JUXTAPAPILLARY CHOROIDAL METASTASIS OF BREAST CARCINOMA: A CASE REPORT

ABSTRACT

Introduction: Choroidal metastases are the most common intraocular malignant tumors and are usually associated with advanced systemic malignancy. Breast carcinoma is the leading cause in women, while juxtapapillary localization remains uncommon.

Case presentation: A 52-year-old woman with a history of breast carcinoma presented with decreased visual acuity in the left eye. Fundus examination and multimodal imaging revealed a yellowish, amelanotic juxtapapillary choroidal lesion extending toward the posterior pole, consistent with choroidal metastasis. External beam radiotherapy was initiated after multidisciplinary evaluation.

Conclusion: Juxtapapillary choroidal metastasis from breast carcinoma is rare and may threaten visual function. Early diagnosis using multimodal imaging and coordinated multidisciplinary management are essential to optimize visual outcomes.

KEYWORDS: Choroidal metastasis, Breast carcinoma, Juxtapapillary lesion

INTRODUCTION

Choroidal metastases represent the most common intraocular malignant tumors in adults and are a frequent manifestation of advanced systemic malignancy (1). They arise through hematogenous spread and are most often diagnosed in the setting of disseminated metastatic disease, generally reflecting a poor overall prognosis (2). Owing to its rich vascular supply, the choroid constitutes the primary site of ocular metastasis, accounting for approximately 85–90% of intraocular metastatic lesions (3).

The reported prevalence of choroidal metastases varies widely in the literature, ranging from 2% to 12% among patients with metastatic cancer in clinical series (4,5). Autopsy studies, however, suggest a significantly higher incidenceup to 30%indicating that ocular involvement may remain clinically unrecognized in a substantial proportion of patients (6). Improvements in systemic cancer therapies and prolonged patient survival, together with advances in ophthalmic imaging modalities such as optical coherence tomography, have led to increased detection of choroidal metastases in recent years (7).

Breast carcinoma is the most frequent primary tumor associated with choroidal metastases in women, accounting for approximately 40–50% of cases, whereas lung carcinoma, particularly bronchopulmonary carcinoma, predominates in men (3,8). Collectively, these two malignancies are responsible for nearly two-thirds of all reported choroidal metastatic lesions. Other less common primary sites include gastrointestinal malignancies, renal cell carcinoma, prostate cancer, and cutaneous melanoma (9).

Clinically, choroidal metastases may remain asymptomatic or present with nonspecific visual symptoms, including blurred vision, decreased visual acuity, metamorphopsia, or visual field defects, often secondary to associated serous retinal detachment (10). Juxtapapillary

involvement is relatively uncommon and poses specific diagnostic and therapeutic challenges due to its proximity to the optic nerve head and the risk of rapid visual deterioration (11).

Importantly, ocular metastasis may represent the first manifestation of an underlying systemic malignancy in up to 30% of cases or may signal disease progression in patients with known cancer (12). Early recognition is therefore crucial. Multimodal imaging, combining fundus examination, optical coherence tomography, fluorescein angiography, and ocular ultrasonography, remains central to diagnosis and follow-up (13).

We report a case of juxtapapillary choroidal metastasis secondary to breast carcinoma, highlighting the clinical presentation, imaging features, and diagnostic considerations of this uncommon localization.

CASE REPORT

A 52-year-old woman with a history of left breast adenocarcinoma treated four years earlier was referred to the ophthalmology department for progressive visual impairment of the left eye. Her oncological history included systemic treatment, and she was under regular oncologic follow-up at the time of presentation.

On ophthalmologic examination, best-corrected visual acuity was 4/10 in the right eye and 1/10 in the left eye. Intraocular pressure was within normal limits in both eyes. Anterior segment examination was unremarkable bilaterally.

Fundus examination of the right eye revealed a clear vitreous with macular alterations characterized by hard exudates (fig 1). Examination of the left eye showed mild vitritis associated with a yellowish, creamy-colored, amelanotic choroidal lesion located in a juxtapapillary position, extending toward the posterior pole. The lesion appeared slightly elevated with irregular margins and was associated with pigmentary changes of the overlying retinal pigment epithelium (fig2,3 and 4).

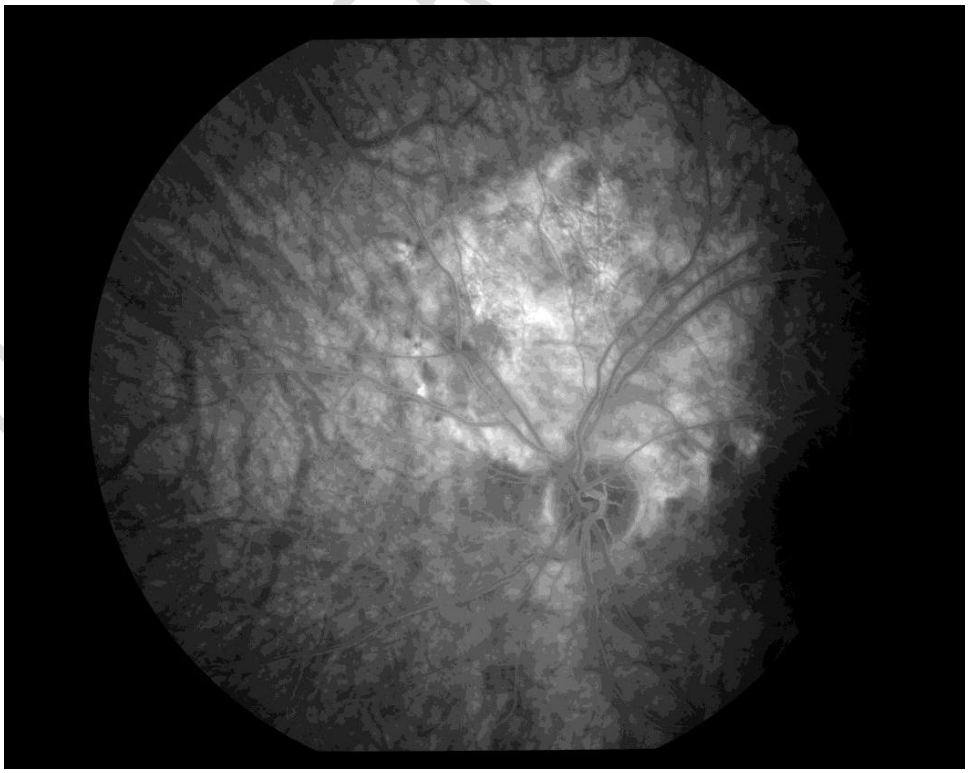
Fig1: Fundus photograph of the right eye showing macular hard exudates.

Fig2: Red-free fundus photograph of the left eye showing a juxtapapillary choroidal lesion extending toward the posterior pole.

Fig 3. Red-free fundus photograph of the left eye highlighting a juxtapapillary choroidal lesion extending toward the posterior pole.

Fig 4. Autofluorescence fundus photograph of the left eye highlighting retinal pigment epithelium alterations overlying the juxtapapillary lesion.

Fluorescein angiography demonstrated early hypofluorescence due to blockage, followed by irregular staining of the lesion during the arteriovenous phase. In the late phases, a mottled hyperfluorescence was observed, progressively becoming more confluent, consistent with the angiographic pattern typically described in choroidal metastases (Fig.5).



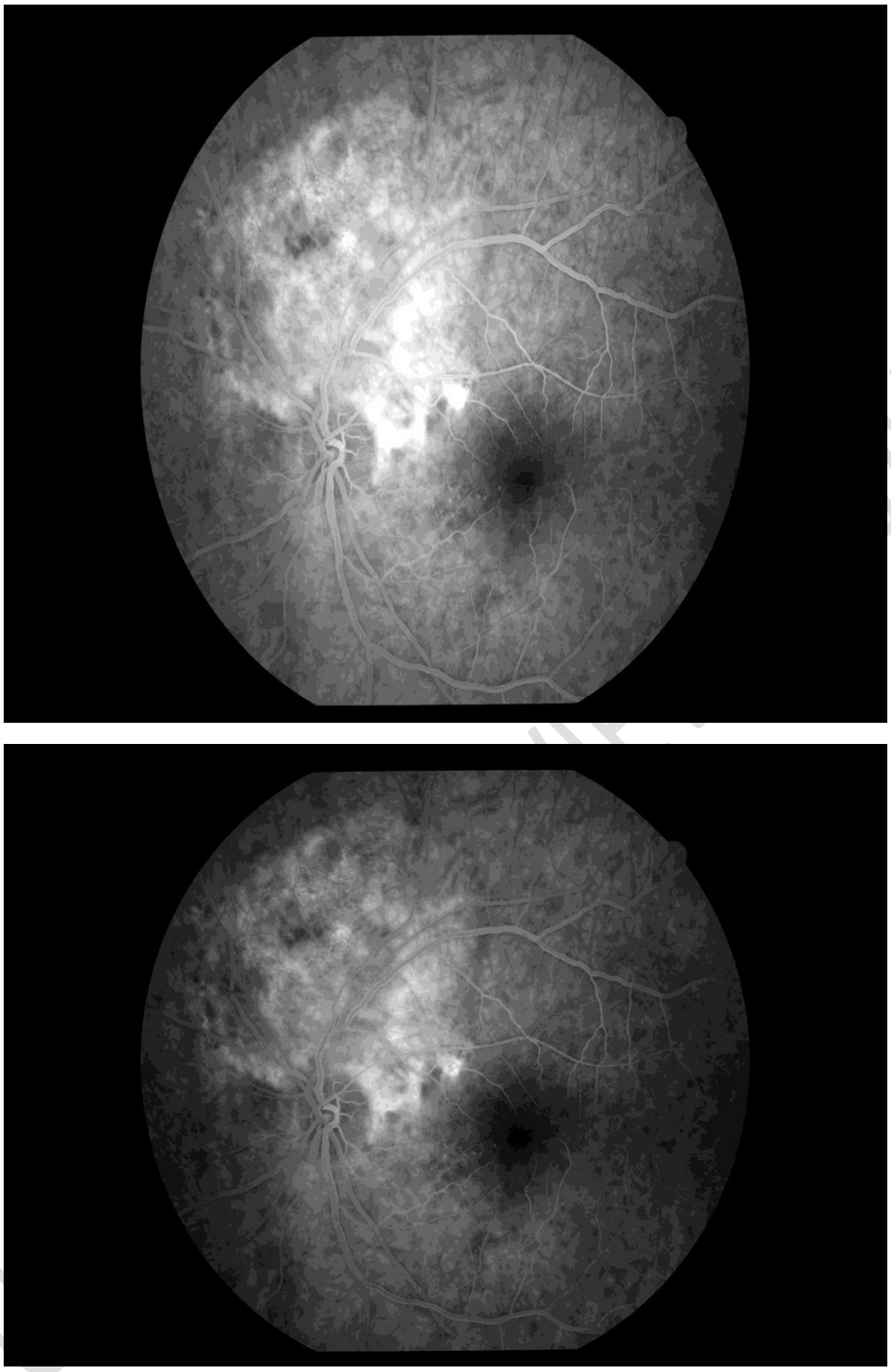


Fig 5. Fluorescein angiography of the left eye showing early hypofluorescence followed by progressive irregular hyperfluorescence of a juxtapapillary choroidal lesion.

Optical coherence tomography revealed an elevated choroidal mass with heterogeneous internal hyperreflectivity, associated with disruption of the outer retinal layers and retinal pigment epithelium irregularities. No significant subretinal fluid was noted at the time of examination.

B-scan ultrasonography showed a placoid, hyper-echoic choroidal lesion with moderate internal reflectivity and absence of choroidal excavation, findings that further supported the diagnosis of choroidal metastasis rather than primary uveal melanoma.

Based on the patient's oncological history, clinical presentation, and multimodal imaging findings, the diagnosis of juxtapapillary choroidal metastasis secondary to breast carcinoma was strongly suspected. After multidisciplinary discussion involving ophthalmologists and oncologists, external beam radiotherapy was selected as the treatment modality.

DISCUSSION

Choroidal metastases may represent either a manifestation of disseminated metastatic disease or, less frequently, the initial presentation of an underlying primary malignancy. Although ocular metastases are often asymptomatic in the early stages, they are most commonly diagnosed in advanced phases of cancer and coexist with metastases in other organs in approximately 60% to 91% of cases, reflecting an overall poor systemic prognosis (2,14).

Clinically, choroidal metastases typically present with nonspecific visual symptoms. Metamorphopsia and decreased visual acuity are the most frequent presenting complaints, particularly when the lesion involves the macular or juxtapapillary region (10). Laterality varies among series, with unilateral involvement reported in approximately 60–65% of cases and bilateral lesions observed in up to 35–40%, especially in patients with breast carcinoma (3).

On ophthalmoscopic examination, choroidal metastases classically appear as yellow-white, creamy, amelanotic lesions with indistinct margins and limited elevation. Lesion size is variable, commonly ranging from 2 to 10 disc diameters. These lesions are frequently associated with serous retinal detachment due to disruption of the outer blood–retinal barrier, contributing significantly to visual impairment (9).

Fluorescein angiography remains a valuable diagnostic tool, typically demonstrating early hypofluorescence caused by blockage, followed by progressive leakage from multiple pinpoint hyperfluorescent foci during the arteriovenous and late phases. This angiographic pattern corresponds to tumor vascular permeability and diffusion of dye into the subretinal space, particularly in cases associated with serous neurosensory detachment (7).

B-scan ultrasonography is an essential component of the diagnostic workup. Choroidal metastases characteristically present as relatively flat or placoid lesions with moderate to high internal reflectivity and absence of choroidal excavation, allowing reliable differentiation from primary uveal melanoma, which typically exhibits low to medium reflectivity and choroidal excavation (15).

Optical coherence tomography has become increasingly important in recent years, providing high-resolution cross-sectional imaging of choroidal metastases. Typical findings include an irregular, elevated choroidal mass with heterogeneous internal reflectivity, compression of the choriocapillaris, disruption of the retinal pigment epithelium, and frequent overlying subretinal fluid (13). Enhanced depth imaging OCT further improves visualization of choroidal involvement and tumor configuration.

Histopathological confirmation by choroidal biopsy is generally not required when there is a known primary malignancy and typical clinical and imaging features. However, biopsy remains indicated in cases of isolated choroidal lesions, atypical presentation, or when no primary tumor has been identified, in order to guide systemic investigation and management (16).

The detection of choroidal metastasis should prompt a thorough and systematic evaluation to identify or reassess the primary malignancy and the extent of systemic disease. Close collaboration between ophthalmologists, oncologists, and radiation oncologists is essential for optimal patient management (17).

Therapeutic strategies for choroidal metastases are primarily palliative and aim to preserve visual function and improve quality of life. External beam radiotherapy remains the standard local treatment, achieving tumor regression and visual stabilization or improvement in the majority of cases (5). Systemic treatments, including chemotherapy, targeted therapy, and hormonotherapyparticularly in hormone receptor–positive breast cancer—play a crucial role in controlling both ocular and systemic disease (18). Treatment choice depends on tumor burden, systemic disease status, life expectancy, and visual prognosis.

Juxtapapillary localization, as observed in the present case, represents a particular challenge due to the proximity to the optic nerve head and the potential for rapid visual deterioration. Early diagnosis and timely treatment are therefore critical to preserving residual visual function (11).

CONCLUSION

Choroidal metastases secondary to breast carcinoma remain an uncommon but clinically significant manifestation of systemic disease. Their poor prognosis is primarily related to the advanced stage and biological aggressiveness of the primary tumor, as well as to the frequent association with metastatic involvement of other organs. Ocular involvement generally reflects widespread dissemination and is often indicative of limited overall survival.

Despite their rarity, choroidal metastases should be considered in patients with a history of breast cancer who present with visual symptoms, particularly when the posterior pole or juxtapapillary region is involved. Multimodal ophthalmic imaging plays a pivotal role in establishing the diagnosis, assessing lesion characteristics, and differentiating metastatic lesions from primary intraocular tumors.

Management of choroidal metastases requires a multidisciplinary approach integrating ophthalmologists, oncologists, and radiation oncologists. Local treatments such as external beam radiotherapy, combined with systemic therapies including chemotherapy, hormonotherapy, or targeted agents, aim primarily to preserve visual function and improve quality of life rather than achieve curative outcomes.

Early diagnosis and timely intervention may allow visual stabilization and symptomatic relief, even in the context of advanced systemic disease. Increased awareness of this entity among clinicians is essential to ensure prompt recognition and appropriate management, thereby optimizing visual prognosis and patient-centered care.

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