Case Report

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Unusual Presentation of Malignant Phyllodes Tumor in a Young Female: A Case Report and Review of the Literature

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ABSTRACT

Phyllodes tumor (PT) of the breast is rare in adolescent females, particularly malignant ones. It usually occurs in middle-aged and older women. Malignant phyllodes do have a recurrence and metastatic potential, unlike benign or borderline PT. We examine the case of a 16-year-old female presenting with a 6-month history of a progressive enlarged left breast mass. The tumor was excised, which was a mass with a maximum diameter of 7 cm, and sent for histopathological examination. The histopathology revealed features of malignant phyllodes tumor that were confirmed by immunohistochemistry.

Keywords: breast tumors , phyllodes tumor, Adolesence, malignant tumors

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INTRODUCTION

Phyllodes tumor (PT) of the breast is a rare fibroepithelial neoplasm.[1] Benign form PT behaves in a similar way to benign fibroadenomas, but in a more aggressive form, they can metastasize and lose their epithelial components, resembling a high-grade sarcoma.[2] Among all breast cancers, PT occurs less than 0.5%.[1] Children and adolescents rarely present with PT, particularly malignant ones.[3] Patients usually present with either a large mobile palpable breast mass or an abnormal mammogram.[1,4] Skin ulceration or fixation is unusual.[4] Simple mastectomy is the mainstay of the treatment.[5] The case of a 16-year-old female who exhibited the clinical symptoms of a palpable mass suggestive of a juvenile fibroadenoma is presented in this study; however, microscopic examination showed a malignant phyllodes tumor that was confirmed by immunohistochemistry.

CASE REPORT

A 16-year-old female presented with a 6-month history of progressive enlarged left breast mass, which was completely resected. Physical examination revealed a 9 cm, freely mobile, well-circumscribed lump involving the left breast and having a normal right breast. No axillary lymph node enlargement was evident. The vital signs were stable, and the family history was unremarkable. A wide local excision was done to the left breast mass. Gross examination revealed a 7×4×3 cm mass of fibro-fatty and soft gray myxoid tissue. Histological examination revealed features of malignant phyllodes tumor (MPT), predominantly of stromal heterologous elements in the form of myxoid liposarcoma-like tissue and myxoid chondrosarcoma-like tissue (Fig.1–3). Extensive necrosis and hemorrhage in addition to high mitotic activity were present (Fig.4). By using

immunohistochemistry, the tumor cells were found to be positive for vimentin and CD117 (which is usually expressed in high-grade phyllodes tumor), but negative for pancytokeratin (which excludes metaplastic carcinoma) and CD34 (which is usually positive in low-grade phyllodes tumor).[6] (Fig. 5–8).

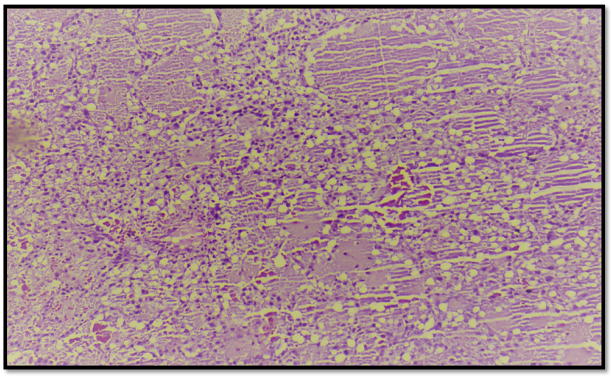

Figure 1: Malignant phyllodes tumor, area of myxoid liposarcoma like-tissue (H&E, ×100).

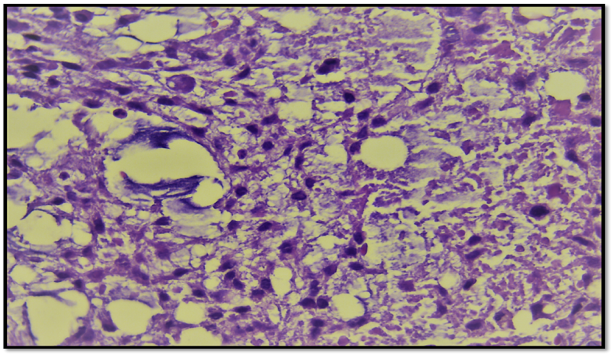

Figure 2: Malignant phyllodes tumor, myxoid liposarcoma-like tissue (H&E, ×400).

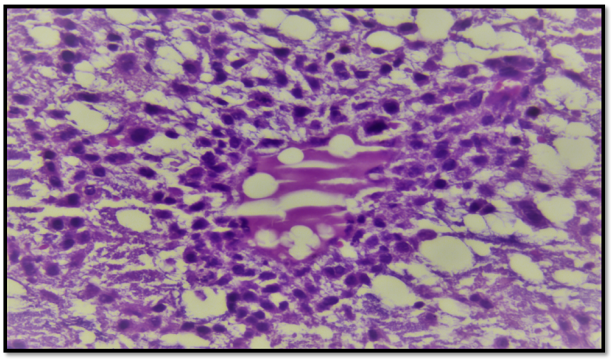

Figure 3: Malignant phyllodes tumor, myxoid chondrosarcoma-like tissue (H&E, ×400).

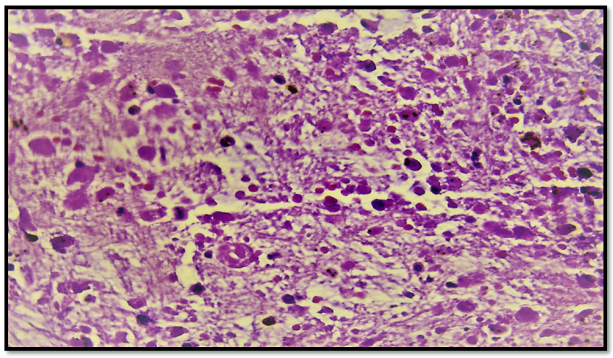

Figure 4: Malignant phyllodes tumor, tumor cell necrosis (H&E, ×400).

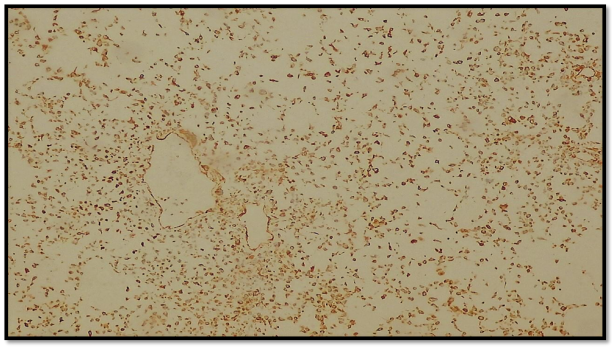

Figure 5: Vimentin positive expression in malignant phyllodes tumor (IHC,×100).

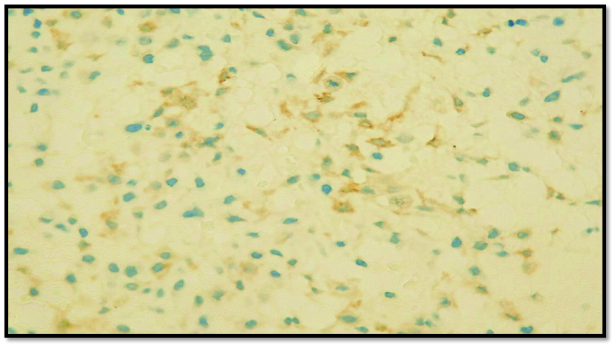

Figure 6: CD117 positive expression in malignant phyllodes tumor (IHC,×400).

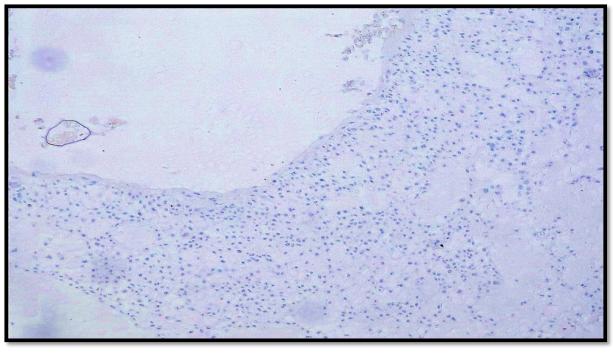

Figure 7: PanCK negative expression in malignant phyllodes tumor (IHC,×100).

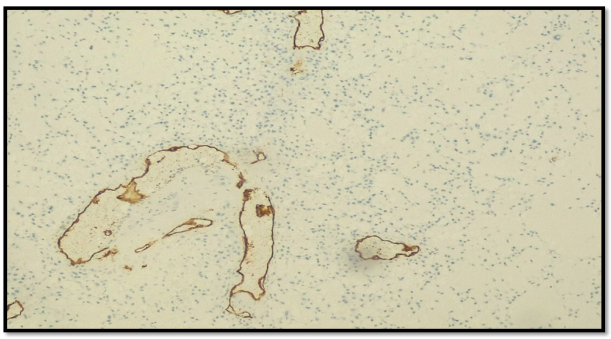

Figure 8: CD34 negative expression in malignant phyllodes tumor, but positive expression in the wall of blood vessels (IHC,×100).

DISCUSSION

In the breast, PTs were well-recognized tumors.[5] Gross examination showed firm circumscribed masses, which could be fleshy or mucoid. Curved clefts and cystic spaces with whorled patterns could be recognized, especially in larger lesions. Areas of hemorrhage and necrosis were also present.[7] Histologically, the tumors presented as mixed epithelial and mesenchymal tumors, with the mesenchymal component usually being the only malignant one. The majority of PTs were benign with no evidence of metastasis. Malignant potential is identified in around 10%–20%, with a quite high recurrence rate 30%–40%. Metastases can occur in 25%–40% of the cases.[8] Mammography or breast ultrasound can be used for diagnosis, but unfortunately, distinction from fibroadenoma is not possible. The final diagnosis can be confirmed by excisional biopsy with the histopathological examination [9], which is aided by immunohistochemistry.[1]

Ten cases of MPTs in adolescent women have been previously reported (Table 1) with a mean age of 20 years old in the range 12–28. Table 1 shows that most of the cases of malignant phyllodes in those with large tumor size at initial presentation and rapid growth of the tumor (duration of progressively enlarged mass in less than 6 months) indicate that a large tumor mass with a short duration is more likely to be aggressive and malignant.

Table 1: Review of 10 cases of malignant phyllodes tumor in adolescent females.

Year	Age (year)	Duration	Size (cm)	Tumor side
1968[10]	12	8 months	10 × 12.5 × 15	Right
1989[11]	16	6 months	53 × 17	Right
1994[12]	15	4 months	12 × 11 v 10	Left
2011[13]	26	4 months	21 ×19 ×16	Left
2014[14]	22	9 months	6.9 × 2.4	Left
2020[15]	23	3 months	16 × 14×10	Left
2020[16]	17	1 week	11×7×5	Right
2020[17]	23	1 month	16.5×15×14	Right
2021[18]	28	2 months	46×31×22	Right
2021[19]	25	12 months	2.5 ×2	Left
2022(Our case)	16	6 months	7 × 4 ×3	Left

CONCLUSIONS

Although most PTs are benign, and the occurrence of primary malignant breast tumors is uncommon in young ages, proper evaluation and management must be done to prevent misdiagnosis of aggressive and high-grade tumors. Appropriate detection of MPT may aid in decreasing the rate of local recurrence. A large and rapidly growing mass can help in diagnosis, but biopsy is necessary to characterize the suspect mass.

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