4 mitoses/10 high power fields (hpf), pushing margins, and minimal or moderate stromal overgrowth with minimal stromal cellularity and atypia), borderline or low-grade malignant (5–9 mitoses/10 hpf, pushing or infiltrating margins, moderate stromal cellularity, atypia, and overgrowth), and malignant or high-grade PTs (>10 mitoses/10 hpf, infiltrating margins, moderate to marked stromal cellularity, atypia, and overgrowth). The age at diagnosis, tumor size, margin status, treatment, and clinical outcome were known in all cases.

In our center, specimen margins were assessed by histological examination of shavings obtained from the circumferential margins of the specimens. All patients underwent surgery without adjuvant treatment at diagnosis. Statistical analysis was performed with SPSS software version 11.5 for Windows (SPSS Inc, Chicago, IL). A Pearson chi-square test was used to investigate the relationship between age and histological type of PT. Receiver operating characteristic curves were used to determine the statistical cutoff points of numeric variables. Survivals were calculated according to the Kaplan-Meier method. Patients who died of intercurrent disease or who were lost to follow-up were censored at the time of last known follow-up. Comparison between curves was assessed by using a log-rank test. Multivariate analysis was performed by using the Cox regression model. A P value $<.05$ was considered to be statistically significant.

Results

Clinical characteristics

The mean age of patients was 39.6 years (range, 14–71). The mean ages for benign, borderline, and malignant PTs were 33.5, 41, and 41.1 years, respectively. Malignant and borderline PTs occurred in 77.3% of cases in patients older than 35 years versus 45.2% for benign PTs ($P = .001$; odds ratio, 4.1). The average duration of symptoms was 9 months (range, 2–180). In 74% of cases, patients presented with a breast lump. Rapid growth of the whole breast was reported in 24% of patients, whereas mastodynia was noted in 2% of cases. The tumor was localized in the left breast in 52.2% of cases, and bilateral disease was found in 1 patient at diagnosis. Among premenopausal women, 31% were nulliparous. Only 9 patients reported a previous history of a benign breast lump. Seven cases were confirmed as fibroadenomas and 2 as fibrocystic changes. One patient had a family history of breast cancer in a first-degree relative, and one had had a wide excision of dermato fibrosarcoma protuberans of the contralteral breast. Multifocality (2–5 lumps) was found in 13 cases, of which 6 were benign PTs, 4 borderline PTs, and 3 malignant PTs. The skin was involved in 18% of cases. No patient had metastatic disease at diagnosis.

Table 1
Correlation between mammographic features and histotype

	Benign	Borderline	Malignant	Total
Regular margins	56	3	0	59
Irregular margins	0	5	15	20
Total	56	8	15	79

Table 2
Results of treatment according to the histotype and extent of surgery

	Breast-sparing surgery	Simple or radical mastectomy	
	5 year-recurrence free survival	5 year-recurrence free survival	
Histotype			
Benign	—	—	—
Borderline	11 (25%)	5 (75%)	NS
Malignant	9 (41.6%)	19 (91%)	.0014
Total	82 (81.4%)	24 (87.4%)	NS

NS = not significant.

Imaging findings

Mammography was performed in 79 cases. The opacity was unique in 92% of cases. The mean size of masses was 65 mm (10–200). They were well circumscribed in 59 cases and poorly defined and irregular in 20 cases. The mean sizes on mammography were 57, 79, and 86 mm for benign, borderline, and malignant PTs, respectively. The correlation between the mammographic aspects and the histological type is represented in Table 1. Macrocalcifications were found within one opacity corresponding histologically to malignant PT.

Mammary ultrasonography was performed in 86 patients, benign features including hypoechoic feature were seen in 93% of cases, and well-circumscribed margins and posterior acoustic enhancement in 85% of cases.

Primary treatment

All patients underwent surgery. A total of 57 patients were treated with local excision with or without re-excision of the tumor bed (38 benign, 11 borderline, and 8 malignant), 25 with enucleation (24 benign and 1 malignant), and 24 by radical surgery (19 radical mastectomy and 5 simple mastectomy). The correlation between the surgical treatment and histotype is represented in Table 2. Radical surgery was performed in 46.4% of tumors larger than 100 mm. The relationship between surgical treatment and tumor size is represented in Table 3. Adjuvant radiotherapy and chemotherapy were not provided as first-line treatment.

Histopathological features

Histopathologic details were available for all patients. The average size of the neoplasm was 83 mm (range, 15–