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New Onset Neurological Symptoms in Triple-Negative Breast Cancer Patient; Not Always Due to Metastasis

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ABSTRACT

The prognosis after central nervous system relapse in a triple negative breast cancer is grim. However, brain insult in a triple negative breast cancer is not always due to metastasis and other possibilities should be kept in mind too. We report a case of a young female, who had a local relapse of triple negative breast cancer and developed new onset neurological symptoms causing suspicion of CNS metastasis; however, the cause of neurological presentation was pre-existing comorbidities.

Keywords: Central nervous system, metastasis, neurological symptoms, triple-negative breast cancer.

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INTRODUCTION

Triple-negative breast cancer (TNBC) subtype of breast cancer is considered to have the shortest interval between BC and central nervous system metastasis (CNSm) and is reported to have the worst prognosis.[1-4] With respect to patterns of recurrence, CNS disease is a concern.[5] However, the new-onset neurological symptoms in a triple negative breast cancer patient can be due to co-incidence of non-cancer emergency.

CASE REPORT

A 30-year-old female presented in medical oncology clinic in April 2012 with a 1 month history of right sided palpable breast lump. She was married but having primary infertility. Her past medical history was notable for metabolic syndrome, dyslipidemia and poorly controlled diabetes mellitus from the last 5 years. She had a strikingly strong family history of malignancies (mother and sister deceased in their 40s due to breast cancer, 2 maternal aunts diagnosed of breast cancer in their 40s, 1 maternal cousin deceased due to breast cancer at 23 years of age and 1 maternal grandfather died of stomach cancer at 48 years of age). Trucut biopsy of the right breast lump showed triple negative invasive ductal carcinoma (IDC) grade III. Metastatic workup (ultrasound abdomen/pelvis and bone scan) was unremarkable. She was offered right breast conserving surgery with sentinel lymph node biopsy; pathology of which showed stage IIA triple negative IDC. Afterwards, she received adjuvant chemotherapy and radiotherapy. Thereafter, she was put on follow up. For her comorbidities, she was seen by her local physician.

Her BRCA gene testing revealed germ line mutation and considering the implications of BRCA positivity, she was educated about risk of breast and ovary cancer. However, considering her young age and social issues, she did not opt for surgery advice.

In the meanwhile, she developed left upper limb pain due to peripheral vascular disease. She underwent embolectomy and was commenced on anticoagulation therapy by the cardiologist. From breast cancer standpoint, she had remained in remission for 6 years.

Unfortunately, she had a local relapse after 6 years in the contralateral breast confirmed by ultrasound guided core biopsy. It was lymph node positive disease triple negative IDC of left breast and metastatic workup (staging scan and bone scan) was negative. Around the same time over a weekend, she landed in emergency department one day with the complaints of slurred speech, vertigo and headache. On examination, her right finger nose test revealed past pointing. Plantar reflex was down-going on the right side; however, it was mute on the left side. An emergency computed tomography (CT) scan brain was arranged which was suggestive of probable brain metastasis on preliminary reporting (Fig. 1a,b). Neurosurgery review was sought but she was deemed not to be a surgery candidate as having multiple brain lesions and was recommended to have radiotherapy. Radiation oncology team advised to book the patient

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for whole brain radiotherapy (WBRT) 20 Gy/5 fractions.

However, primary consultant of the patient raised a concern in view of her history of peripheral vascular disease and recent left upper limb ischemia/embolectomy. The concern was that the lesions on CT brain reported as metastases could be infarcts or some other pathology. Urgent MRI brain was planned before starting radiation. MRI showed that the lesions reported on CT brain as cerebellar metastasis were actually infarcts as shown in Fig. 1c,d. Cranial radiotherapy plan was halted then and there and patient was saved from unnecessary exposure to radiation.

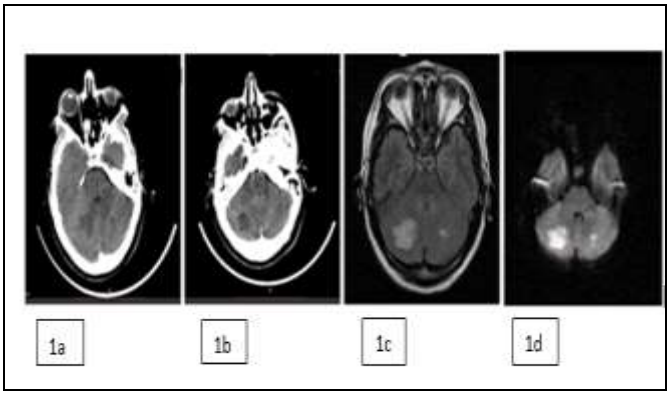

Figure-1a,b: Ct Brain Showing Multiple Hypodense Lesions In The Cerebellar Region Giving Subtle Post-Contrast Enhancement.
Figure-1c,d: Mri Brain Showing Left Occipital Lobe Acute Infarct, and Bilateral Cerebellar Sub-Acute Infarcts; However, No Metastatic Brain Disease.

On reviewing drug history in detail, patient also disclosed that she had been non-compliant regarding advice of anticoagulant with gaps of 2-3 days every week from past few months. CT angiogram was done which showed chronic left upper limb ischemic disease with collateral blood flow. Thrombophilia screen revealed raised protein C (148%) and protein S-Ac (196%) and her metabolic profile revealed raised serum cholesterol (261 mg/dL), LDL cholesterol (203 mg/dL) and HbA1c (9.1%).

DISCUSSION

TNBCs present clinically with rapid growth and are usually high grade; the most common histology is infiltrating ductal carcinoma. At the time of diagnosis of BC, younger age usually is associated with more aggressive and invasive tumor behavior.[6] It is recommended that women diagnosed at 60 years or younger with a TNBC should be offered genetic counselling and advice regarding BRCA germ line testing regardless of family history. The risk of contralateral breast cancer is estimated to be around 25% to 40% in BRCA1/2 carriers.[7,8]

Extracranial metastases in lungs, bone, liver and lymph nodes are reported to be related to the onset of CNSm.[9,10] However, the new CNS insult in a TNBC can have a different etiology other than metastasis as was observed in our case. In our case, there was coincidence of new onset neurological symptoms and the local relapse. Keeping in view the triple-negative pathology, the radiologist deemed hypodense lesions in bilateral cerebellar hemispheres as brain metastases on initial CT scan brain and treatment intent from oncological perspective became palliative. However, MRI brain was done to rule out infarctive lesion considering her background history of metabolic syndrome and peripheral vascular disease. She was saved from unnecessary exposure to radiations and her treatment paradigm got changed from metastatic incurable to early stage potentially curable breast cancer.

This case highlights the importance of keeping in view the needful background history when making management decisions regarding cancer patients presenting in emergency department. Only with a proper history and background knowledge of the disease, standard care health service can be provided to a patient. We must keep this fact in mind that cancer patients can present in emergency department with non-cancer emergencies.

CONCLUSION

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Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

JI & MAS: Data acquisition, data analysis, critical review, approval of the final version to be published.

SAMH & MA: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

SAK & NS: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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