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Choroidal Metastasis as First Manifestation Following Breast Conserving Surgery for Breast Cancer: Case Report

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Abstract: Ocular metastasis of solid tumours are a scarcely diagnosed clinical entity, nevertheless breast cancer possesses the highest incidence of orbital involvement. We report a case of choroidal metastasis as initial manifestation following surgery for breast cancer in a 35-year-old woman who presented with diplopia and worsened visual acuity 2 years after surgery. Choroidal metastasis had been documented to be a frequent finding in disseminated breast cancer. The crucial point in our patient is its occurrence as the first manifestation of distant metastases. Ocular smyptomatology in a breast cancer patient should alert the physician to consider the eye for the initial metastatic involvement.

Key words: Breast cancer, ocular, metastasis, choroid

Introduction

Breast cancer is one of the most common malignant disease with a lifetime risk of approximately 10% in females and is also one of the major cause of cancer-related mortality among women worldwide. Frequent or well-described localisation of metastasis are bone, liver, lung, skin, brain and eyes. Breast cancer possesses the highest incidence of ocular metastatic involvement and choroid is the most common site for ocular metastasis among solid tumours (Shields *et al.*, 1997; Wiegel *et al.*, 1995; 1997). The study present a case of choroidal metastasis as first manifestation following breast conserving surgery for breast cancer in a female patient.

Case Report

A 35-year-old virgin woman suffering from a lump in her left breast for a month admitted to our hospital. Her physical examination revealed a 2×2 cm., solid, irregular contoured mass lesion in superior lateral quadrant of left breast and a solid and fixed lymphadenopathy with a size of 1×1.5 cm in left axillary region. Ultrasonographic evaluation detected lobular contoured, solid and heterogenous hypoechogenic mass lesion with a size of 22×16×17 mm possessing calcified areas laterally. Routine laboratory data were within normal ranges except a mild anemia (Hb: 8.9 mg dL⁻¹). Her previous medical and family history for breast cancer was unremarkable. She underwent excisional biopsy which was reported to be invasive ductal carcinoma histopathologically. Immunohistochemical analysis for estrogen and progesteron receptors were determined to be negative. Neither an increase in tumour marker CA 15-3, nor a distinct metastasis was detected. A left-sided breast-conserving surgery and lymph node dissection was performed. Intraoperative frozen section for surgical margins was reported to be tumour negative. In histopathological examination of the specimen 20 axillary lymph nodes were

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Fig. 1: Yellow-white mass lesion elevating the retina and exudative retinal detachment around the lesion

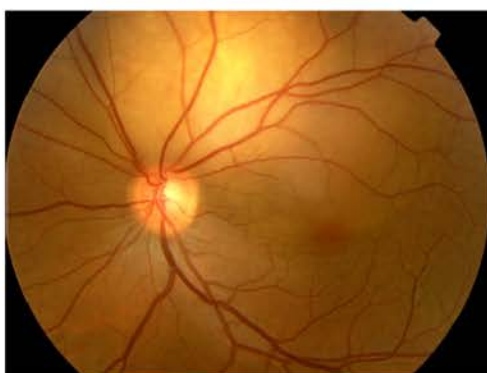


Fig. 2: Exudative retinal detachment involving the fovea

detected, 1 of which having carcinoma metastasis. With a stage IIB breast cancer, she received 6 cures of chemotherapy and radiation therapy. She had an uneventful 2 years follow-up period after surgery before admitting to our ophthalmology clinic suffering from diplopia, gradually increasing pain in her right eye and worsened visual acuity. Fundoscopic examination determined a yellow-white, plaque-like, oval lesion elevating the retina with a size of 7×8 mm and exudative retinal detachment around the lesion (Fig. 1 and 2). Exudative retinal detachment involving the fovea was found as the reason of decreased visual acuity. Synchronous screening for other distant metastasis were negative. She had received radiation therapy for ocular metastasis, however cerebral, bone, liver and lung metastasis were detected 7 months later. She had passed away due to disseminated metastatic breast cancer 3 years after primary diagnosis.

Discussion

Cancer of the breast is the most common site-specific malignancy in women and is the second leading cause of cancer related deaths in females accounting for more than 40 000 deaths each year, worldwide (Medina, 2005). Attempts to improve survival have been targeted to early diagnosis and developments in adjuvant or neoadjuvant chemotherapeutic medications. Breast cancer screening protocols have been introduced in order to decline the incidence of mortality and morbidity worldwide and earlier diagnosis is known to result in improved survival rates (Sheth *et al.*, 1999; Taber *et al.*,

1995). As breast is an essential structure for many women, radical surgical procedures are considered to be dreadful. Breast conserving surgery became a popular and preferred option of choice for the treatment of stage I and II breast cancer associated with axillary dissection, radiation therapy and chemotherapy as needed. Studies have demonstrated that breast carcinomas in younger or premenopausal women are more likely to exhibit biological and prognostic features that are known to be associated with a high histologic grade, such as an absence of steroid hormone receptors, like our patient, a high rate of proliferation and abnormalities in p53 protein and as a result behaving more aggressively (Talley *et al.*, 2002). Despite centuries of theoretical struggles and clinical experience, advanced staged breast cancers obtain unfortunate results. Common sites of distant metastasis, in order of frequency, are bone, lung, pleura, soft tissues and liver, but tumour manifestations have been reported nearly in all anatomic regions. The study describe a patient with choroidal metastasis of breast carcinoma as first manifestation of metastatic disease. Intraocular metastasis is reported to be the most common intraocular malignancy (Albert *et al.*, 1963). Ocular or orbital metastasis have been described for various solid tumours, but breast cancer accounts for the majority of cases (Demirci *et al.*, 2003, Amemiya *et al.*, 2002; Fahmy *et al.*, 2003; Shields *et al.*, 2001; Ferry *et al.*, 1974). Breast cancer is known to be the primary tumour site in up to 90% of all female patients (Shields *et al.*, 1997; Wiegel *et al.*, 1995, 1997). Ocular metastasis are predominantly localised in highly vascular choroids, followed by the anterior segment, other orbital structures and the optic nerve (Ferry *et al.*, 1974; Merrill *et al.*, 1991). In daily practice, metastatic involvement of ocular structures in breast cancer seems to be a rare clinical entity; nevertheless, histopathological inquiries propose that 10-37% of patients with breast cancer have detectable ocular or orbital metastasis (Ferry *et al.*, 1974; Merrill *et al.*, 1991; Guethert *et al.*, 1965). Choroidal metastases had been documented to be a frequent finding in disseminated breast cancer (Wiegel *et al.*, 1998). In 12-31% of the affected individuals eye metastasis was reported to be the first sign of malignant disease or metastatic spread (Ferry *et al.*, 1974; Stuntz *et al.*, 2000; Reeves *et al.*, 2002; Glazer *et al.*, 1991). Choroidal metastasis in advanced asymptomatic breast cancer patients was determined to be 5% by ophthalmological screening and risk factors were proposed to be spread of disease to more than one organ and existence of lung and brain metastasis that increasing the risk to 11% (Wiegel *et al.*, 1998). On the other hand, screening study by Fenton *et al.* (2004) revealed that in asymptomatic patients ophthalmological involvement of metastatic breast carcinoma was 5.8% with no choroidal metastasis. The median period from diagnosis of breast cancer to development of choroidal metastasis and median survival for patients with ocular metastasis were reported to be 4 years and 5 to 17 months, respectively (Merrill *et al.*, 1991; Ratanatharathorn *et al.*, 1991; Amichetti *et al.*, 2000). In our patient, ophthalmological symptomatology appeared 2 years after primary diagnosis that the period was shorter than the previously published literature and choroidal metastasis was the first sign of distant organ involvement. Considering the above-cited data, clinicians in the field of breast cancer should be attentive to visual disturbances of patients that early diagnosis might improve ophthalmological consequences. Due to the advances in breast cancer treatment, promising prognostic results are being attained currently. Being aware of the fact that, improvements in the life quality of cancer patients is a crucial factor to increase life expectations of these patients, clinicians should constitute a complete ophthalmological examination for tumoral spread as a part of routine screening program, particularly in high risk patients or in disseminated disease. In the presence of ocular symptomatology, eye should be taken into consideration as the first manifestation region of metastasis in breast cancer.

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