International Journal of Surgery Research
www.surgeryjournal.in
Online ISSN: 2664-6056; Print ISSN: 2664-6048
Received Date: 06-03-2019; Accepted Date: 07-04-2019; Published: 13-04-2019
Volume 1; Issue 1; 2019; Page No. 11-12

Synchronus malignancy: Breast & brain

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Abstract
Patients having more than one primary malignancy have been reported in literature for past many years. These malignancies can be divided as synchronous and metachronous. The risk of a new primary malignancy in cancer survivors is 20% higher than in the normal population. In addition, it has been shown that the risk of developing a new malignancy is 1.29 times more than those who have never been diagnosed. Here we present a case of synchronous malignancies (breast cancer and meningioma) in our patient.

Keywords: Synchronous malignancy, Ca. breast, meningioma

Introduction
Patients having more than one primary malignancy have been reported in literature for past many years. These malignancies can be divided as synchronous (cancers occur at the same time or within six months) and metachronous (cancers follow in sequence i.e. more than six months apart). 1
Warren and Gates 2 gave criteria for the diagnosis of Double Primary Malignancies based on histological confirmation of malignancy in both the index and secondary tumours, both the tumours should have at least 2 cm of normal mucosa between them and probability of one being the metastasis of the other must be excluded. Metachronous primary malignancies reporting has increased recently because of newer and better diagnostic techniques and screening among the susceptible population. However, synchronous primary malignancies are still unusual. Here we present a case of synchronous malignancies (breast cancer and meningioma) in our patient.

Case History
48 year-old female of average built, presented to surgery OPD with complaint of gradually progressing painless lump in left breast for last one year. There was no history of discharge from nipple or trauma of breast. Rest of the history was unremarkable. She had three children and all of them were equally well breast-fed. General and systemic examinations were normal. On local examination both breasts were symmetrical and b/l nipple and areola complex were normal. There was a globular immobile 3 X 3 cm lump present in UOQ of left breast. There was neither involvement of skin and nor underlying structures. Mammography revealed large dense lobulated mass seen in upper outer quadrant in the left breast. There was no evidence of calcification and categorised as BIRADS 1 (Image 1a). FNAC was done twice, since both were inconclusive excision biopsy was done, Histopathology report came as infiltrating ductal carcinoma (Image 1b) and all margins were free. ER-Negative, PR Negative, her 2 neu was Positive.
PET scan was done, which showed left axillary lymphadenopathy – metastatic and large hyperattenuating midline lesion in anterior cranial fossa suggestive of meningioma. MRI of brain (Image 2a, 2b) was suggestive of a well-defined extra axial hyper-intense mass lesion along the right frontal lobe with mass effect. Neurosurgical consultation was taken and craniotomy with tumour excision was done. Histopathology came out to be Meningioma Grade I (Image 2c). Subsequently, after two months, left MRM was done. On histopathology, there was no tumour identified; skin, nipple areola was free of tumour, 7/12 lymph nodes were involved. Subsequently, patient received chemo radiation therapy and cranioplasty was carried out later.

Discussion & Conclusion
There have been many research studies done on breast and brain malignancy occurring in same patient. But there has been no consensus for the association between these two malignancies. In a study by Carmen Criscitiello *et al*. [3] on 33 patients, they concluded that there is no link or association between breast cancer and meningioma. Whereas in another study involving 24 patients, Brian S. Custer *et al*. [4] concluded that patients have moderately elevated risk of other malignancy if either of the two malignancy is present.
The risk of a new primary malignancy in cancer survivors is 20% higher than in the normal population [5]. In addition, it has been shown that the risk of developing a new malignancy is 1.29 times more than those who have never been diagnosed [6].
Meningiomas occur twice as frequently in women as in men [7]. It has been reported that the incidence of meningioma is increased in patients with breast cancer [8]. The clinical literature also has suggested that the association may not be based on metastatic events but, rather, on common risk factors [9]. There are various theories of association between breast cancer and meningioma, like genetic, hormonal or gene mutation [10, 11]. Increased tumor growth has been observed during pregnancy for both meningioma and breast carcinoma, suggesting hormone-induced stimulation [11]. In addition, the overexpression of the c-myc oncogene in both tumors has been suggested to induce the development of both tumors [10]. But Genetic predisposition failed to demonstrate association between BRCA 1& 2 genes and meningioma [10].

Therefore, synchronous or metachronous occurrence of these two malignancies remains an enigma for researchers.

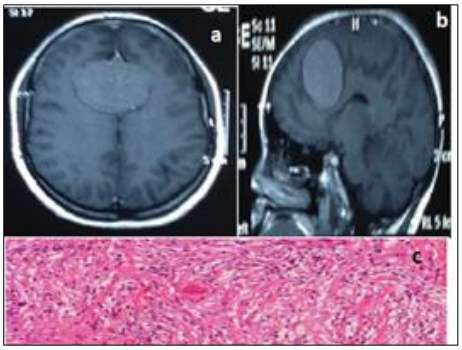

Fig 1

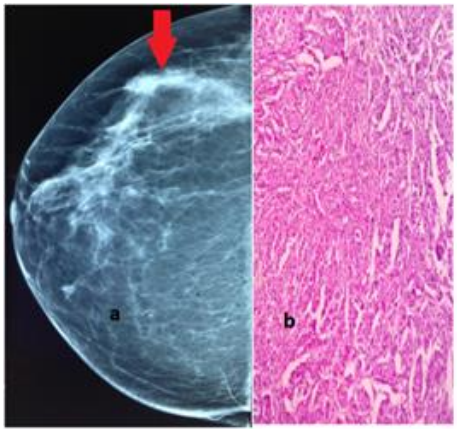

Fig 2

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