

## Case Report-1

# Breast Cancer with Cardiac Metastases

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### ABSTRACT

**We report a case of cardiac metastasis in a 56 year old female patient with breast cancer. The cardiac metastases were detected during a routine cardiological evaluation carried out in view of her known hypertension. 2D Echocardiography revealed multiple metastatic lesions in the right atrium and ventricle. The available literature reveals a dismal prognosis in such patients.**

### INTRODUCTION

Cardiac tumours are encountered infrequently in oncological practice. Secondary or metastatic tumours of the heart are more common than primary tumours. Different studies have revealed an incidence of a 1.6 to 20%. Common primary tumours to metastasize to the heart are lung, oesophagus, melanomas, lymphomas and breast.<sup>1</sup> With the widespread availability of diagnostic facilities and longer survival of patients due to improved treatment regimens, cardiac metastases may be encountered more frequently in an oncological set up. We report a case of advanced cancer of the breast with cardiac metastases.

**Case** A 56 year old menopausal female presented with a mass in the left breast of six months duration. She complained of breathlessness and giddiness at presentation. On clinical examination, the patient had a lump in the upper outer quadrant of the left breast measuring 3x2.5 cm. There were bilateral, firm mobile lymph

nodes in axillae. Contralateral breast, supraclavicular fossae were normal. Bilateral mammography revealed a mass lesion of 36x30mm in the upper outer quadrant of left breast. The rest of the left breast and the right breast were normal. Fine needle aspiration cytology from the breast lump was suggestive of an adenocarcinoma. (Fig1). Chest X Ray revealed mild cardiomegaly. Bone scan revealed increased tracer uptake in thoracic and lumbar vertebrae, bilateral sacroiliac joints, right



Fig 1: Photomicrograph of the breast tumour showing diffusely infiltrating tumour cells in a desmoplastic stroma (H&E 40x)

scapula and right 3<sup>rd</sup> costovertebral junction suggestive of metastases. Estrogen and progesterone receptor status was negative and HER2/neu was not amplified on core biopsy specimen. ECG examination was normal. The patient was staged as cT2N2aM1 ( Stage IV )

2D – Echo cardiography done for evaluation of her long standing hypertension revealed normal left ventricular systolic function. Multiple rounded opacities were seen in right atrium and ventricle compatible with metastases. The right

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atria and ventricle were mildly dilated. CECT chest evaluation was normal.

The patient received palliative radiotherapy with 8 Gy in single fraction to left hemipelvis and spine with partial relief of her bony pain. She received one cycle chemotherapy with Intravenous Docetaxel 75mg/m<sup>2</sup> and Epirubicin 90 mg /m.<sup>2</sup> Due to persistent giddiness a CAT scan of brain was done which showed a right sided brain infarction involving right middle cerebral artery territory. Further oncological treatment was deferred in view of her poor general condition.

The patient died after a period of three months with progressive disease while on supportive treatment.

#### DISCUSSION

Breast cancer is one of the commonest cancers of females in the Indian subcontinent. It is the most common cancer in females in the Delhi cancer registry with an age adjusted rate of 31.6.<sup>3</sup> % The most common metastatic site from a primary in the breast is bone and cardiac metastasis are rare. Lung carcinoma is the most common primary site for cardiac metastasis (33.1%)<sup>4</sup> A recent analysis by Butany et al<sup>5</sup> has shown leukemia and multiple myeloma also to be important primary sites for cardiac metastases.

Polia & Gogol<sup>6</sup> in 1936 reported an incidence rate of 0.5 % for secondary cardiac tumours. However later studies have shown a higher rate of involvement. Harrer & Lewis<sup>7</sup> showed a 12.6% rate of involvement. Mukai et al<sup>8</sup> showed a 15.4 % incidence of cardiac metastases in their series. Metastases to heart have to be distinguished from primary tumours like myxomas or from thrombi within the heart. Cardiac metastases most commonly involve the epicardium and may be accompanied by pericardial effusion. The endocardium is rarely involved. Tumour thrombi have been shown to spread to the coronary arteries. Lymphatic channels appear to be important pathways for the development of cardiac metastases with retrograde dissemination from involved mediastinal nodes to the lymphatics of the heart.

Direct extension of tumours of surrounding structures can also involve the heart.

Our patient presented in advanced stage with bony involvement and cardiac metastases were detected incidentally. She suffered from long standing hypertension and this added to her morbidity. Her tolerance and response to palliative treatment was poor. The patient had progressive deterioration in her condition after suffering from cerebral infarction.

Pavithran et al<sup>9</sup> reported a similar case in a 51 year old female patient with invasive intraductal breast carcinoma. The patient had a metastatic nodule in left ventricle with a pericardial effusion and had progressive disease on treatment. Patients with cardiac metastasis have a poor prognosis and treatment is mainly palliative. Any oncological treatment should therefore be judiciously administered in view of poor outcome. A higher incidence of stroke may be another feature of such presentations. Treatment measures are mainly directed towards the primary tumour along with conservative supportive measures.

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