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Choroidal Metastasis from Breast Cancer in a Young Male Patient, Case Report

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Abstract

Background: To report an uncommon case of choroidal metastasis caused by male breast cancer.

Case report: A 35-year-old gentleman presented with decreased visual acuity of left eye for about 6 months. The patient had a history of infiltrating breast carcinoma. The patient underwent a mastectomy, chemotherapy, and radiation therapy for the cancer four years ago. He was under oral medical therapy with tamoxifen. Ophthalmoscopic examination, B-scan ultrasonography, Fundus autofluorescence, Macular Optical Coherence Topography and other imaging were characteristics of metastatic choroidal tumor. Systemic investigations disclosed advanced metastatic disease. Radiotherapy is the preferred treatment for alleviating the symptoms. he received six cycles of systemic chemotherapy every three weeks with Cyclophosphamide, Methotrexate, and 5-fluorouracil. 6 months after treatment the patients BCVA increased to 4/10, and there was a reduction observed in the size of the choroidal metastasis.

Conclusion: In situations involving choroidal metastasis, it is important to consider the possibility of breast cancer as the primary cancer. We report this case to highlight this unusual source of choroidal metastasis, in males.

Keywords: Choroid Diseases, Male Breast Neoplasm, Male Breast Carcinoma, Neoplasm metastasis

1. Introduction

In adults, choroidal metastasis is the most frequently occurring malignant tumor within the eyes.(1) Although the origin of malignancy can occur in any part of the body, breast cancer is the principal source of choroidal metastasis in women, whereas, in men, it is commonly associated with lung cancer.(2) Male breast cancer (MBC) is scarce and comprises less than 1% of all cases of neoplastic growth in the male population. In addition, it represents only around 1% of all breast cancer diagnoses.(1, 3) Breast carcinoma in males is almost silent, consequently needing a high index of intuition for diagnosis.(3) In recent years, the incidence of male breast cancer has been on the rise owing to a lack of awareness among the male population about this disease, resulting in diagnosis at more advanced stages.(3)

Here, we present an uncommon instance of a young male who developed choroidal metastasis as a result of breast cancer.

2. Case Report

A 35-year-old man presented with decreased visual acuity of the left eye for about six months. The patient had a history of infiltrating breast carcinoma. The patient underwent a mastectomy, chemotherapy, and radiation therapy in 2017. He was under oral medical therapy with tamoxifen. Ophthalmic examination demonstrated the normal appearance of both eyes, and ocular motility was normal. The best corrected visual acuity (BCVA) was 2/10 in the left eye and 9/10 in the right eye. Both eyes showed normal results upon examination of the anterior segment. During the dilated fundus examination of the left eye, an indistinct creamy-white mass in the choroid was observed in the upper temporal arcade, and pigment epithelial abnormalities were identified in association with the mass with a normal optic disc with mild macular edema. Subretinal fluid was also detected in the lower temporal arcade. (Figure 1) Fundoscopy in the right eye did not display any abnormality.

Figure.1. Fundus photography of the left eye of the patient shows an ill-defined creamy-white choroidal mass in the upper temporal arcade and RPE abnormalities and subretinal fluid in the lower temporal arcade with mild macular edema

Ultrasonography of the left eye using a B-scan revealed a choroidal tumor with increased thickness which was hyperechogenic in the posterior region and caused secondary retinal detachment. (Figure 2).

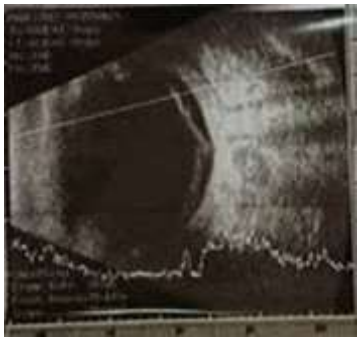

Figure 2. B-scan ultrasonography of the left eye shows a posterior hyperechogenic mass with choroidal thickening and secondary exudative retinal detachment.

Macular OCT of the left eye revealed an outer retinal layer disruption. There was subretinal fluid (SRF) with hyper-reflective dots within the SRF and choroidal thickening and choroidal fold. (Figure 3)

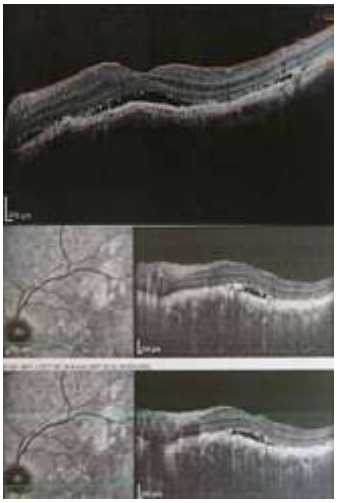

Figure 3. B-scan OCT of the left macula revealed choroidal thickening and folding with subretinal fluid and hyperreflective dots (speckles) in subretinal fluid, and disruption of outer retinal layers.

Fundus autofluorescence image of the left eye showed hypo-fluorescent regions. (Figure 4)

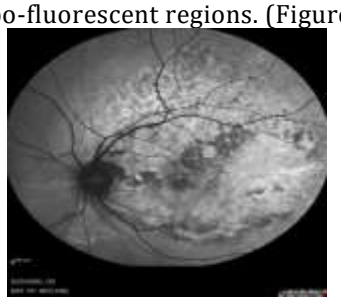

Figure 4. Fundus autofluorescence image of the left eye shows an irregular mixture of hyper and hypo autofluorescence regions with RPE abnormalities predominantly in the posterior pole and upper temporal arcade.

In the fluorescence angiography of the left eye, a block in the early phase and multiple leakages in the late phase were observed. Indocyanine Green Chorioangiography revealed multiple hypo-florescent areas. (Figure 5)

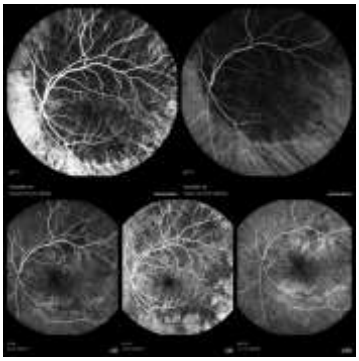

Figure 5. Fluorescein angiography of the left eye revealed blockage of choroid flush in the early phase and multiple punctuate leakage in the late phase, predominantly in the posterior pole. Indocyanine green cholangiography of the left eye shows multiple hypo fluorescent areas in the posterior pole and superior temporal arcade that remain stable in early and late phases.

3. Discussion

The choroid is mainly affected by ocular metastasis, with an incidence rate of 81%.(2) the extensive vascular structure of the choroid and its slow blood flow facilitates the hematogenous spread. (2) The frequency of occurrence of metastatic diseases caused by breast cancer is different among various studies, ranging from 5%-30%.(1) It is stated that about 39%-49% of all uveal metastasis originate from breast cancer. (2) The actual frequency of choroidal metastasis resulting from breast cancer is often underestimated since it is generally not detected early due to the absence of regular screening for all patients with breast cancer, its occurrence later in the course of the disease, and the presence of other significant systemic symptoms.(2).

It is estimated that there are approximately 25 cases of choroidal metastasis from breast cancer in men in the United States each year. (2) while the research in the report articles demonstrates 26 cases of choroidal metastasis in male breast cancer.(1) The average age at which choroidal metastasis was detected was approximately 57.5 years, and the approximate time since the discovery of primary cancer was about 13.5 years. (2) It is stated that the only major risk factor for developing choroidal metastasis in breast cancer patients is the spread of the disease to the lung and brain.(3) Occasionally, ocular metastasis has been documented as the first indication of an undetected breast tumor.(2)

The most frequent symptoms reported by patients with the ocular metastatic disease include visual impairments, such as blurred vision, ocular pain,

visual field defects, distortion of vision (metamorphopsia), floaters, and flashes of light.(4) Blurred vision caused by macular or juxta papillary retinal involvement or as a result of retinal detachment with the accumulation of fluid in the macular region occurs in 55%-70% of eyes. (5) Pain, other than such conditions as uveitis or glaucoma, is reported in 6% of CM from breast cancer.(4) There remains 15%-20% of asymptomatic patients in whom metastasis is discovered during a regular examination or a comprehensive assessment for generalized cancer.(3) The CM generally appears as creamy white or pale yellow masses accompanied by subretinal fluid (SRF), which is the most common associated feature observed in 28%-73% of patients. These masses can have a flat or plateau-shaped appearance.(5)

The most common forms associated with breast cancer metastasis are bilateral, multifocal, and diffuse.(4) It has been reported that metastatic choroidal lesions are located posterior to the equator (80%) or in the macular region (40%).(5) The diagnosis of ocular metastatic disease is primarily based on clinical examination. Recognition of metastatic sites in slit lamp biomicroscopy, alongside a history of breast cancer, is the hallmark of identification. Further imaging tests should be performed when there is uncertainty about the diagnosis. Hyper fluorescence of the mass in the late venous phase may be observed in fluorescein angiography. Tumor images, as hyperfluorescent areas of local hyperpigmentation and subretinal fluid, with hypo-fluorescent margins, may be revealed in the fundus autofluorescence.(3) The elevation of the retinal pigment epithelium (RPE) and retina, retinal thickening, and regions of detachment in the retina, if present, may be demonstrated in the Fourier-domain OCT.(3) Metastatic masses appear as regions with moderate to high internal reflectivity demonstrated in the B-scan ultrasonography.(3)

Although histological confirmation of cancer is a good guide for treatment by oncologists, the eye is an exception since intraocular tissues are difficult to reach. The biopsy of choroidal lesions can also lead to the spread of malignant cells and severe ocular complications. A biopsy is often used in situations where the primary tumor is unknown despite systemic workup. (5).

4. Conclusion

Choroidal metastases should be considered in all patients with known metastatic breast cancer and blurred vision, both in men and women. The identification of choroidal metastasis by an ophthalmologist can lead to treatment with systemic chemotherapy, local radiation therapy, or oral tamoxifen therapy, which can alleviate symptoms and enhance the patient's quality of life. Concisely, we report a case of breast carcinoma in a young male with suspected choroidal metastasis. He was younger than the other reported cases and the mean average age. The other notable point about our patient is that the period between the diagnosis of primary disease and choroidal metastasis was only five years, which is lower than the other reported cases. We report this case to highlight this rare source of choroidal metastasis in males.

Conflicts of interest

None.

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