Case Report

Recurrent Malignant Phyllodes Tumor of the Breast: A Rare Occurrence in a Young Nulliparous Woman

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Abstract

Phyllodes tumor of the breast is an uncommon fibroepithelial neoplasm and accounts for less than 1% of the primary breast neoplasms. The median age of its occurrence is 40–50 years. It has been sub-classified histologically as benign, borderline or malignant. Accurate preoperative diagnosis and proper management are crucial for this tumor as it has a high potential for recurrence. The diagnosis of this rare tumor is based on clinical examination, radiology and cytology, but it is the histopathology which is the gold standard for it. Surgery is the treatment of choice, whereas chemotherapy, radiotherapy and hormonal therapy have got limited role so far. We report a rare case of recurrent malignant phyllodes tumor in a young nulliparous female, which is not the usual age group for this tumor.

Keywords: Phyllodes tumor, Malignant, Nulliparous, Recurrence

Introduction

Phyllodes tumor is a very rare breast tumor with an estimated incidence of 2.1/million females. It constitutes 0.3–1.0% of mammary tumors and 2–3% of fibroepithelial neoplasms of the breast.[1,2] It usually presents as a rapidly growing and clinically benign breast lump in females within fourth to fifth decade of life and rarely it occurs in adolescents and the elderly.[3] Grossly, the tumor displays characteristics of a large, malignant sarcoma. It is round, relatively well circumscribed, and firm. The nipple may be flattened, but the overlying skin is almost never attached. The cut surface is solid, grey-white and shows the cleft-like spaces that give the tumor its name. Microscopically, the two key features of phyllodes tumor are stromal hypercellularity and the presence of benign glandular elements, which are an integral component of the neoplasm. It has been classified by World Health Organization (WHO) into benign, borderline, and malignant forms according to histopathological features (tumor border, stromal cellularity and overgrowth, nuclear atypia, mitotic activity).[4] This tumor has a high tendency to recur. Majority of recurrence is histologically similar to the original tumor; however, malignant transformation with heterologous differentiation although rare has also been described.[5] Malignant phyllodes tumors account for 10–30% of all phyllodes tumors.[6] This group has both the potential to recur locally and metastasize; however, not all malignant phyllodes tumors behave this way. The challenge lays in predicting which tumor will recur locally or metastasize. The tumor usually occurs in 35- to 55-year-old females.[7] Occurrence of malignant phyllodes tumor in a younger age group is rare.[8] Recurrence in malignant phyllodes tumor of the breast

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is known to occur in 20–65% of the cases according to some studies.[9,10] The failure to achieve adequate surgical margins is an important risk factor for its recurrence. This is commonly seen in phyllodes tumor because they clinically resemble fibroadenomas and are excised locally without any gross surgical margins. It is still debatable as to whether it is necessary to subject the patient to a repeat surgery in case of a benign or borderline phyllodes tumor. These malignant recurrences are clinically very important as they can metastasize through the blood stream to distant sites in the body; therefore, recurrences are associated with poor prognosis. Herein we describe a case of malignant phyllodes tumor of the left breast which recurred after 4 years in a 26-year-old nulliparous woman.

Case Report

A 26-year-old illiterate, unmarried, nulliparous female presented to the surgery outpatient department with a left breast lump. The overlying skin showed presence of a scar mark. The patient gave a positive past surgical history that the mark was from a previous surgery, which she had undergone because of a similar disease 4 years back at the same site. On reviewing her records, it was noted that she had a similar large, firm swelling in her left breast which was surgically resected at a private center and the histopathology report was of malignant phyllodes tumor of the left breast. She also gave history that the existing lump was initially small in size but over a period of last 6 months, the lump had increased in size. The patient denied any other lump or mass, muscle/bone pain or headaches but complained of fatigue, night sweats and weight change. On breast examination, the lump measured 6×5 cm in size and it occupied the upper outer quadrant of the left breast. It was hard in consistency, non-tender and free from the chest wall. The overlying skin showed a linear 5 cm scar mark. There was no skin ulceration or any nipple discharge. Her systemic examination, the right breast and bilateral axilla were within the normal limits. Based on the history and the breast examination, a clinical diagnosis of recurrent phyllodes tumor was made. Her routine hematological, biochemical and microbiological parameters were within the normal limits. Ultrasound revealed a mass in the upper outer quadrant of the left breast. No axillary lymphadenopathy was evident. A core needle biopsy (CNB) was performed in the minor operation theater and the cores were sent to pathology department for histopathological examination. Histopathological sections showed presence of a malignant tumor with the cells showing marked pleomorphism and high mitotic count. Focal areas of necrosis were also seen. Based on these findings, a diagnosis of high-grade spindle cell lesion of the left breast, possibly recurrent malignant phyllodes tumor, was rendered. To confirm the diagnosis, excision biopsy was also done, the findings of which were consistent with the CNB findings. A metastatic work up was performed, which included a computed tomography (CT) chest, abdomen and pelvis. There was no evidence of distant metastasis.

The management plan was discussed with the attendants of the patient, including consent for mastectomy, for which they agreed. The patient underwent simple mastectomy and the specimen was sent for histopathological examination. Grossly, a grey-white tumor was seen in left upper outer quadrant of the breast measuring 7×6 cm in size (Fig. 1a). The histology showed a tumor with the presence of brisk stromal overgrowth and few areas of necrosis. The stromal cells were spindle in shape showing marked degree of nuclear pleomorphism and a high mitotic rate (>10 mitotic figures per 10 high per fields) (Fig. 1b). All the resected margins were negative. The skin, nipple, areola were free of tumor. These findings were consistent with recurrent malignant phyllodes tumor of the left breast. Her post-operative period was uneventful. She is now under fourth month of follow-up without any clinical evidence of recurrence.

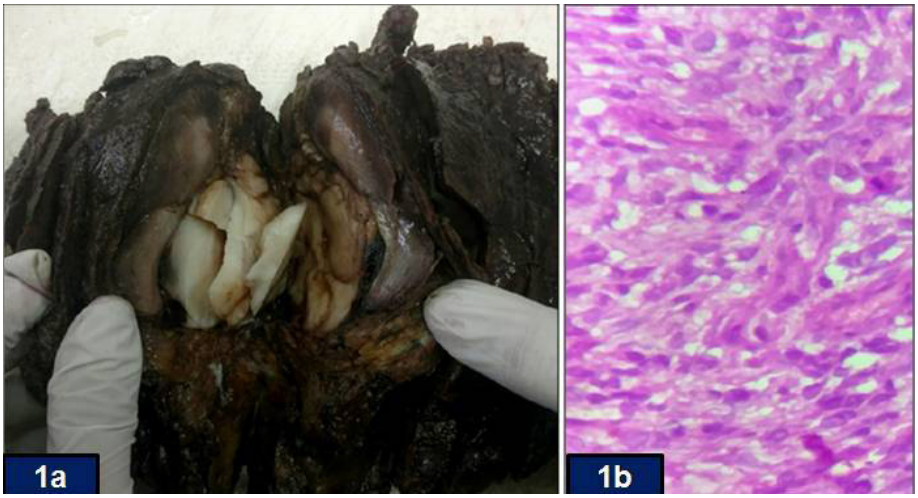

Figure 1.(a) Gross Appearance of the Specimen, (b) Histopathology of Malignant Phyllodes Tumor Showing Presence of Stromal Hypercellularity and Moderate to Severe Degree of Pleomorphism (H and E, ×40)

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Discussion

Breast tumor is still a major health burden for females worldwide. In India, it is the most common cancer in women and has replaced cervical cancer.[11] Phyllodes tumor is a rare breast tumor which was first described in 1827 by Chelius. In 1838, Johannes Muller first reported and named this tumor as cystosarcoma phyllodes.[12] He described it as a huge neoplasia with a cystic lobulated section and rapid growth. Most cases are benign, and so this nomenclature is misleading, as is the designation "giant fibroadenoma" when some cases are undoubtedly malignant.

The etiology of this entity is still unknown. It usually presents as a large, mobile, non-tender mass in the breast with a tendency of accelerated growth. It usually involves the left breast more commonly than the right breast and spares the nipple-areola complex and skin.[13] Our case also showed involvement of the left breast. However, large tumors may erode the overlying skin and can present as a large fungating mass. They may present with metastasis and the patient can present with dyspnea, fatigue, and bone pain.

Triple assessment by clinical, radiological and histological examination forms the fundamental basis for the evaluation of phyllodes tumor. The role of fine needle aspiration cytology (FNAC) is still controversial in diagnosing this lesion and according to few researchers it usually does not distinguish between benign and malignant tumors.[14,15] CNB is an alternative to FNAC because of the extra architectural information provided by histology compared to cytology, however sometimes it is difficult to interpret CNB and it does not help in diagnosis. Similarly, no tumor markers or blood tests can specifically diagnose it. Imaging techniques like mammography and ultrasonography are also not reliable in differentiating between benign and malignant phyllodes.[16] Therefore, excision biopsy of the lesion is mandatory in making a definite diagnosis of this entity as cases of malignant phyllodes tumor usually have high cellular atypia, increased stromal cellularity and high mitotic count. In our case, FNAC was not done; however, CNB as well as excision biopsy was performed and both were helpful in clinching the diagnosis.

A wide variety of breast conditions such as giant fibroadenoma, virginal hypertrophy, lipoma, hamartoma, cyst, abscess, carcinoma, sarcoma and metastatic tumors can simulate a phyllodes tumor.[2,17] Most important among them is giant fibroadenoma , the relationship between the two entities is still unclear. Noguchi et al.[18] showed that most fibroadenomas have polyclonal elements and should be regarded as hyperplasic rather than neoplastic lesions. It has been suggested that in a proportion of fibroadenomas, a somatic mutation can result in a monoclonal proliferation, histologically indistinguishable from the polyclonal element, but with a propensity to local recurrence and progression to a phyllodes tumor, which has also been supported by clonal analysis. Phyllodes tumors may sometimes show fibroadenoma-like features with fibrocystic changes, adenosis, epithelial hyperplasia or atypical hyperplasia. Invasive ductal carcinoma, lobular carcinoma and *in situ* carcinoma may also occur in phyllodes tumors, but they are very rare. The malignant fibroblasts can also differentiate into fat, cartilage, smooth muscle and striated muscle cells. All these components are likely to develop into a sarcoma. The presence of these components indicate a poor prognosis.[19]

Surgical management is the mainstay for phyllodes tumors, regardless of its histological subtype but the type of surgery has been a source of debate over the years. A wide local excision is generally the treatment of choice for a phyllodes tumor. Obtaining a negative histologic margin of at least 1 cm is suggested in many studies.[20-22] Mastectomy should, however, be considered for local recurrence after local surgery for borderline or malignant tumors. Lymph node involvement is rarely described in phyllodes tumors;[23] so, routine axillary lymph node dissection is often unnecessary.[24] Axillary metastasis was not seen in our case. The most common pathway for its spread is the hematogenous route, which occurs mostly in the lungs and pleura. Other metastatic sites include the bones, liver, heart, and distant lymph nodes. Rarely, direct extension without distant metastasis may result in death.[25,26]

Chemotherapy, radiotherapy and hormonal therapy have no proven benefits in the treatment of phyllodes tumor in regards to its recurrence and metastasis. However, some authors have recommended to administer adjuvant radiotherapy and chemotherapy in patients with high-grade tumors, positive surgical margins, or postoperative recurrence, but still their role is undefined and uncertain.[27,28] The prognosis of malignant phyllodes tumor is poor as it almost always carries the chance of local recurrence and the role of various treatment modalities is not clearly defined due to the rarity of the disease.[29,30]

Conclusion

Malignant phyllodes tumor is a rare tumor of the breast that can mimic a benign breast mass on clinical diagnosis; however, it is characterized by a typical rapid growth. The early age of onset and then its recurrence prompted us to present this rare case. One should be aware of these features, and should take proper history especially of any previous surgery in order to avoid a delayed diagnosis. This case also highlights that a close follow-up in all the cases of phyllodes tumor should be done irrespective of the age of the patient and histological type because it has a high propensity for recurrence. The clinician should also ensure clear surgical margins for up to 1 cm so as to prevent recurrences. However, despite all the measures,

recurrent malignant phyllodes tumor still remains a therapeutic challenge, and further studies are required to avoid recurrences in such cases.

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