Choroidal Micrometastasis As a First Manifestation of Systemic Involvement From Breast Cancer

Meme Kanserinin Sistemik Tutulumun İlk Bulgusu Olarak Ortaya Çıkan Koroidal Mikrometastaz*

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ABSTRACT

The aim of this study was to present the clinical features of a patient with choroidal micrometastasis from breast cancer as a first manifestation of systemic involvement. A 49-year-old woman who underwent left radical mastectomy combined with adjuvant therapy for breast cancer presented with blurred vision in her left eye. The patient underwent detailed ophthalmologic examination, optical coherence tomography (OCT), fundus autofluorescence (FAF) imaging and fundus fluorescein angiography (FFA). Left fundus examination revealed a yellowish lesion with subretinal fluid at posterior pole involving the macula. OCT demonstrated serous retinal detachment and retinal pigment epithelium layer irregularity. Although FAF imaging showed speckled hypo-hyper autofluorescence and FFA revealed hyperfluorescent areas superior to the macula. Clinical findings were consistent with choroidal metastasis. Systemic scan revealed the metastases to choroid and adrenal gland. In conclusion, ocular imaging patterns might help us for differential diagnosis of microscopic choroidal metastases from other ocular pathologies.

Key Words: Breast cancer, choroidal metastasis, fundus autofluorescence, optical coherence tomography.

ÖZ

Bu çalışmanın amacı, meme kanserinin sistemik tutulumunun ilk bulgusu olarak ortaya çıkan koroidal mikrometastazlı bir hastanın klinik özelliklerinin sunulmasıdır. Meme kanseri nedeniyle adjuvan terapi ile kombine sol radikal mastektomi uygulanmış olan 49 yaşındaki kadın hasta sol gözünde bulanık görme ile başvurdu. Hastaya, ayrıntılı göz muayenesi, optik koherens tomografi (OKT), fundus otofloresan (FOF) görüntüleme ve fundus floresein anjiyografi (FFA) uygulandı. Sol gözün fundus muayenesinde, arka kutupta makulayı içine alan subretinal sıvı ile birlikte sarımsı lezyon saptandı. Optik koherens tomografide, seröz retinal ayrılma ve retina pigment epitel tabakası düzensizliği saptanırken, FOF görüntülemede, benekli yapıda hipo-hiper otofloresans ve fundus floresein anjiyografide, makula superiorunda hiperfloresan sahalar gözlendi. Klinik bulgular koroidal metastaz ile uyumluydu. Sistemik taramada, koroid ve adrenal bez metastazları saptandı. Sonuç olarak, oküler görüntüleme paternleri, meme kanseri kaynaklı mikroskobik koroidal metastazların diğer oküler patolojilerden ayrılmasında fayda sağlayabilmektedir.

Anahtar Kelimeler: Meme kanseri, koroidal metastaz, fundus otofloresans, optik koherens tomografi.

INTRODUCTION

Uveal metastatic tumors are the most common intraocular malignancies and breast is the leading primary origin.[1] Patients with uveal metastasis from breast cancer represent visual symptoms in 93% of cases.[2]

Diagnosis of choroidal metastasis is based on the patient history of malignancy, dilated fundus examination, ocular ultrasonography, fundus fluorescein angiography (FFA), fundus autofluorescence (FAF) imaging, optical coherence tomography (OCT) and indocyanine green angiography.[3] The aim of the current study was to present clinical features of a patient with microscopic choroidal metastasis from breast carcinoma as an initial manifestation of systemic involvement.

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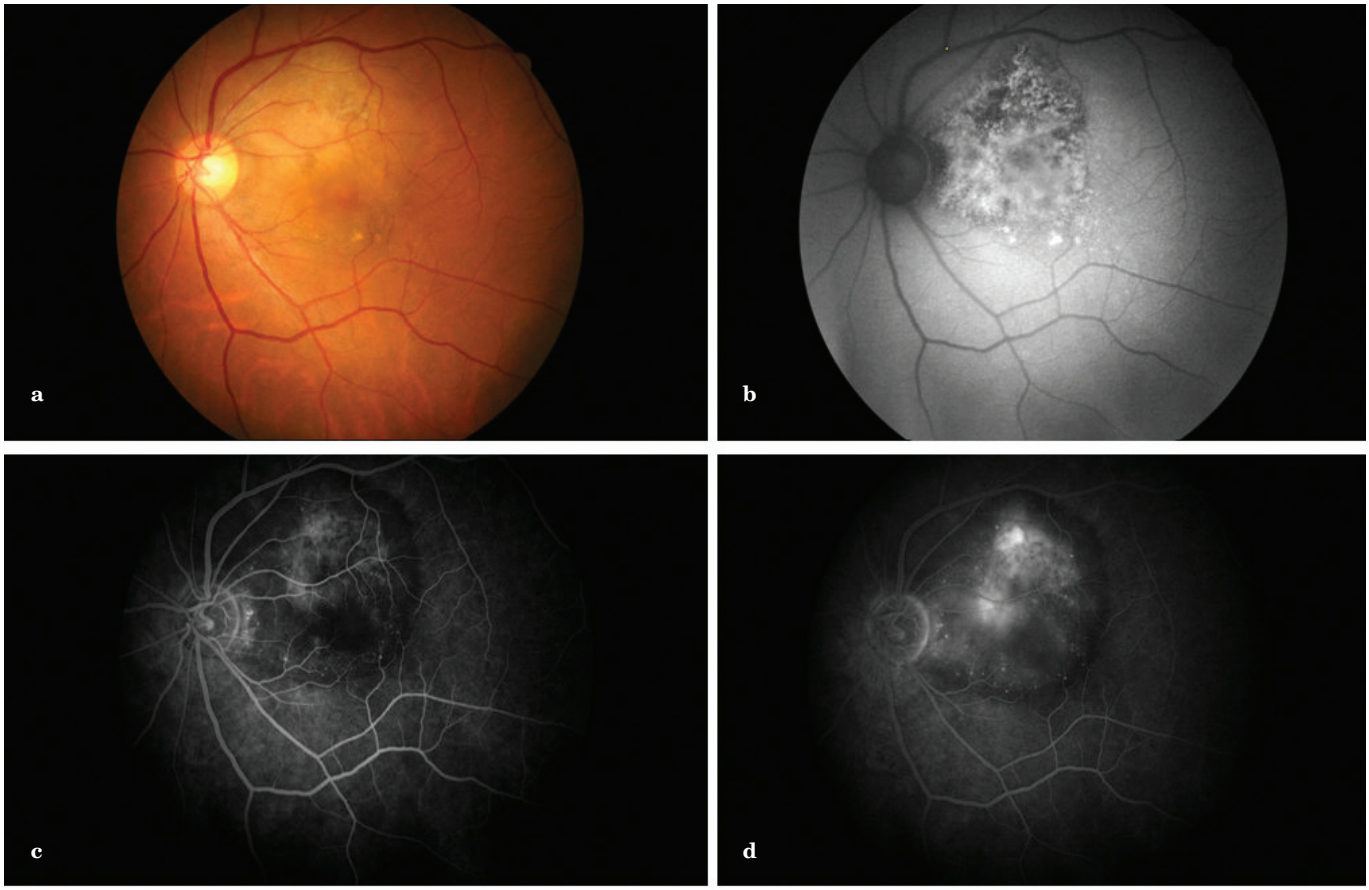

Figure 1a-d: *Fundus photograph of left eye showing a yellowish choroidal lesion with subretinal fluid (a). Fundus autofluorescence image showing speckled hypo-hyper autofluorescence and hyperautofluorescent dots inferior to the macula (b). Fluorescein angiogram reveals granular and punctate hyperfluorescence, which starts at early phase (c) and increases during late phase (d).*

CASE REPORT

A 49-year-old woman presented with decreased visual acuity in her left eye for 15 days. She was previously treated with radical mastectomy combined with adjuvant chemotherapy and radiation therapy seven years ago for breast cancer (without systemic metastasis). She underwent detailed ophthalmological examinations included slit-lamp biomicroscopy, dilated fundus examination (+90 D), ocular ultrasonography, high-definition OCT, FAF imaging (digital retinal camera) and FFA (digital retinal camera). On initial examination, best-corrected visual acuity was 0.7 in the right eye and 0.3 (Snellen charts) in the left eye. Slit-lamp biomicroscopy and intraocular pressure measurements were within normal limits in both eyes. Left fundus examination revealed a yellowish lesion with subretinal fluid at posterior pole (Figure 1a). However, right fundus was normal. FAF imaging showed mottled hypo and hyper autofluorescence at the lesion area superior to the macula and hyperautofluorescent dots, which were seen as multiple yellow lesions inferior to the macula (Figure 1b). Fundus fluorescein angiogram revealed granular and punctate hyperfluorescence at the lesion area, which started at early phase (Figure 1c) and increased during late phase of the angiogram (Figure 1d).

OCT demonstrated disintegration of photoreceptor layer and irregularity of the retinal pigment epithelium (RPE) layer. Moreover, foveal detachment with subretinal fluid was observed. Figure 2 demonstrates OCT scans of two retinal points that have different FFA characteristics. Ocular ultrasonography and orbital magnetic resonance imaging findings were nonspecific. It was considered that clinical findings were consistent with choroidal metastasis. The patient was referred to oncology clinic for systemic examination. Positron emission tomography scanning revealed the metastases to adrenal gland and choroid.

DISCUSSION

Breast carcinoma is the most common tumor to metastasize to the uveal tract. Uveal metastasis typically occurs 3-5 years after diagnosis of the primary tumor and may be the first sign of metastatic disease.[2] Local ocular tumor control is successful with current therapies. However, systemic prognosis for patients is poor with survival rates of 24% at 5-year follow-up.[2]

Ocular imaging instruments like FFA, FAF and OCT are very useful for determining choroidal metastatic tumor characteristics.

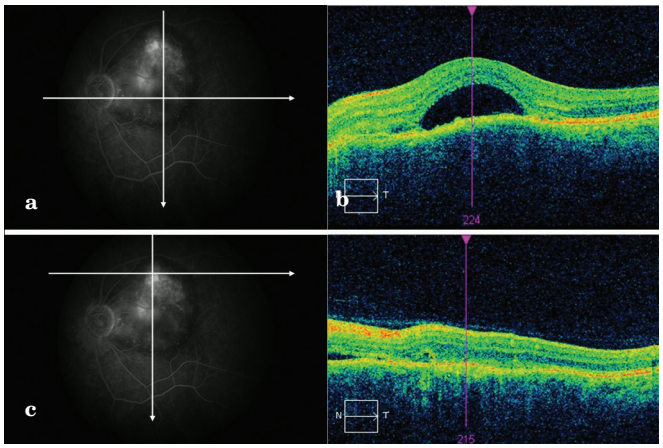

Figure 2a-d: *Fluorescein angiography images of two retinal points, which have different angiographic characteristics and corresponding optical coherence tomography scans.*

Iuliano et al.,[4] reported OCT patterns of the choroidal metastases as subretinal fluid and marked irregularity of the retinal pigment epithelium with thickening, hyperintense irregular spots in the photoreceptor layer. Fundus autofluorescence is a non-invasive imaging technique that provides information about functional impairment of the RPE cells. Natesh et al.,[5] reported that FAF imaging revealed hyperautofluorescence in areas of focal pigmentation and subretinal fluid with hypoautofluorescent margins in choroidal metastasis. In this case, OCT demonstrated retinal complications of the metastatic invasion included disruption in photoreceptor layer and irregularity of retina pigment epithelium layer accompanied with serous retinal detachment. Unlike the study of Natesh et al.,[5] FAF imaging revealed widespread speckled hypo and hyper autofluorescence and hyperautofluorescent dots, which were seen as multiple yellow lesions inferior to the macula by fundus examination. Reversely, FFA showed growing granular and punctate hyperfluorescence at the lesion area during the late phase, which was seen hypoautofluorescent by FAF. These findings indicate that RPE cells around and overlying the metastatic lesion were damaged or lost and occurring FAF pattern might be distinguishing for choroidal micrometastatic lesions. owever, choroidal neovascular lesions, inflammatory pathologies, central serous chorioretinopathy and other primary or secondary tumors should be considered for differential diagnosis. In conclusion, this report pointed out the clinical characteristics of a patient with a choroidal metastatic lesion complicated with subretinal fluid as a first manifestation of the systemic metastasis. A detailed patient history and careful assessment of ocular imaging patterns might guide for early diagnosis and follow up of the ocular metastatic disease especially when there is no detectable mass as in this case.

KAYNAKLAR/REFERENCES

1. Barak A, Neudorfer M, Heilweil G, et al. Decreased prevalence of asymptomatic choroidal metastasis in disseminated breast and lung cancer: argument against screening. Br J Ophthalmol 2007;91:74-5.
2. Demirci H, Shields CL, Chao AN, et al. Uveal metastasis from breast cancer in 264 patients. Am J Ophthalmol 2003;136:264-71.
3. Ishida T, Ohno-Matsui K, Kaneko Y, et al. Autofluorescence of metastatic choroidal tumor. Int Ophthalmol 2009;29:309-12.
4. Iuliano L, Scotti F, Gagliardi M, et al. SD-OCT Patterns of the Different Stages of Choroidal Metastases. Ophthalmic Surg Lasers Imaging 2012;43:e30-4.
5. Natesh S, Chin KJ, Finger PT. Choroidal metastases fundus autofluorescence imaging: correlation to clinical, OCT, and fluorescein angiographic findings. Ophthalmic Surg Lasers Imaging 2010;41:406-12.