ABSTRACT Phyllodes Tumour is a rare fibroepithelial breast neoplasm that presents with a painless growing mass that is most often benign but maybe borderline or malignant. FNAC cannot conclusively differentiate between Fibroadenoma and Phyllodes. Confirmation is on Histopathology of excised specimen. Treatment is wide local excision for benign or borderline tumours. Malignant Tumours can be treated by either wide local excision or Simple Mastectomy, with no evidence to support the superiority of one procedure over the other, as margin status determines prognosis. However, recurrent tumours are treated by Simple Mastectomy. Adjuvant Radiotherapy prevents local recurrence and overall prognosis. We conducted a retrospective study on all histopathologically proven Phyllodes tumours presenting to our institute between Jan 2015 and Jan 2020 and compared their age of presentation.

KEYWORDS Cystosarcoma Phyllodes, Malignant Phyllodes Tumour, Ki-67

Background

Phyllodes tumours account for less than 1% of all breast neoplasms.[1] Although previously termed ‘Cystosarcoma Phyllodes’, they rarely have a cystic component and are not true sarcomas; hence the name was discarded. They are often benign but may attain huge sizes. They present in 4th to 5th decade of life, with higher-grade tumours reported more often in older females.[2] Benign tumours respond to surgery alone. Borderline and Malignant tumours do better with Total Mastectomy than Breast Conservative Surgery, with the decision for Radiotherapy depending on histological criteria.[3] However, a clear benefit of adjuvant therapy is yet to be determined.

Material and Methods:
The data of patients diagnosed with Cystosarcoma Phyllodes on Histopathology, operated between January 2015 to January 2020, was analysed, concerning the age at presentation, duration of symptoms, tumour grade, side, size of the tumour, treatment and prognosis. The study was a descriptive retrospective study.

Inclusion criteria
All cases of Phyllodes Tumour, confirmed on Histopathology of the excised specimen between Jan 2015 and Jan 2020, were included in the study, irrespective of the grade, benign, borderline or malignant and maintained a one year follow up.

Exclusion criteria
Patients who did not maintain post-surgical follow up.

Results
Between Jan 2015 and Jan 2020, 20 cases of Phyllodes Tumour following the inclusion criteria were studied. Out of these, 11 tumours were benign (55%), 4 were borderline (20%), and 5 were malignant (25%). The mean age of presentation was 39.7 years overall, while in malignant tumours, it was 44.6 years. The youngest patient with malignant phyllodes was 23 years
old, and the oldest was 60 years old. In addition, 9 tumours were left-sided, and 11 were right-sided. The largest tumour dimension was compared. Size of benign tumours was less than 5cm, the borderline was less than 6 cms, and malignant tumours were up to 23 cms in the largest dimension. Three patients had recurrent tumours. One patient had a benign tumour recurring as a malignant tumour, and one had an intermediate tumour recurring as a malignant tumour.

In contrast, a patient who underwent wide local excision for a malignant tumour had a recurrence treated with a simple mastectomy. In addition, 15 patients underwent wide local excision. Out of the 5 patients with a malignant tumour, 3 underwent a simple mastectomy, and two underwent wide local excision, one who has a recurrence and underwent a simple mastectomy. Out of the malignant tumours, two were Ki-67 positive. However, Ki-67 molecular analysis could not be done in the other three malignant phyllodes. All malignant tumours had features of atypia, high mitotic index, stromal and epithelial component infiltrating into the surrounding fat, leaf-like stromal projections with hypercellularity and myxoid changes. All tumour margins were negative after simple mastectomy, as well as wide local excision for malignant tumours. Patients were followed up for one year postoperatively, 3 patients had a recurrence, the average time of recurrence was 8.6 months. Recurrent tumours were treated with Simple Mastectomy and followed up for 1 year without any further recurrence. Malignant tumours did not show any evidence of distant metastases.

Discussion

The word ‘Phyllodes’ is derived from the Greek word ‘Phullon’, which means ‘Leaf Like’, due to the typical papillary projections seen on histopathological examination. It is a rare tumour of the breast, with an incidence of 2 to 3% of all breast fibrous epithelial tumours and a rate of 0.3 to 1% of all breast tumours.[4] The incidence of malignant phyllodes was higher in Latina Whites than in Non-Latina Whites, African Americans and Asians.[5] They can occur in males in association with gynaecomastia.[6] Patients usually present with a painless lump in the breast that can attain a huge size. Muller first reported it in 1838 and named it ‘Cystosarcoma Phyllodes’. [7] In 2003, the WHO Histological Classification Group suggested ‘Phyllodes Tumour’ and subclassification into Benign, Borderline and Malignant. This classification depends on the nature of tumour margin, cellular atypia, mitotic activity and overgrowth in the stroma. Most experts favour stromal growth as the most important criteria.[8] The average age of presentation is about two decades later than that
of fibroadenoma, at 35-55 years of age. Histologically phyllodes tumour is usually sharply demarcated from surrounding breast tissue which is compressed and distorted. The bulk is formed by connective tissue, which has mixed gelatinous, solid and cystic areas. Stromal cells of phyllodes tumour are polyclonal, whereas they may be polyclonal or monoclonal in fibroadenoma. Studies have shown monoclonal fibroadenomas to progress into phyllodes tumour.[9] Most malignant tumours have rhabdomyosarcomatous elements. Evaluation of several mitoses & presence or absence of invasive foci at margin help diagnoses malignant variety.[10] Breast Phyllodes is a low signal based on T1W1 and a higher signal based on T2W2. Preoperative diagnostic accuracy of FNAC is 50%. The final diagnosis depends on postoperative pathology finding. Surgery is the mainstay of treatment, with at least a 1 cm margin. Mastectomy is the treatment of choice for recurrent tumours.[11] Studies have suggested that local recurrence depended on positive margin, which is usually due to preoperative misdiagnosis as fibroadenoma and death was associated with tumour size and histological grade.[12] Malignant tumours can be treated by wide local excision or a simple mastectomy, and there has been no proven benefit of one over the other. It has been observed that negative margin is the most important factor in determining recurrence, distant metastases and overall prognosis.[13, 14] Lymph node dissection is not indicated in any surgical method as the tumour does not metastasize to lymph nodes. The most important sites of metastases are lung, soft tissue, bone and pleura.[15] Hawkins et al. suggested that of all the histological factors, stromal growth was the most important factor in prognosis, with a 72% risk in patients with stromal overgrowth who needed close monitoring with Chest CT and bone scintigraphy. Histological subtype Osteosarcoma has a comparatively poorer prognosis.[16] p53 and Ki-67 expression are associated with a negative prognosis.[17] The role of postoperative adjuvant therapy is unclear. No benefit was noted with post-operative chemotherapy.[18] Studies have shown decreased local recurrence in postoperative radiotherapy patients for both borderline and malignant tumours, irrespective of TM or BCS.[19]

**Conclusion**

Phyllodes tumour should be considered a differential diagnosis for patients with giant fibroadenomas and rapidly growing breast lumps. Wide local excision for benign tumours, whereas simple mastectomy for malignant tumours are the treatment modalities. Diagnosis can only be confirmed accurately on the histopathology of the specimen.

**Abbreviations**

FNAC (Fine Needle Aspiration Cytology), CNB (Core Needle Biopsy), TM (Total Mastectomy), BCS (Breast Conservative Surgery).

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**Conflict of interest**

There are no conflicts of interest to declare by any of the authors of this study.

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