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Malignant Phyllodes Tumor Mimicking Metaplastic Carcinoma of Breast- A Case Report

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Abstract
In this article we are presenting a case of a 36 year old female with gradually progressive left breast mass who underwent mastectomy surgical procedure and on histopathological examination a diagnosis of malignant phyllodes tumor with chondromatous differentiation was made. The rarity of the lesion was considered for reporting and on follow-up the patient was free of metastasis. The patient also had enlarged thyroid gland on which Fine Needle Aspiration was performed and a cytological diagnosis of colloid goiter was made.
Key words- Phyllodes tumor, chondromatous, colloid goiter.

Introduction

Phyllodes tumor of the breast is an uncommon biphasic fibroepithelial neoplasm that accounts for less than 1% of overall breast neoplasms [1]. High-grade phyllodes tumor is a rare but aggressive breast malignancy and forms approximately 25% of all phyllodes tumors [2]. Also known as cystosarcoma phyllodes, they are biphasic proliferations with an epithelial component composed of broad leaf-like papillae in a cellular stroma. They are graded as benign, borderline, and malignant based on stromal characteristics.[3]

Grossly it is a well circumscribed, firm, bulging mass; often received as a shelled-out specimen Cut surface is tan-pink-gray Large lesions have whorled pattern with curved clefts resembling leaf buds Variable hemorrhage or necrosis in large lesions. While grossing a pathologist must take sufficient sections (at least one per cm of diameter), and classify based on area of highest cellular activity and most florid architectural pattern.

Important histologic features for classification as benign, borderline or malignant- character of tumor-normal interface, proportion of neoplastic

stroma to epithelial structures, mitotic figures/10 high power fields and anaplastic cytology.

Very rarely, Malignant Fibrous Histiocytoma (MFH)-like differentiation may occur giving rise to a mistaken diagnosis of primary MFH of the breast which is extremely uncommon [4].

Case Report

A 36 year-old female presented with a large, firm to hard left breast mass since one year. The lesion had been smaller earlier and had progressively grown over the two months. On examination, the mass was firm to hard which was attached to the overlying skin. The skin over the mass appeared tense with prominent veins. No evident ulceration was seen. No nipple discharge was present at the time of examnination. After clinical examination, a provisional diagnosis of chest wall sarcoma was made. Patient also presented with diffuse thyroid enlargement since one month which was 4x3 cms in dimensions and solid to cystic which was reported as colloid goiter on fine needle aspiration cytology examination.

Pathological findings-

Gross examination- Serial sectioning of the mastectomy specimen revealed a large, grey-white, lobulated mass involving the entire breast and extending up to the deep surgical margin (Figure 1) measuring 25 x 22 x 09 cms . The central area of the mass showed cystic degeneration and the periphery of the mass showed multiple grey-white, solid, well-circumscribed nodules.

Microscopic examination- histological section showed A highly cellular tumor comprised of predominantly plump spindle cells with pleomorphic, hyperchromatic nuclei with 1-2 prominent nucleoli arranged in sheets and plenty of bizarre mitoses along with plenty of thin walled blood vessels. A few uni-, bi-, multinucleated osteoclast–like giant cells were also seen. Occasional benign ducts were identified. The peripheral nodular areas showed compressed leaf-like benign ducts enclosed by proliferating benign stromal fragments with 10-15 mitosis/10 HPF. The cartilaginous component included atypical and binucleated chondrocytes A histopathological diagnosis of high grade malignant phyllodes tumor was made.

Radiological survey- The radiological survey of the patient was non-contributory.

Immunohistochemistry- The tumor was positive for CD117, favouring malignant phyllodes tumor.

Fig .1. Large tumor mass with multilobulated surface, along with cystic and necrotic areas.

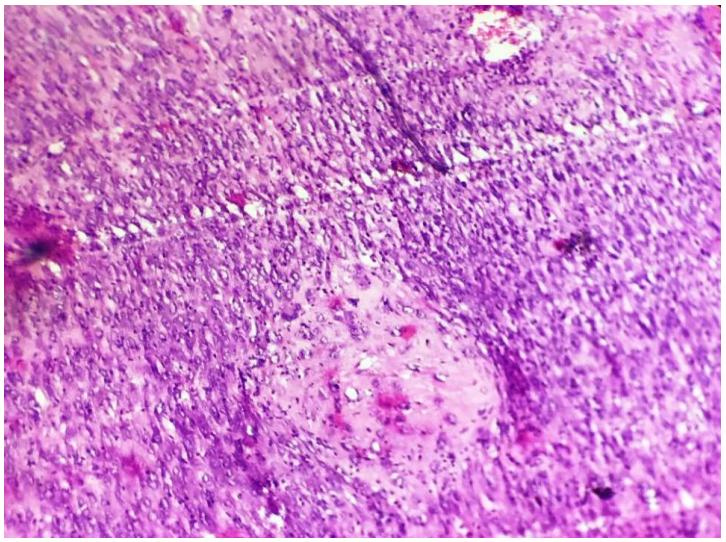

Fig. 2 . Pictomicrograph showing malignant tumor cells with pleomorphism, atypical mitosis and chondromatous differentiation. H & E STAIN 40X.

Discussion

Phyllodes tumor is graded as benign, borderline, and malignant based on stromal characteristics, mitotic count and pleomorphism.[3] Approximately 5–25% of phyllodes tumors are found to be malignant.[5]

However, there are no reliable mammographic or US features to differentiate benign from malignant phyllodes tumor.[6] On CT, a phyllodes tumor can appear as a heterogeneous enhancing mass which may contain solid and cystic components including irregular enhancing septations.[7] They typically manifest as large, poorly marginated, infiltrative masses and are usually symptomatic.[8]

Chondrosarcoma is the most common malignant primary tumor of the chest wall. The characteristic CT appearance of chondrosarcoma consists of a well-defined, lobulated soft-tissue mass with foci of chondroid matrix calcification.[9]

These tumors with heterologous differentiation of osteosarcoma and chondrosarcoma are rare, accounting for 1.3% of all phyllodes tumors. [10,11,12] In the population of Asian women, the incidence of phyllodes is 6.92%, as compared to the western population, where the quoted incidence is 0.3 to 1.5% [13]. Tumors of the breast showing bone and cartilage differentiation are: Intraductal papilloma with stromal metaplasia, cystosarcoma phyllodes, stromal sarcoma, and adenocarcinoma with metaplasia [14]. The process of the formation of bone and cartilage is different in each category. In adenocarcinoma, metaplasia of the epithelial cells to cartilage or bone occurs, while in cystosarcoma and intraductal papilloma there is metaplasia of the stromal cells. [15]

A diagnosis of a malignant phyllodes tumor with stromal overgrowth and chondrosarcomatous differentiation was made on histopathological examination. The presence of a benign epithelial component, positive CD117 and negativity of the stromal component with pancytokeratin excluded the possibility of breast carcinoma and chondrosarcoma. The patient also complained of thyroid enlargement since one month which was reported as colloid goiter on cytological examination.

Metastasis in malignant phyllodes tumor is primarily hematogenous, with lung, pleura, and bone, being the common sites. It has been reported to occur at a rate of 13% in ten years [16].Treatment of phyllodes tumor requires complete surgical excision with wide margins. The poor prognostic factors in the present case include higher grade of tumor, large tumor size, and tumor necrosis. Early detection is associated with better prognosis.

Conclusion

Malignant phyllodes tumor presents with increased mitotic activity, stromal overgrowth, atypia and infiltrative borders. It can rarely be associated with a chondrosarcomatous differentiation, and thus mimics a chest wall tumor clinically and radiologically. Aggressive with local recurrence, 3-22% metastasize to lung, bone, CNS. Death from disease is associated with recurrences and distant metastases. Malignant phyllodes should be included in the list of differentials along with sarcomas on encountering lesions with chest wall invasion and intrathoracic extension on imaging. Final diagnosis of this rare entity can be made only on excision biopsy.

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