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Case Report

Synchronous Malignant Phyllodes Tumour and Invasive Ductal Carcinoma in Contralateral Breasts - "A Rare Co-Existence"

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Abstract

Bilateral breast tumors can be either synchronous or metachronous. Synchronous breast tumors account for 0.2-2% of all breast cancers and have a poorer prognosis when compared to metachronous and unilateral tumors. Phyllodes tumor, benign or malignant, may be rarely associated with ductal/lobular carcinoma in-situ and less often with invasive lesions. Here we report a rare case of synchronous malignant phyllodes tumor in left breast and invasive ductal carcinoma in right breast, which were diagnosed on routine mammogram and confirmed by histopathological evaluation. Extensive literature search showed two case reports of co-existence of benign phyllodes tumor and invasive ductal carcinoma as synchronous tumors in contralateral breasts. No case reports of malignant phyllodes tumor and invasive ductal carcinoma as synchronous tumors in distinct breasts was found and our case is the first one to be reported. Such synchronous co-existence warrants a strict follow up of the patient with further investigations to rule out another primary cancer and also screening of other family members.

Keywords: Synchronous, Malignant Phyllodes, Invasive Ductal Carcinoma.

INTRODUCTION

Bilateral breast cancer (BBC) is a rare clinical entity. A second primary cancer in the opposite breast can either be metachronous or synchronous. Synchronous tumors have been defined as those having different histological appearances and where neither can originate with metastasis from another tumor. The cut off for synchronicity is between 3 and 6 months. Risk factors for bilateral tumors include positive family history, young age at diagnosis and a lobular histology [1-3, 13].

Phyllodes tumors are fibro epithelial neoplasms, constituting about 2.5% of all breast tumors. They tend to occur in younger age group, commonly in the 4th to 5th decade of life. According to WHO classification of breast tumors, phyllodes tumor can be benign, borderline or malignant depending on the stromal cellularity, atypia, mitoses and the tumor margins [1]. Phyllodes tumor, benign or malignant may be rarely associated with ductal or lobular in situ lesions and less often invasive lesions. Though uncommon, breast carcinoma can occur inside or outside the phyllodes tumor; synchronously or metachronously; in the same breast or in distinct breasts [2, 3, 4, 6, 8, 9].

Here we report a case of an 81-year-old female with a rare co-existence of synchronous malignant phyllodes tumor in one breast and invasive ductal carcinoma in contralateral breast.

CASE REPORT

81-year-old female, presented with complaints of swelling in left breast for past 5 months, which gradually increased in size. There was no history of trauma or pain. On examination there was a firm to hard lump in the upper outer quadrant of left breast which was 4x3cm in size. Right breast was clinically unremarkable. A mammogram was done which revealed BIRADS 4B lesion in the left breast along

with a BIRADS 4C lesion in right breast too. A tru-cut biopsy of the left breast lump was done. Histopathological evaluation was suggestive of a fibro epithelial neoplasm consistent with phyllodes tumor. The patient then underwent wide local excision of both the lumps in right and left breasts taking into consideration the age of the patient, the size of the 4C lesion and histopathology report of left side lesion. The specimens were sent for histopathological evaluation.

Grossly, we received 2 fibro fatty soft tissue pieces (properly tagged). Macroscopic examination showed a 1.5x1.5x1.2cm irregular grey white lesion in the right wide excision specimen (Fig 1) and 4x3x3 cm well circumscribed grey white lesion with pushing margins and slit like spaces in left side (Fig 2).

Microscopic examination of the lesion in the right side showed an infiltrating neoplasm composed of cells arranged as solid nests, cords and trabeculae. Individual neoplastic cells were oval with moderate to abundant clear eosinophilic cytoplasm and round to oval hyperchromatic to vesicular nuclei showing mild to moderate pleomorphism. Mitosis was scant. Histopathological diagnosis of invasive ductal carcinoma, NST with MBR grade 1 was made (Fig 3a and Fig 3b). All the resected margins were free of neoplastic infiltration.

Left side lesion revealed a neoplasm with proliferation of epithelial and stromal elements. The epithelial elements showed an intracanalicular growth pattern, with leaf-like projections extending into variably dilated elongated lumina and consisted of luminal epithelial and myoepithelial cells stretched into arc-like clefts surmounting stromal fronds. Increased stromal cellularity and overgrowth, marked pleomorphism along with bizarre cells and mitosis of 8-10/10hpf were noted (Fig 4a, Fig 4b, Fig 4c). All the resected margins were free of neoplastic involvement. Thus a final diagnosis of malignant phyllodes tumor was given.

Post-operative period was uneventful. Detailed history taking and clinical evaluation revealed no other primary cancer in the patient. The first degree relatives were advised to undergo mammographic screening. The patient is under strict follow up and is currently doing good.

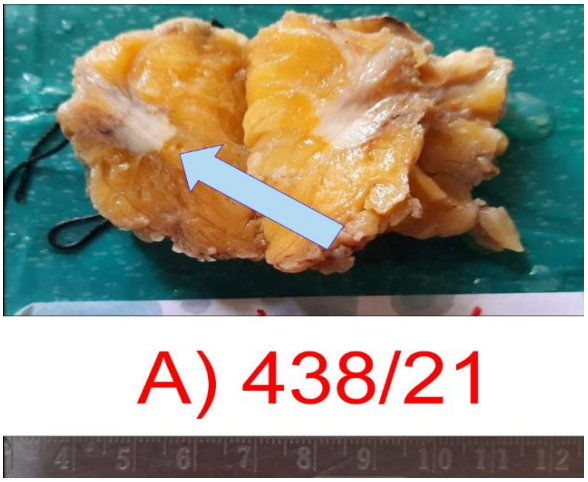

Fig 1: Gross specimen of right sided lesion.(arrow-grey white lesion)

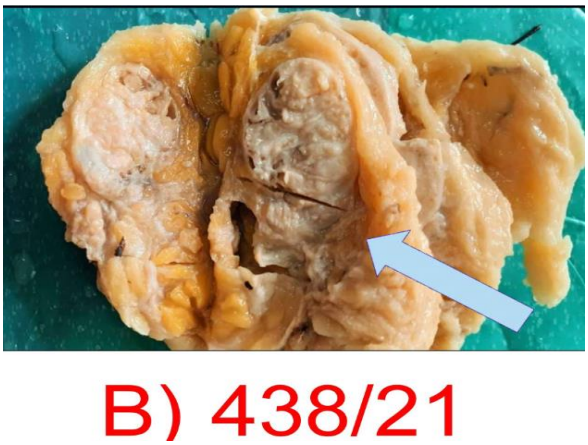

Fig 2: Gross specimen of left breast lesion (arrow-grey white lesion with pushing margins)

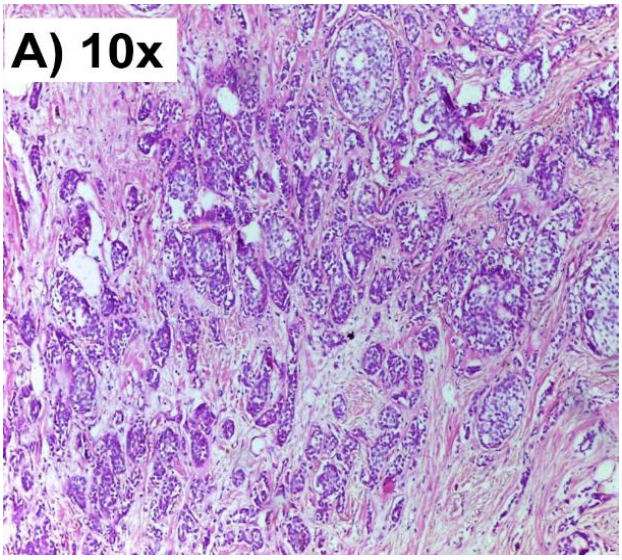

Fig 3a: Invasive ductal carcinoma right side (10x)

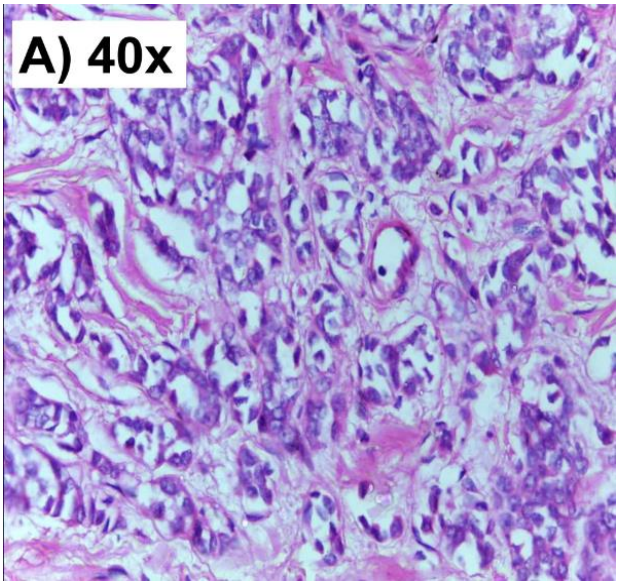

Fig 3b: Invasive ductal carcinoma right side (40x)

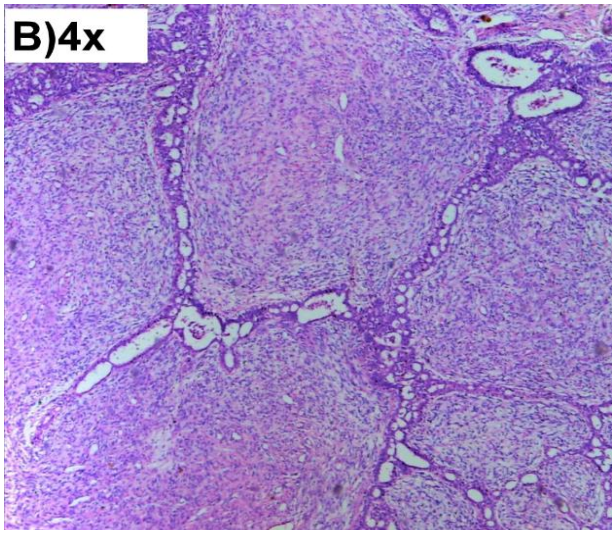

Fig 4a: Phyllodes tumor showing leaf like architecture (4x)

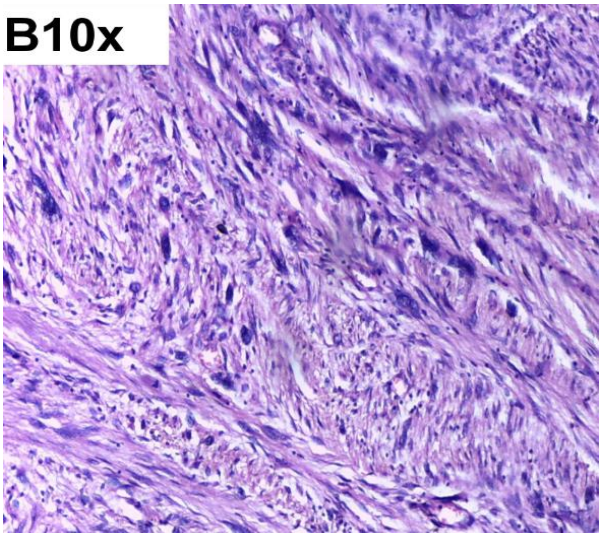

Fig 4b: Phyllodes tumor showing increased stromal cellularity and atypia (10x)

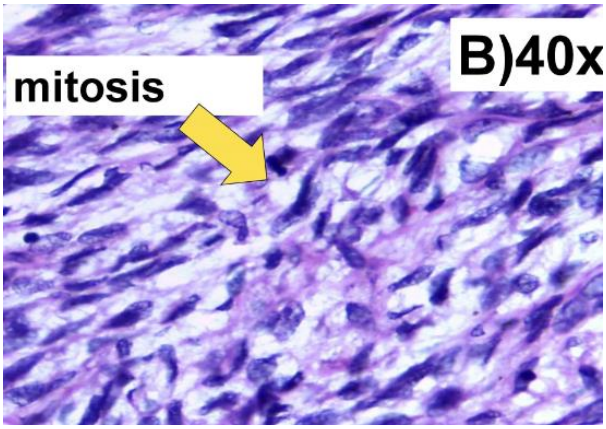

Fig 4c: Mitotic activity (40x)

DISCUSSION

Bilateral breast tumors have an overall incidence of 4-20% of all primary breast cancers. They can be either metachronous or synchronous. Synchronous tumors are those diagnosed in a time gap of less than 6 months and are histologically distinct such that neither can be metastasis from the other [13]. The risk factors associated with bilaterality include a positive family history, presence of germ line mutations, young age at diagnosis of primary tumor, multicentric tumors, lobular histology and radiation exposure.

Phyllodes tumor is a benign fibro epithelial neoplasm, commonly affecting females in fourth to fifth decade of life. They are microscopically characterized exaggerated intracanalicular growth pattern, with leaf-like projections extending into variably dilated elongated lumina. They are classified as benign, borderline or malignant. Malignant phyllodes tumors are diagnosed when all of the following features are present: marked stromal nuclear pleomorphism; stromal overgrowth, defined by the absence of epithelial elements in one low-power microscopic field (40x magnification: 4x objective and 10x eyepiece) containing only stroma; increased mitoses (>5 mitoses/mm2; >10 mitoses per 10 high power fields of 0.5 mm^2); increased stromal cellularity, which is usually diffuse; and an infiltrative border. Surgical resection with clear margins is the mainstay of treatment. Axillary lymph node metastases are rare [1].

Phyllodes tumor, benign/malignant may be associated with ductal or lobular in situ lesions, while invasive lesions are rare. Furthermore, these can occur either inside or adjacent to or outside the phyllodes tumor, either in same breast or opposite breast, synchronously or metachronously. Treatment options can be tailored to individual patient. Such patients should be kept under strict clinical and radiological follow up. Exact etiology related to occurrence of synchronous tumors is yet to be elucidated. Several factors like familial predisposition, lobular histology, young age and multicentricity are found to be associated with increased risk of bilateral tumors of breast. Further investigations should be done in order to rule out other primary tumors elsewhere as germline mutations of PTEN gene and PARP4 gene shows an

increased risk of various primary tumors including breast and thyroid cancers [3].

Our case of malignant phyllodes tumor in an 81-year-old lady with a synchronous invasive ductal carcinoma in opposite breast is an extremely rare coexistence. Extensive literature search showed no such case reports and our case is probably the first one to be reported. Cases of invasive carcinomas within malignant phyllodes tumor, have been reported quite often (Ying-Ju *et al*., in 2010 and A Korula *et al*., in 2008) but co existence as synchronous tumors in contralateral breasts is not reported yet. Neto *et al*., in 2012 and Mathias *et al*., in 2021 reported synchronous coexistence of benign phyllodes with invasive ductal carcinoma in contralateral breasts. Co-existence of phyllodes tumor with lobular carcinoma has been reported by To *et al*., in 2018.

CONCLUSION

Synchronous bilateral breast tumors are a rare event but the clinician need to be aware of it and should screen the contralateral breast in a patient with unilateral breast tumor, whether benign or malignant. Detailed examination to rule out other primary tumors in the patient and screening of family members are also warranted [5, 7].

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Conflicts of interest: There are no conflicts of interest to disclose.

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