BJMS
Borneo Journal of Medical Sciences

CASE REPORT

Metastatic Breast Carcinoma Masquerading as Eyelid Swelling: A Case Report

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Received: 30 July 2024

Accepted: 11 JNovember 2024

Available Online: 3 March 2025

ABSTRACT

Eye metastases are rare, with breast carcinoma being the most prevalent primary tumour among all metastatic tumours of the eye. Eyelid metastases have been very rarely reported. This case report details the presentation of a 51-year-old Malay woman with underlying diabetes mellitus, presented with persistent left lower eyelid swelling for two months. Initially resembling a small pimple, it progressively increased in size, accompanied by erythema. Previous consultations with a private ophthalmologist were treated as preseptal cellulitis. Notably, the patient had a one-year history of progressive swelling of the right breast; but had never sought medical attention. Examination of the left eye revealed a lower lid mass, moderate to firm in nature and erythematous nasally. Breast examination revealed a right breast lump, firm to hard consistency, adhered to the underlying chest wall and overlying skin, peau d'orange skin changes, with nipple retracted. Contrast enhanced computed topography orbit demonstrated features suggestive of eyelid malignancy. An incisional biopsy was done, and histopathological results revealed metastatic carcinoma, likely of breast origin, subsequently planned for chemotherapy. Patients presenting with eyelid swelling should be evaluated for possible metastases. Systemic examination is necessary for establishing the diagnosis. Initiating early treatment enhances patient outcomes and quality of life.

Keywords: *Breast, Carcinoma, Metastasis, Eyelid, Swelling*

INTRODUCTION

Eye metastases are rare, with breast carcinoma being the most prevalent primary tumour among all metastatic tumours to the eye (Wickremasinghe et al.,2007). The choroid, orbit, and ciliary body are the most commonly affected tissues (Ferry et al.,1974). Eyelid metastases are very rarely reported, accounting for less than 1% of all malignant eyelid lesions. (Aurora et al., 1970; Arnold et al., 1985; Bianciotto et al., 2009). Only 12 to 31% of patients present with eye metastases as the first sign of malignant disease. We present a rare case of metastatic breast carcinoma that masqueraded as eyelid swelling as the first presentation.

CASE PRESENTATION

AA 51-year-old Malay woman with a history of diabetes mellitus, presented with persistent swelling of the left lower eyelid over two months. Initially resembling a small pimple, the swelling progressively increased in size, involving the lower eyelid, accompanied by erythema (Figure 1). Previous consultations with a private ophthalmologist resulted in a diagnosis of preseptal cellulitis, which was treated with several antibiotics, yet the swelling persisted. Subsequently, the patient was referred to our facility for further evaluation. Notably, the patient also reported a one-year history of progressive swelling of the right breast with skin dimpling, yet she did not seek medical attention for this concern.

Ocular examination revealed a visual acuity of 6/9.5 in both eyes, with no relative afferent pupillary defect and normal extraocular muscle movement. Examination of the left eye revealed a lower lid mass measuring 5 cm x 1.5 cm in size, characterised as moderate to firm in nature, erythematous nasally, and adherent to the overlying skin. The mass was immobile, non-tender, with no punctum, nor warm to touch. There was no madarosis, telangiectasia or ulceration noted. The anterior and posterior segments of both eyes were otherwise unremarkable.

Breast examination identified a 10 cm x 15 cm mass encompassing the entire right breast. The mass was firm to hard, adhered to both the underlying chest wall and the overlying skin, and exhibited peau d'orange changes with a retracted nipple. No discharge was present. Bilateral axillary, supraclavicular, infraclavicular, and cervical nodes were not palpable. Examination of the left breast was unremarkable.

Blood investigations were performed, but results were unremarkable. Further imaging with contrast enhanced computed topography (CECT) orbit demonstrated an ill-defined homogenously enhancing soft tissue lesion involving skin and subcutaneous tissue

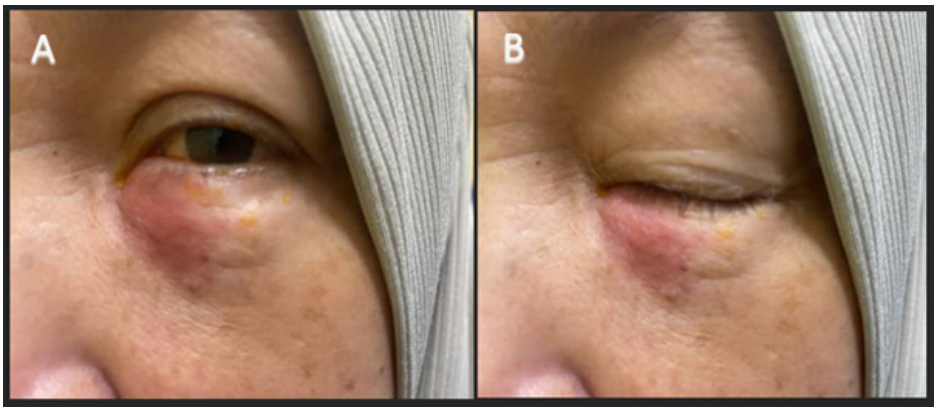

Figure 1: Swelling of the left lower eyelid, accompanied by erythema. A. Eye opened B. Eye closed

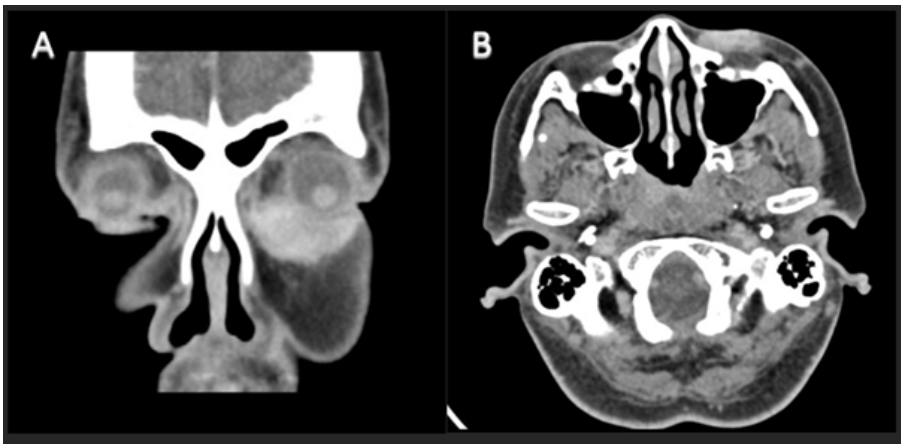

Figure 2: CECT orbit demonstrated an ill-defined homogenously enhancing soft tissue lesion involving skin and subcutaneous tissue at the lower eyelid with no intra-orbital extension. A. Coronal view B. Axial view

in the lower eyelid measuring 0.8 cm x 0.2 cm x 1.0 cm with no intra-orbital extension. Radiological interpretation suggested features consistent with eyelid malignancy (Figure 2).CECT of the thorax, abdomen and pelvis revealed right breast malignancy with metastasis to the spine, 1st rib, axillary lymph nodes as well as the brachial plexus. A mammogram showed thickened skin with diffuse subcutaneous oedema, and a large heterogenous mass occupying the entire right breast with increased colour Doppler signal. The patient was subsequently referred to the oculoplastic team for an incisional biopsy. Histopathological examination confirmed metastatic carcinoma. Microscopy showed malignant cells arranged in infiltrative cords, singly dispersed and occasional small nests infiltrating skeletal muscle bundles and fibrocollagenous tissue. The cells displayed moderate pleomorphic hyperchromatic nuclei, with small to inconspicuous nucleoli and moderate cytoplasm. Rare mitosis was present. Immunohistological studies demonstrated the malignant cells were positive for cytokeratin AE1/AE3, GAIA 3 and estrogen receptor (ER), favouring primary breast origin. A trucut biopsy of the right breast was done, and histopathological examination results confirmed invasive lobular carcinoma. Microscopy demonstrated breast tissues infiltrated by tumour cells arranged in linear cords and clusters, with mild to moderate nuclear pleomorphism and dense chromatin. Immunohistochemistry showed positive for estrogen receptor (ER) as well as progesterone receptor (PR). The HER-2 receptor was equivocal, hence the dual in situ hybridization status was submitted and came back as negative.

The patient's care was subsequently co-managed by both the oncology and surgical teams. The ophthalmology team opted for conservative management as there was no intraorbital involvement. The patient had undergone 6 cycles of chemotherapy with Paclitaxel, and oral Letrozole post chemotherapy until disease progression. A follow up CECT of the thorax, abdomen and pelvis was scheduled to assess for disease progression. No surgical intervention was planned for the patient.

DISCUSSION

Eye metastases are generally rare, and breast carcinoma remains the most prevalent primary malignancy, accounting for 28.5% to 58.8% of all cases of eye metastases followed by lung cancer (24%) and skin melanoma (14%) (Ahmad et al. 2007; Wickremasinghe et al. 2006). Eyelid

metastasis is even rarer. Among malignant eyelid lesions, eyelid metastasis accounts for less than 1% of all cases, with basal cell carcinoma being the most common (80.4%), followed by squamous cell carcinoma (7%), malignant melanoma (5.1%), and sebaceous carcinoma (3.3%) respectively (Aurora et al., 1970; Arnold et al., 1985; Bianciotto et al., 2009). Moreover, a review by Bianciotto et al., 2009 stated that ocular metastatic disease is significantly more prevalent with only 1.1% of patients having eyelid metastasis.

Studies have shown that it is not uncommon to misdiagnose an eyelid metastasis as the case varies from patient to patient. Patients may present with painless nodules, diffuse eyelid swelling, ulcerative lesions, and even inflammatory nodules often mistaken for chalazion (Arnold et al., 1985). Involvement of lid epidermal and surfaces of conjunctiva has also been reported (Hood et al., 1973). In our case, the patient presented with persistent swelling of the left lower eyelid, resembling a pimple and was misdiagnosed as preseptal cellulitis. While eye metastasis is usually detected in patients with known breast cancer, in 12 to 31% of cases, similar to our case, metastasis can present as the first sign of an undiagnosed breast malignancy (Muhd et al., 2020). Therefore, detecting metastasis is more difficult in the absence of primary malignancy. Moreover, as per Ferry et al., 1974, the latency period between primary carcinoma and the development of orbital metastasis may range from 4 to 6.5 years.

Imaging will aid in determining whether a mass is malignant or benign, as well as assessing the extent of the mass. In our patient, orbital imaging revealed an eyelid malignancy and helped identify the spread of the disease. Histopathological examination from biopsy remains the gold standard in making a diagnosis. The main biopsy techniques in eyelid tumours are excisional, incisional, punch, snip, curette, and shave biopsies (Wu et al., 2019). Choice of biopsy is selected based on lesion characteristics, possible diagnosis, location, and surgeon preference (Wu et al., 2019). For our patient, an incisional biopsy of the left lower eyelid was performed. Studies suggest that incisional biopsy had a 95% accuracy rate in diagnosing eyelid tumours (Rice et al., 2003). Subsequently, a trucut biopsy was done over the right breast, revealing invasive lobular carcinoma. Contrary to general statistics, invasive ductal carcinoma would have been more common (Saad et al., 2022).

Management of eyelid metastases is largely dependent on the tumour's clinical features, such as the shape, number, and site of metastases, as well as systemic features. Treatment options are excisional biopsy, external beam radiation therapy (EBRT), systemic chemotherapy or immunotherapy, and observation (Bianciotto et al., 2009). An excisional biopsy is performed for small, solitary nodular lesions. Generally, EBRT is done for patients with multiple eyelid metastases or recurrent lesions. Systemic chemotherapy or immunotherapy is indicated for patients with widespread systemic disease and is administered based on the tumour's response. For terminal patients who are not undergoing systemic treatment, general observation is the approach taken (Bianciotto et al., 2009).

Regardless of treatment, the prognosis in patients with multiple metastases is much poorer. With regards to our patient, who was diagnosed with right breast lobular carcinoma, T4bN1M1, metastases to bone and lung. Systemic chemotherapy was chosen by the surgical team due to the extensive systemic involvement. The patient is being monitored for tumour response to chemotherapy; however, the patient defaulted Ophthalmology clinic follow up.

CONCLUSION

Patients presenting with eyelid swelling should be evaluated for possible metastases, a detailed systemic examination is necessary

for establishing the diagnosis. Initiating early treatment enhances patient outcomes and quality of life.

CONFLICT INTEREST

The authors declare that they have no competing interests in publishing this case.

CONSENTS

Written consent was obtained from patient. A copy of the written consent is available for review by the Editor-in-chief.

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