Malignant phyllodes tumors of the breast: A single institution experience

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ABSTRACT

Background: Malignant phyllodes tumors of the breast are uncommon fibroepithelial breast tumors with diverse biological behavior. Our study aim is to share our experience in treating patients with malignant phyllodes presenting to our center.

Patients and methods: A total of 11 cases of malignant phyllodes were retrospectively reviewed between Nov 2014 and Oct 2017. Results: The median age was 45 years old (31-61 years). The median pathological tumor size was 10.5cm (2-28cm). 6 patients (55%) were premenopausal. 7 patients (64%) were treated eventually with mastectomy and 4 (36%) were treated with breast conserving surgery. 4 (36%) patients had Axillary Clearance done while axillary sampling was done in 2 patient. The remainder 5 (45%) required axillary clearance at a later op. 6 (55%) patients received postoperative radiotherapy. After a median follow up period of 11 months (range 4-33 months), 8 developed local recurrence. The overall 2 year survival rate was 18%.

Conclusion: Malignant Phyllodes tumors are rare tumors that occur in fairly young women, when compared with the adenocarcinoma of the breast. They tend to grow to reach large with absence of nodal metastasis. Ultimately surgery is the mainstay of management but with postoperative radiotherapy it can decrease the local recurrence rates in certain presentations however recurrence rate is high and overall survival rates are poor.

KEY WORDS:
Breast, phyllodes, surgery, radiotherapy, follow up, survival rate

INTRODUCTION

Malignant phyllodes tumors of the breast are rare fibroepithelial breast tumors that acts aggressively and usually presents as a huge tumor of the breast. They can be classified as benign, borderline or malignant[1,2] according to the degree of stromal cellular atypia, mitotic activity, infiltrative versus circumscribed tumor margins and presence or absence of stromal overgrowth.[3] The benign form may act similar to fibroadenomas while the malignant form tends to grow rapidly and may present with distant metastasis. Unfortunately, even with wide excision margins, these tumors have a very high local recurrence rate.[2]

From a histopathological viewpoint, the stromal elements are the key components in differentiation of phyllodes tumor from giant fibroadenoma or distinguishing it from a benign to malignant phyllodes.4 These aggressive tumors accounts for less than 0.5% of all breast malignancies.[1] The recommended treatment of phyllodes tumor remains surgery. Mastectomy and breast conserving surgery can be carried out with a margin of at least 1cm to treat this tumor effectively.[1,5] However the local recurrence rate following breast conserving surgery are 8% for benign phyllodes tumors and 21-36% for borderline and malignant tumors.[5,6] Lymph node involvement is rarely found in phyllodes tumor. So the role of axillary dissection has been a debate among breast surgeons. Axillary node sampling could be considered for high risk patients. [7]

Postop adjuvant radiotherapy for malignant phyllodes tumors has also been recommended as it has shown to be effective in decreasing recurrence rates after breast conserving surgery.[6] Subsequently, malignant phyllodes usually presents as a huge tumor involving more than 1 quadrant so achieving wide margins of > 1cm can be challenging even if a total mastectomy was performed. Some studies have indicated that RT will help to reduce recurrence in these patients.[6]

The role of adjuvant chemotherapy is highly debatable. Most patients present with huge masses and ulcerating tumors with distant metastasis. These patients are usually not fit for chemotherapy and a through discussion should be conducted with the breast surgeon, oncologist and the patient to weight the risks and benefits of the treatment. Some of the tumors may have positive hormone receptors in their epithelial component however hormonal therapy has been shown not to be effective.[8]

So the mainstay of treatment is with surgery and with or without adjuvant radiotherapy. The survival rate for malignant phyllodes tumors has be reported to me 60-80% at 5 years.[9] Patients with metastatic disease do less well with 13-40% 5 year survival rate. [9] The most frequent metastasis usually involves the lung. The mean survival is 30 months after the development of metastases.[10]

AIM OF THE STUDY

This is a retrospective study to look at the presentation, pathological features, prognostic factors and treatment outcomes for patient who presented with malignant phyllodes tumors of the breast to Breast and Endocrine Department, Hospital Queen Elizabeth 2, Kota Kinabalu, Sabah (HQE2).

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Table I: Demographic data of patients presenting with malignant phyllodes

Age		***Surgery***	
Median	45 years	Mastectomy	7 (64%)
Range	31-61years	BCS	4 (36%)
Duration of Symptoms		***Axillary Staging***	
Median	2 months	Sampling	2 (18%)
Range	2-360months	Clearance	7 (64%)
		No	2 (18%)
Menopausal Status		***Surgical Margins***	
Premenopausal	6 (55%)	Negative	8 (73%)
Postmenopausal	5 (45%)	Positive	3 (27%)
Family History of Breast Cancer		***Adjuvant Radiation Therapy***	
Yes	1 (9%)	Yes	6 (55%)
No	10 (91%)	No	5 (45%)
Clinical Tumor Size		***Reoccurrence***	
Median	10 cm	Yes	8 (73%)
Range	2.5-32cm	No	3 (27%)
Site of Tumor		***Distant Mets***	
UIQ	1 (10%)	Yes	2 (18%)
LIQ	1 (10%)	No	9 (82%)
More than 1 Quadrant	9 (80%)		
Pathological Tumor Size		***Follow-up***	
Median	10.5cm	Median	11 months
Range	2-28cm	Range	4-33months

PATIENTS AND METHODS

The medical records of HQE2 were accessed and all diagnoses made of malignant phyllodes tumors of the breast were extracted. HQE2 is the only tertiary hospital with breast and endocrine surgical unit with 2 experienced breast and endocrine surgeons providing care for the whole of Sabah. A search of the records from Nov 2014 to October 2017 revealed a total of 11 interesting cases of malignant phyllodes tumors. The clinical and pathological data were studied retrospectively from the medical and pathological records.

RESULTS

The demographic data of the 11 patients are summarized in Table I. All 11 patients were female with a median age of 45 years old (31-61 years) at time of diagnosis. These patients were followed up closely in the clinic with a median of 11 months (range 4-33 months). 6 patients (55%) were premenopausal. All of the patients presented with a breast mass with a median duration of symptoms of 24 months (2-360months). Only 1 patient had a positive family history of breast malignancy. 4 patients had mammography done reported as recurrent phyllodes tumor, BIRADS 3, BIRADS 4 and BIRADS 5. Ultrasonography of the breast was employed in 2 patients which shows suspicion of breast malignancy and benign breast lesion. Core biopsy revealing malignant phyllodes tumor was only found in 3 patients. 2 patients had benign core biopsy results while 4 had suspicious lesion noted from core biopsy. Initially, 4 patients (36%) were planned for breast conserving surgery , unfortunately the surgical margins were all involved except for 1 patient. Secondary surgery which was a mastectomy with axillary clearance was performed in the other 3 patients. Definitive surgery of mastectomy and axillary clearance was carried out in 7 patients (64%). Axillary node sampling was performed for 2 patients which resulted in reactive lymph nodes free from tumor infiltration. 7 patients had axillary clearance done and only one patient had positive lymph nodes. 9 patients presented with huge tumors involving more than 1 quadrant. The median pathological tumor size was 10.5cm (2-28cm). 6 patients had adjuvant RT (5 following mastectomy and 1 after BCS). The dose of post mastectomy RT was 50Gy/25# in two patients while one had additional boost 10Gy/5#. Following breast conserving surgery, the RT dose was 50Gy/25# in two patients and 60Gy/30# for the one patient. Unfortunately, 4 patients post adjuvant RT had local reoccurrence.

In our sample group only 2 patients had distant metastasis. One had lung nodules and the other had lung and liver lesions. 8 patients had local reoccurrence. 3 patients were treated with mastectomy after the initial breast conserving surgery. Surgical Margins were involved in 3 patients with 2 patients requiring a later mastectomy. Throughout the follow

Fig. 1: Patient with huge phyllodes tumor.

Fig. 2: Patient with huge phyllodes tumor.

Fig. 3: Patient with ulcerating and bleeding phyllodes tumor.

Fig. 4: Patient with huge phyllodes tumor.

up, four patients were still alive at the end of October 2017. Unfortunately, the overall 2 year survival rate from time of diagnosis was 18%.

DISCUSSION

Malignant phyllodes tumors of the breast are rare rumors with an average annual incidence of 2.1 per million women.[3] We studied 11 female patients diagnosed with this disease presenting to our centre. We found that malignant phyllodes tumors of the breast tend to present at a younger age population compared to breast cancer. The median age in our study was 45 years compared to 50 years for breast cancer in Malaysia[11] and comparable to 42-45 years worldwide.[3]

Phyllodes tumors tend to present as a huge breast mass with abnormal mammographic findings. Our study found that the median tumor size is 10cm with one case presenting as ulcerating and bleeding breast mass. Other literature has shown the median size to be 4-7cm.[1]

For phyloddes tumor, it is usually reported as a smooth, polylobulated mass resembling fibroadenoma in mammography. However in our setting, mammography is seldom performed as patient usually present very late with a very huge mass and locally advanced disease deeming them unsuitable for mammography. In our study only 4 patients had a mammography done. The huge mass at presentation and rapid growth will raise suspicion for a phyllodes tumor rather than a fibroadenoma.[2] Core biopsy was done in most of our cases as that is the standard of care before surgical intervention was carried out.

In our study only 2 core biopsy results reported as malignant phyllodes tumor of the breast while one had borderline phyllodes tumour reported. Another 2 core biopsy revealed necrotic breast tissue with inflammatory cells and atypical spindle cell lesion of uncertain malignant potential and 1 revealed benign fibrous stroma. Subsequently all mastectomy and breast conserving surgery specimen yield malignant phyllodes tumors of the breast.

We also found that, 3 patients had positive surgical margins with 2 undergoing breast conserving surgery. This could be explained by the infiltrative nature of the tumor. Ultimately, 10 patients required mastectomy as their initial surgery or after their breast conserving surgery to treat this tumor. Only one patient had a wide local excision and adjuvant radiotherapy after not requiring mastectomy but this could be explained by the small tumor size of 2.5cm.

Although axillary lymph node involvement is rarely described in phyllodes tumor[12], 2 patients had axillary node sampling done and 7 patients had axillary clearance done. Nodal metastasis was only detected in one patient. Literature has shown that axillary dissection was not recommended in these cases but it was carried out in our center due to the huge mass on presentation and the likelihood of defaulting follow up as most patients are from rural areas.[12]

Studies have shown that adjuvant radiotherapy can lower the rates of local reoccurrence in malignant phyllodes tumors.[13] A total of 6 patients in our study underwent adjuvant radiotherapy however only 2 patients did not experience local reoccurrence after radiotherapy.

The local recurrence rate in our study was 72% (8 out of 11 patients) compared to the recurrence rates reported in literature (8-19%).[13] 3 patients required total mastectomy post BCS to treat the local recurrence. Only 2 patients had distant metastasis in our study. One had lung nodules and the other had lung and liver lesions.

In our center, all of the patient who was treated for malignant phyllodes tumor of the breast were followed up at 3 monthly intervals. The median follow up was 11 months with a range of 4-33 months. This follows the same breast cancer follow up protocol defined by NCCN guidelines.[14]

CONCLUSION

Malignant phyllodes tumors of the breast are rare tumors that occur in relatively young woman when compared to breast cancer. They have a tendency to grow into very large breast mass with the absence of axillary nodal metastasis. Total mastectomy or breast conserving surgery is the gold standard of treatment for these cases and postop adjuvant radiotherapy has proven to decrease local recurrence rate. From our data, although the 2 year survival rate was very low we should not be discouraged. In our setting, most patients present very late with very huge breast mass and distant metastases. To combat this we must spend more time on understanding this breast disease and patient education and awareness is very important so that we can treat this disease effectively.

REFERENCES

1. Reinfuss M, Mitus´ J, Duda K, Stelmach A, Rys´ J, Smolak K. The treatment and prognosis of patients with phyllodes tumor of the breast: an analysis of 170 cases. Cancer 1996; 77: 910-16.
2. Calhoun KE, Lawton TJ, Kim JN, Lehman CD, Anderson BO. Phyllodes tumors. In: Harris J, Lippman ME, Osborne CK, Morrow M, editors. Diseases of the breast. Philadelphia: Lippincott Williams &Wilkins; 2010. p. 781-92.
3. Bernstein L, Deapen D, Ross RK. The descriptive epidemiology of malignant cystosarcoma phyllodes tumors of the breast. Cancer 1993; 71: 3020-4.
4. Norris HJ, Taylor HB. Relationship of histologic features to behavior of cystosarcoma phyllodes. Analysis of ninety-four cases. Cancer 1967; 20: 2090-9.
5. Barth Jr RJ, Wells WA, Mitchell SE, Cole BF. A prospective, multi-institutional study of adjuvant radiotherapy after resection of malignant phyllodes tumors. Ann Surg Oncol 2009; 16: 2288-94.
6. Barth Jr RJ. Histologic features predict local recurrence after breast conserving therapy of phyllodes tumors. Breast Cancer Res Treat 1999; 57: 291-5.
7. Ramakant P, Chakravarthy S, Cherian JA, Abraham DT, Paul MJ. Challenges in management of phyllodes tumors of the breast: a retrospective analysis of 150 patients. Indian J Cancer. 2013; 50(4): 345-8.
8. Telli ML, Horst KC, Guardino AE, Dirbas FM, Carlson RW. Phyllodes tumors of the breast: natural history, diagnosis, and treatment. J Natl Compr Canc Netw 2007; 5: 324-30.
9. Chaney AW, Pollack A, McNeese MD, Zagars GK, Pisters PW, Pollock RE, et al. Primary treatment of cystosarcoma phyllodes of the breast. Cancer 2000; 89: 1502–11.
10. Kessinger A, Foley JF, Lemon HM, Miller DM. Metastatic cystosarcoma phyllodes: a case report and review of the literature. J Surg Oncol 1972; 4: 131-4.
11. Hisham AN, Yip CH. Overview of breast cancer in Malaysian women: a problem with late diagnosis. Asian J Surg 2004 Apr; 27(2): 130-3.
12. Macdonald OK, Lee CM, Tward JD, Chappel CD, Gaffney DK. Malignant phyllodes tumor of the female breast: association of primary therapy with cause-specific survival from the Surveillance, Epidemiology, and End Results (SEER) program. Cancer 2006; 107: 2127–33.
13. Pezner RD, Schultheiss TE, Paz IB. Malignant phyllodes tumor of the breast: local control rates with surgery alone. Int J Radiat Oncol Biol Phys 2008; 71: 710-3.
14. NCCN guidelines of treatment of cancer by site: breast cancer. Ver. 1.2016. http://www.nccn.org/professionals/physician_gls/pdf/breast.pdf