

Orbital Metastasis as a Rare Initial Presentation of Carcinoma Breast: A Case Report

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Summary

We report a case of orbital metastasis as initial presentation of breast cancer in a 47-year-old woman. Patient presented with proptosis of left eye and loss of vision over 2 months in her left eye with diminution of vision in the right eye. Magnetic resonance study (MRI) reported extraconal nodular lesions in both orbits. On examination, nipple retraction in left breast and few skin nodules over chest wall were noted. Biopsy from the chest wall nodule reported invasive lobular carcinoma of breast. Diagnosis was confirmed by biopsy of right orbital lesion. Initial treatment with orbital radiotherapy resulted in gradual improvement of local symptoms which was followed by hormonal treatment and bisphosphonates with palliative intent. The orbital metastasis is a rarely encountered condition. The most prevalent primary disease remains carcinoma breast. Possibility of orbital metastasis should be considered in a patient with a diagnosis of breast cancer presenting with relevant orbital symptoms.

Keywords: Orbital metastasis, Carcinoma breast, Invasive lobular carcinoma

Introduction

The orbit is an uncommon site for metastasis, accounts for metastatic involvement in 1 to 3% of cancer patients. Breast carcinoma accounts for 29% to 70% of all the cancers with orbital metastases.¹ Majority of the orbital metastases are detected in patients with previously diagnosed breast cancer and de novo presentation of breast carcinoma with orbital metastasis is infrequent.¹ Orbital metastases from breast carcinoma may involve extraocular muscles, fat, or bone and preservation of visual function and quality of life are vital goals.² Histopathological evaluation of the affected orbital tissue confirms the diagnosis. Metastatic involvement of orbits by breast cancer is reported only in a few studies mostly with invasive lobular breast cancer (ILC).^{2,4} Here, we report a patient with metastatic involvement extraconal orbit by breast carcinoma and briefly review the relevant literature on orbital metastasis of breast carcinoma.

Case Report

A 47-year-old woman presented with exophthalmos, decreased visual acuity and left orbital pain (Figure 1). She also reported of few skin nodules over chest wall. Clinical examination revealed nipple retraction and in the left breast. Ophthalmologic examination revealed absence of perception of light in left eye and reduced visual acuity in right eye. MRI of

the orbits revealed few extraconal lesions in both orbits with diffuse involvement of extraocular muscles (Figure 2). Brain MRI did not reveal any abnormality. FDG avid lesions in the left breast, left axilla, bilateral intra orbital–extraconal regions, and multiple lesions in axial skeleton on PET/CT suggested metastatic disease in the orbit and bone. Biopsy from the chest wall nodule reported invasive lobular carcinoma of breast. ER/PR (estrogen receptor/progesterone receptor) stained strongly positive and the specimen was negative for Her-2 neu expression. Biopsy from right orbital lesion revealed proliferation of atypical cells with pleomorphic nuclei in scant eosinophilic cytoplasm suggestive of metastatic carcinoma (Figure 3). In view of impending loss of vision in right eye, the orbital lesions were irradiated with the use of external beam radiotherapy, with a total dose of 30 Gy delivered to the tumor in 10 fractions. She was asymptomatic for bone disease. Eye symptoms improved notably on both side during the following weeks. Though she had lost vision in left eye at diagnosis itself, vision in the right eye could be salvaged. Patient was put on Letrozole and bisphosphonates (for bone disease) as palliative treatment in absence of any visceral crisis at the end of radiation. Skin lesions responded remarkably. The patient remains considerably free from ocular symptoms 3 months after radiotherapy (Figure 4). She continues to receive Letrozole, bisphosphonates and eye care for left eye along with artificial tears and ointment.

Discussion

Longer survival of patients with metastatic disease and diagnostic advances probably have led to increasing occurrence of orbital involvement in breast cancer.² Majority of the orbital metastases are detected in patients with previously diagnosed breast cancer, many a times, along with additional systemic metastases.⁶ About 12-31% of patients are newly diagnosed cancer cases. Probability of additional systemic involvement remains high. Breast carcinoma is the most prevalent cancer that metastasises to orbit. Other primary cancers with



Figure 1: Proptosis and exposure keratopathy in left eye on presentation.



Figure 2: Post treatment partial resolution of proptosis and keratopathy in left eye

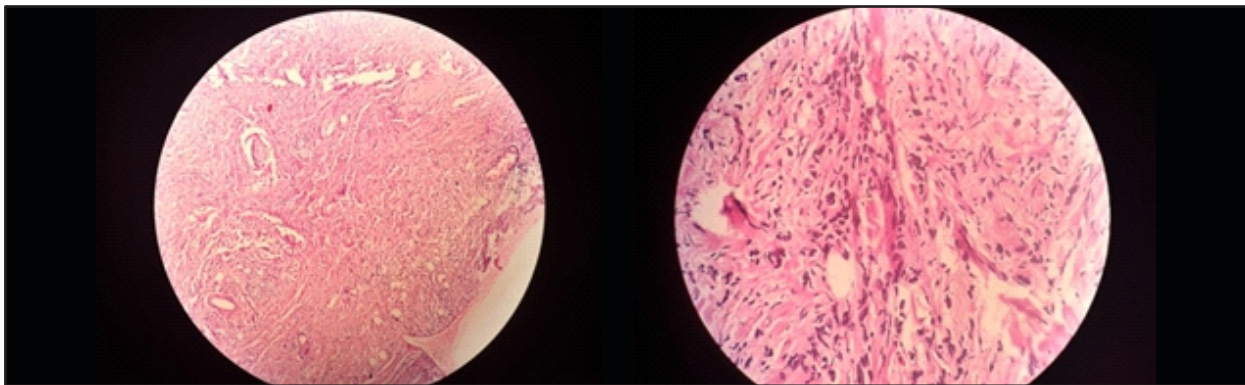
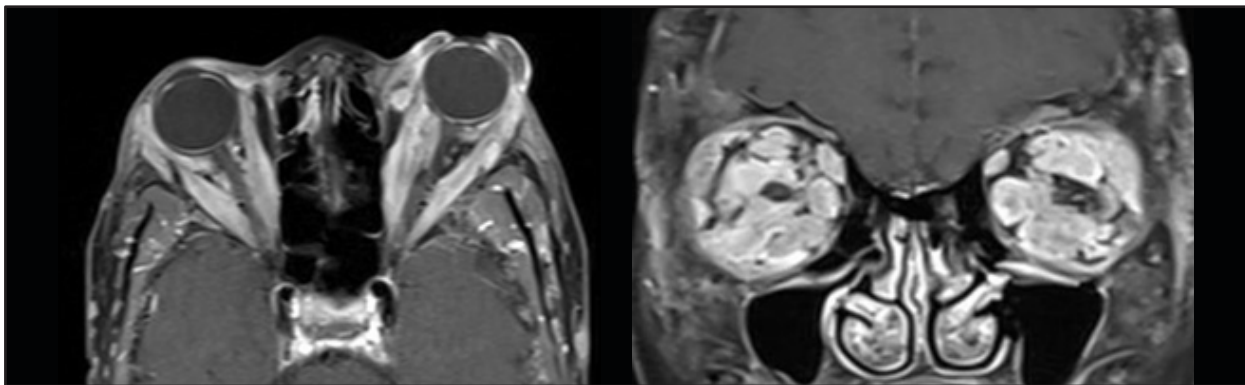


Figure 3: Low power and high power view showing proliferation of atypical cells with pleomorphic nuclei in scant eosinophilic cytoplasm suggestive of metastatic lobular carcinoma



Axial plane

Coronal plane

Figure 4: Contrast-enhanced magnetic resonance study of the orbits showing diffuse enhancement of extraocular muscles.

orbital metastatic involvement comprise lung carcinoma, prostatic carcinoma, renal cell carcinoma and melanoma.¹ Unlike other primaries, bilateral metastases can be seen in 15-20% of breast carcinoma cases. Yet, overall, orbit remains a rare site even for breast cancer metastasis and particularly, site of initial presentation.³ Orbital metastasis may present with symptoms like proptosis, double vision, decreased visual acuity, pain, chemosis, ptosis, or orbital bony involvement.^{3,4} Orbital metastases from breast cancer frequently involve fat or extraocular muscles.⁶ Enophthalmos, secondary to scirrhous infiltration of orbit is rare.^{2,6} Exclusion of the alternative diagnoses

like granulomatous, vasculitis, endocrine, and immunologic disorders remain relevant. Histopathological examination of the affected orbital tissue confirms the diagnosis. Estrogen and progesterone receptor and Her2-neu expression by immunohistochemically assessment of the biopsy specimen is warranted for diagnosis as well as steering the treatment plan.

As extensive metastatic involvement in other organs is frequent in the setting of orbital breast metastases, workup to search for additional metastases should be carried out. Multidisciplinary team involving medical oncologist, radiation

oncologist, and ophthalmic surgeon may enable formulation of most appropriate treatment plan. Treatment of metastatic breast cancer involves hormonal therapy, targeted therapy or chemotherapy, determined by the systemic burden of disease and immunohistochemistry.⁵ Enucleation does not offer any advantage in view of progression of disease or overall survival.⁶

External beam radiotherapy remains the most important component of treatment. Radiotherapy allows control of tumor growth, preservation of visual function, reduction of proptosis and exposure keratopathy and better patient comfort.^{6,7} Exposure keratopathy is treated with frequent use artificial tears and ointment. Temporary tarsorrhaphy can be considered failing conservative options. Palliative tumor resection may be appropriate in few select patients to address pain, diplopia, and proptosis where other measures fail. Five- year overall survival with metastatic breast cancer is 21%. With diagnosis of metastatic involvement of orbits by breast carcinoma, median survival is 22 months.¹

Conclusion

Possibility of orbital metastases should be perceived if pertinent orbital symptoms are noted in a patient with breast cancer. Metastatic lesions in the orbit are rare and often are associated with additional systemic metastases from breast cancer. So, the best possible management requires involvement of a multidisciplinary team.

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