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Case Report

Giant Borderline Phyllodes Tumor of the Breast: A Cytohistopathological Correlation with Brief Review of Literature

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ABSTRACT

Phyllodes tumors are rare fibroepithelial breast tumors with biphasic proliferations, usually seen in women in the age group of 30-70 yrs. Phyllodes tumors appears with the frequency of 0.4% of all the breast tumors. Clinically, phyllodes tumor can mimic a breast carcinoma. Therefore the preoperative diagnosis by cytological examination on a material obtain by fine needle aspiration cytology (FNAC) is very important for adequate treatment of these tumors. Herein, we present a case of 60-year-old female presented to the surgical OPD of our hospital with huge left breast mass measuring 28x25x16cms. On FNAC and subsequently on histopathology diagnosed as giant borderline Phyllodes tumor of the left breast. Phyllodes tumor remains a challenge for both pathologist and clinician, in view of its unpredictable nature. Hence early and proper diagnosis of these tumors by FNAC is always warranted for the optimal treatment.

KEYWORDS: Giant tumor, Phyllodes tumor, FNAC, Mastectomy.

INTRODUCTION

Phyllodes tumor are biphasic, fibroepithelial neoplasm with epithelial and cellular stromal components, the later of which represents the neoplastic process [1]. The presence of epithelial component differentiate phyllodes tumor from other stromal sarcomas. They accounts for 0.3-0.5% of female breast tumours [1], and have an incidence of 2.1 per million, the peak of which occurs in 45-49 yrs age group [2,3]. The tumor is rarely found in adolescent and elderly women[4,5].

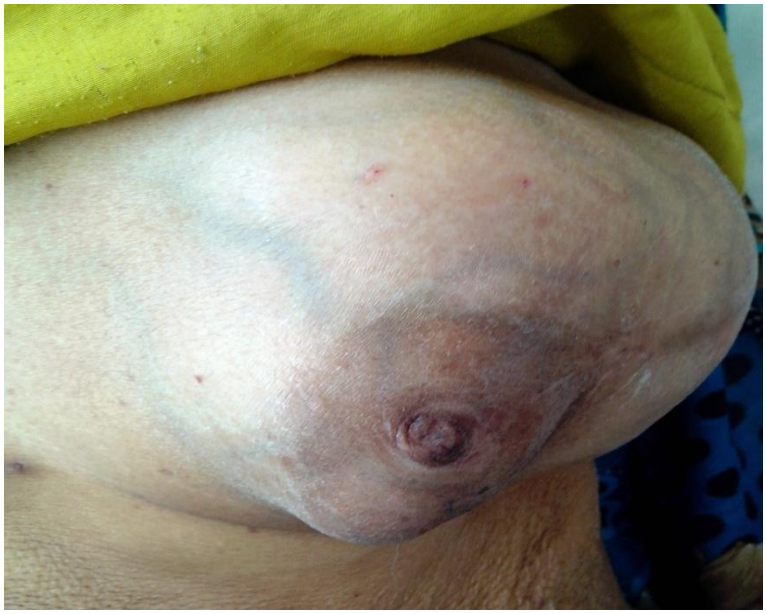
The majority of phyllodes tumor tends to be less than 5cms in size with giant tumor larger than 10cms being about 20% of the cases [6].There are no pathognomic sign in ultrasonography or mammography to differentiate this tumor from other proliferative lesions[7]. The preoperative diagnosis can be achieved by FNAC. The role of FNAC in establishing a preoperative diagnosis is limited with reported success is around 12%, with limiting factor being the cytological features mimic fibroadenoma [8].

Hence with the above findings, we report a case of giant borderline phyllodes tumor diagnosed on FNAC and subsequently confirmed on histopathology. We report this case in view of its rarity, giant size, cytodiagnosis and clinical dilemma as the treatment differs.

CASE REPORT

A 60-year- old female came to the surgical OPD of our hospital with chief complain of huge mass in her left breast since 3months. There was no associated symptom except mild pain. Past, personal and family history was not contributory. Patient had attained menopause 15yrs back. Local examination of the left breast suggestive of huge irregular nodular lump in left breast measuring 28x25x16 cms with an overlying stretched skin. External appearance was multinodular with congested vessels and tense skin (fig.1). The nipple and areola were unremarkable. The lump was firm, mild tender with palpable axillary lymph nodes. It was clinically diagnosed as carcinoma of the left breast and FNAC was advised.

Figure: 1 Gross appearance of huge, multinodular mass in left breast with congested vessels.

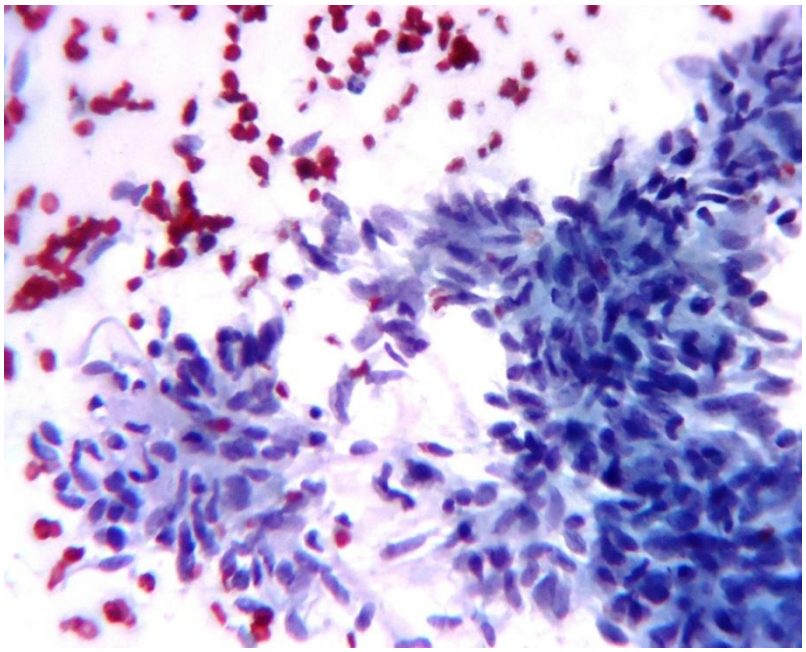


FNAC findings

FNAC of left breast mass was performed with 23 G needle under all aseptic precautions and revealed hypercellular tumor. Smear showed many sheets, cluster and scattered fibroblastic spindle cells. Few of the spindle cells showed mild anisonucleosis and atypia with occasional prominent nucleoli with pale eosinophilic cytoplasm (fig.2). Rest of the spindle cells was monomorphic with mild pleomorphic nuclei and fibroblastic spidery projections of the cytoplasm.

A few sheets of benign ductal epithelial cells are also seen with antler horn pattern. Background shows atypical stromal naked nuclei with blood. Cytological impression given was intermediate grade phyllodes tumor. The patient was posted for left modified radical mastectomy (MRM). All biochemical, serological and hematological parameters were within normal limits. The MRM along with axillary clearance were performed and the specimen was sent for histopathology.

Figure: 2 Cytology composed of spindle shaped tumor cells with elongated vesicular to hyperchromatic nuclei with occasional prominent nucleoli. (Leishman x400)



Gross findings

We received left MRM specimen along with elliptical pieces of skin weighing 820gms. The excised breast mass was measuring 26x24x14 cms along with overlying skin measuring 18x14 cms. Externally, nipple and areola were unremarkable with no ulceration, puckering and peud-orange appearance. On cut section-a pushing, well circumscribed tumor measuring 22x20x12 cms was noted. On serial cutting, the tumor shows grayish white areas, well circumscribed, with pushing margins with leaf like areas. Areas of hemorrhage and necrosis were not seen. The tumor was seen occupying all the four quadrants. The nearest peripheral surgical margin was formed by deep fascia and 0.4 cm away from tumor. In axillary dissection, fibroadipose tissue measures 7x6cm. E/S: grayish yellow in color and on cut section showed 7 lymph nodes, larger one measuring around 2x1x0.5cms. C/S of the lymph node showed grayish white in color.

Light microscopy

Section studied shows well circumscribed tumor mass with pushing margins. The tumor composed of hyperplasia of stromal components with sparse benign ductular glandular elements in between the stromal tumor (fig.3) .The stromal hypercellularity composed of spindle shaped tumor cells arranged in storiform, fascicular, sheets and cluster with scattered singly. Individual cells were elongated with tapering end vesicular to hyperchromatic nuclei with occasional prominent nucleoli (fig.4). Mitotic figures were seen (6-8/10 hpf).Focal areas of hemorrhage and necrosis were also seen. All the axillary lymph nodes were free from tumor. Final histological diagnosis was given as giant borderline phyllodes tumor of the left breast. Post operative period was uneventful.

Figure :3 Tumor composed of stromal hypercellularity of spindle shaped tumor cells arranged in storiform and fascicular pattern with adjacently pushed normal breast tissue. (H &E, x100)

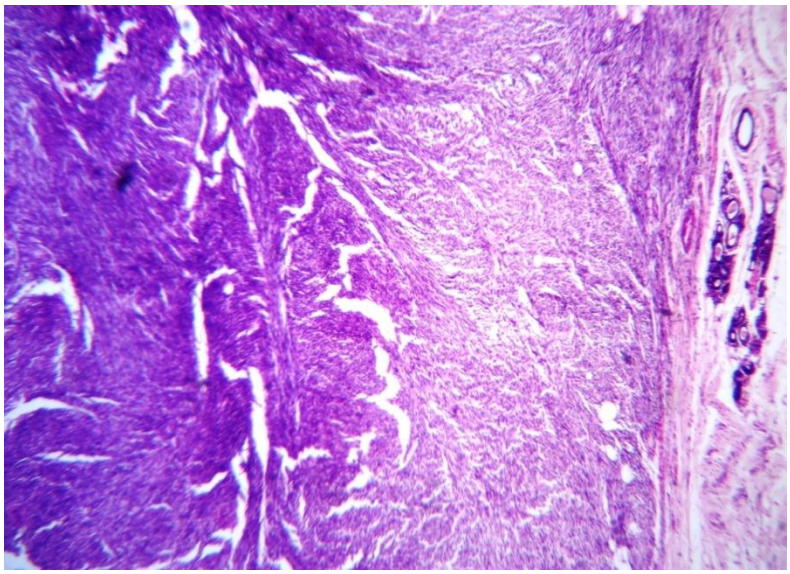
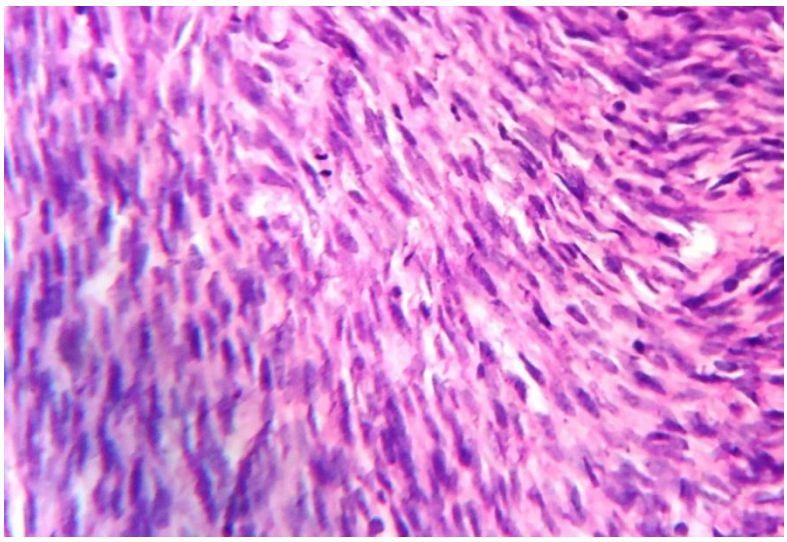


Figure 4 - Individual tumor cells were elongated spindly with vesicular to hyperchromatic nuclei along with mitotic figures. (H &E, x400)



DISCUSSION

Breast cancer involves one of the nine women and is the second main cause of death by cancer in women after the cervical cancer [9]. Ductal carcinoma being the most frequent histopathological type. Lymphoma, sarcomas and melanomas are the most common non-epithelial tumors. Phyllodes tumor with 0.3-0.5% from all the breast tumors and 2-3% from fibroepithelial neoplasms are rarely seen [9].

Phyllodes tumor was described for the first time by Johannes Muller in 1838, who initially named it as cystosarcoma phyllodes, choosing the name sarcoma because of fleshy appearance of tumor in macroscopic view [10]. Subsequently, lesion with certain malignant evolution have been described, the first case of metastastatic phyllodes tumor being described only in 1931 by Lee B and Pack G. Since then the word "sarcoma" has gained a malignant connotation [10]. Although its frequency is rare, this tumor has an unpredictable evolution, meaning that not all the malignant forms are metastasizing and some of the benign ones can metastasize [9].

About 20% of the phyllodes tumor would be considered giant that means greater then 10cms in maximum diameter [11]. Giant phyllodes tumor is an entity that presents the surgeon with several unique management problems [10]. Classically, phyllodes tumor present with firm mobile, well defined macrolobulated, painless mass. There are no pathognomic mammographic or USG features [10]. Hence phyllodes tumor can be extremely difficult to differentiate from a fibroadenoma. For this reason, early diagnosis of phyllodes tumor is crucial so that the correct management of tumor such as surgery, as early as possible [10]. This may also prevent the growth of phyllodes tumor into giant ones, such as described in our case of giant borderline phyllodes tumor.

Preoperative histological diagnosis can be achieved by FNAC or core biopsy [6, 8].The role of FNAC in establishing a preoperative diagnosis is limited success of around 12%, limiting factor being the common cytological features with fibroadenoma [6]. However, the presence of elongated spindle cells in the background is reported more likely to be present in phyllodes tumor, than fibroadenoma. Core biopsy is preferred for establishing a preoperative diagnosis, as histological gain guides the surgical treatment [6].

In our case the pathological diagnosis was made solely on FNAC and view of its giant size, patient was posted for MRM. As MRM provides the best opportunity for obtaining the clear margins, thereby reducing the likelihood of tumor recurrence [6].

Cytological parameters in phyllodes tumor are as stromal fragments and naked stromal nuclei and epithelial components [9]. In benign phyllodes tumor cytopathological study reveals moderate cellularity, stromal fragments, isolated stromal cells and naked stromal nuclei. The cells on the smear had monomorphic nuclei without atypia [9].

In borderline phyllodes tumor, high cellularity, predominance of stromal component as compared to epithelial one, hypercellular stromal fragments with mild atypia of large spindle cells, monomorphic naked stromal nuclei with anisonucleosis with variable epithelial cells proliferation. These features were observed in our case. Malignant phyllodes tumor reveals high cellularity of stromal fragments and frequent isolated nuclei with moderate atypia. Stromal fragments were of variable limitations, moderate cellularity, made of dyscohesive spindle cells with moderate atypical nuclei. No epithelial elements on the smear [9].

Tumor with greater than 30% spindle cells and stromal fragments was suggestive of borderline phyllodes tumor as per Patrascu A et al [9]. In our case greater than 80% of spindle cells were noted with mild atypia. Histopathologically phyllodes tumor classified as benign, borderline and malignant tumor [6]. A benign tumor is characterized by 0-4 mitosis/10 hpf, predominantly pushing margins with mild stromal atypia. Borderline tumor are determined by 5-9 mitosis/ 10 hpf , pushing or infiltrative margin and moderate stromal atypia. Malignant phyllodes is characterized by 10 or more mitosis/ 10 hpf, predominately infiltrating margins with high grade stromal atypia [6].In our case features of borderline phyllodes tumor were noted. These features can easily differentiate this tumor from other epithelial tumors of the breast.

Surgery is the treatment of choice for phyllodes tumor, but the extent of surgery remains controversial particularly for borderline and malignant phyllodes. The appropriate treatment for benign phyllodes is wide local excision allowing 1-2 cm of clear margins in all directions. However in malignant Phyllodes tumor and tumor larger than 5cms, mastectomy is often recommended. The role of radiotherapy and chemotherapy remains uncertain in most of the cases[8, 12]. In our case in view of giant size and cytological diagnosis of borderline phyllodes tumor, MRM of left breast mass with axillary dissection was done and patient was on regular follow up.

CONCLUSION

Giant phyllodes tumor constitutes 20% of phyllodes tumor category. The prognosis depends upon the histological and biological characteristic of the tumor rather than the clinical behavior. The role of cytology is inconclusive most of the time in phyllodes tumor. Hence we report this case, which was diagnosed on FNAC. Early and correct diagnosis of this rare tumor is always important in view of different treatment modalities.

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