

A COMPARATIVE STUDY BETWEEN SURGICAL APPROACH AND HISTOLOGIC GRADING OF PHYLLODES TUMOR FOR RISK OF LOCAL RECURRENCE.



Surgery

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ABSTRACT

OBJECTIVE : Phyllodes tumor of the breast (PTB) is a rare tumor type among all kinds of breast tumor, its incidence rate is 2% to 3% in all breast fibrous epithelial tumor, or 0.3% to 1.0% in all breast tumor. In 2003, the WHO's international histological classification group suggested that it be named phyllodes tumor, and divided into three subtypes: benign, borderline and malignant. Breast phyllodes tumor occur in women aged 35 to 55 years. The aim of this study is to evaluate whether the recurrence in phyllodes tumor depends on surgical approach taken to excise the tumor or it depends on the histological grading of the phyllodes tumor. **METHOD :** This is a retrospective cohort study carried out in Midnapore Medical College after proper ethical clearance from ethical committee of medical college and with proper patient consent. Cohort formed 5 years back are followed up and studied in case of phyllodes tumor. All those patients who undergone surgical resection for phyllodes tumor are traced with their histopathological report and recurrence if any is recorded and analysed. **RESULT :** Out of total 22 patients taken into cohort analyses, 19 (86.36 %) patients undergone simple mastectomy whereas 3 (13.63%) patients undergone wide local excision for phyllodes tumor. In histopathological report 9 (40%) found out to be benign, 8 (36.36%) found out to be borderline, and 5 (22.72%) found out to be malignant phyllodes tumor. Chi square statistics is applied on comparison between recurrence and histopathology and p value found out to be significant at $p < 0.05$ (p-value = 0.0259). similarly chi square statistics is applied on comparison between recurrence and surgical approach and p value found out to be non-significant at p -value < 0.05 (p-value = 0.3288). **CONCLUSION :** From this small sized retrospective cohort study it is formulated that recurrence of phyllodes tumor depends more on histopathological grading (p-value = 0.0259) rather than the surgical approach (p-value = 0.3288) used to excise the tumor.

KEYWORDS

Phyllodes tumor, local recurrence, histologic grading

INTRODUCTION :

Breast phyllodes tumor lesions are often unilateral, single, nodular, painless masses with an insidious onset and slow progression. Most patients have a history of masses that grow rapidly in the short term. The tumor activity is good, free to push on the chest wall. Tumor volume varies widely, as some studies have reported that the tumor size ranges from less than 1 cm to a maximum of 40 cm in diameter. Breast phyllodes tumor is mostly nodular on the surface, with a clear boundary and no true capsule. It is sometimes ill-defined because some lesions invade surrounding breast tissue. The tumor section is lobulated, solid and tough, in grey or grey-yellow colour. Narrow gaps or cavities of different sizes are common, containing clear or bloody fluid or jelly-like substances. The solid part is braided, with a polypoid oppressing the cysts, visible focal haemorrhage, necrosis and cystic changes. Breast phyllodes tumor includes mesenchymal and epithelial components. Benign epithelial components often form ducts or liners overlying the cavity or fracture surface. Real tumor components are hyperproliferative interstitial cells, namely fibroblasts. These cells have lost the normal arrangement, and are braided, mesh or spiral-shaped. Tumor cells can be uniformly dispersed, with unequal density in different regions and varying degrees of atypia and a variable number of mitotic figures. There may be mucoid degeneration and necrosis or haemorrhage. Epithelial components can be varying, but in general the worse the stroma differentiation, the fewer the epithelial component. Recurrent tumor histology is basically the same as primary tumor, or with a tendency to malignancy. Previous studies have shown that breast phyllodes tumor metastases contain only malignant mesenchymal components

selected to remove any bias. No patient bias is present in this study as it is a retrospective cohort.

Exclusion Criteria:

1. Patients with comorbidities.
2. Loss of follow up.

Inclusion Criteria:

1. Patients where proper cohort and follow up available.
2. Patients of nearly same socioeconomic status, geographical area and age group.

Study design : Hospital based retrospective cohort study.

Study tool : Histopathological report, Microsoft excel, computer, SPSS software, Turnitin software, paper, pen.

Study technique : All those patients of nearly similar socioeconomic status, geographical area and age, who shows primary recurrence after proper surgical excision of phyllodes tumor are taken into account by hospital institute based retrospective cohort of 5 years. Histopathological report is recorded and two groups are formed. In first group patients are categorised according to their histological grading obtained from histopathological report and recurrence. In another group patients are categorised according to their surgical approach used initially to excise the primary tumor and recurrence. Both groups are analysed separately by 2 by 2 and 3 by 2 contingency table using chi square statistics.

Ethics : Ethical clearance is taken from the medical college ethical committee

Patient consent : Work is channelise through and after proper patient consent.

Statistical Analysis:

Excel software is used for data recording and SPSS software is used for data analyses. Turnitin software is used for plagiarism. In this retrospective cohort study two groups are formed. First group comprises of comparison between histologic grading and recurrence

and second group comprises of comparison between surgical approach used primarily and recurrence. Both groups are analysed separately using chi square statistics. Surgical approach number of cases Percentage Wide local excision 3 13.64 % Simple mastectomy 19 86.37%

Table 1.

Surgical approach	number of cases	Percentage
Wide local excision	3	13.64 %
Simple mastectomy	19	86.37%

Total 3 patients (13.64%) undergone wide local excision while total of 19 patients (86.37%) included in the study undergone simple mastectomy.

Table 2.

Histological grading	Number of cases	Percentage
Benign	9	40.9%
Borderline	8	36.37%
Malignant	5	22.72%

Total 9 patients (40.9%) shows benign histologic grading, total 8 patients (36.37%) shows borderline histologic grading and total 5 patients (22.72%) shows malignant histologic grading.

Table 3.

Surgical approach	Recurrence	No recurrence	Total
Wide local excision	1 (1.77) [0.34]	2 (1.23) [0.49]	3
Simple mastectomy	12 (11.23) [0.05]	7 (7.77) [0.08]	19
Total	13	9	22

The chi square statistics is 0.9534. **The p-value is 0.328864. The result is not significant at p<0.05.**

Table 4.

Histological grading	Recurrence	No recurrence	Total
Benign	1 (2.86) [1.21]	8 (6.14) [0.57]	9
Borderline	2 (2.55) [0.12]	6 (5.54) [0.05]	8
Malignant	4 (1.59) [3.65]	1 (3.4) [1.70]	5
Total	7	15	22

The chi square statistics is 7.3007. **The p-value is 0.025982. The result is significant at p<0.05.**

Table 5.

Pathological characteristics	Histological type		
	Benign	Borderline	Malignant
Stromal cell atypia	Mild	Moderate	Severe
Interstitial cell hyperplasia	Mild	Moderate	Severe
Mitotic	<4/10 HPF	4–9/10 HPF	≥10/10 HPF
Tumor boundary	Clear	Clear or infiltration	Infiltration

RESULTS:

In this retrospective study it is found that out of total 22 patients taken into account after proper exclusion and inclusion criteria, 19 patients i.e. 86.37% undergone simple mastectomy and 3 patients i.e. 13.64% undergone wide local excision. Total 9 patients (40.9%) shows benign histologic grading, total 8 patients (36.37%) shows borderline histologic grading and total 5 patients (22.72%) shows malignant histologic grading.

Two groups are formed to compare between surgical approach and histologic grading with recurrence. Chi square statistics is being applied to both group. It is found that p value of group comparing between surgical approach and recurrence is found out to be non-significant (0.3288) while that of group comparing between histologic grading and recurrence is found out to be significant (0.0259).

DISCUSSION:

Surgery is the preferred treatment for PTB. Preoperative CNB or excision biopsy diagnosis of breast phyllodes tumor patients requires additional wide excision, surgical margins ≥1 cm. Since there are very few of these lymph node metastasis, dissection of lymph nodes is not recommended under any surgical approach. For local recurrence mass, in the absence of metastases, repeat surgery is feasible, and

postoperative radiotherapy can be considered. Metastases should be treated in accordance with principles of soft tissue sarcoma. However, many problems during lobular tumours are not provided with the solution in clinical guidelines.

According to sweha kim [1] the local recurrence rate for locally excised benign PTs was not associated with surgical margin status or radiation therapy. In the case of borderline PT, local excision was associated with an increased local recurrence rate ($P = 0.046$). In malignant PT, small tumor size (≤ 4.0 cm) was associated with an increased local recurrence rate ($P = 0.041$). Univariate analyses indicated that surgical procedure (mastectomy < local excision < wide excision; $P < 0.001$) was significantly associated with shorter DFS in borderline PT. A positive surgical resection margin ($P < 0.001$) was associated with DFS in malignant PT.

According to R.J Barth Jr.[2] after local excision, 21% (11/540), 46% (18/39), and 65% (26/40) of patients with benign, borderline, and malignant phyllodes tumours, respectively, recurred in the breast. Following wide local excision, 8% (17/212), 29% (20/68), and 36% (16/45) of patients with benign, borderline, and malignant phyllodes tumours recurred in the breast.

No significant study available in literature which shows the main prognostic factor for recurrence of phyllodes tumor. Negative surgical margins should be archived to prevent the recurrence but the most important criteria for recurrence is still a challenge.

CONCLUSION:

From this retrospective cohort study it is concluded that recurrence of phyllodes tumor after primary excision depends more on histologic grading (p-value 0.025982) rather than the primary surgical approach (p-value 0.328864) used.

Thus we can conclude that histologic grading of phyllodes tumor correlate better with chances of recurrence than the primary surgical approach used for excision of tumor.

Conflict of interest: none

REFERENCES:

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