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SHORT COMMUNICATION

Necrotic uveal melanoma with orbital inflammation

M.A. BLASI[1], D. GIAMMARIA[1], E. BALESTRAZZI[2]

[1]Department of Ophthalmology, University of L'Aquila
[2]Department of Ophthalmology, Catholic University of Roma, Roma - Italy

PURPOSE. *Extraocular extension of uveal melanoma can be accompanied by proptosis and signs of orbital inflammation but this clinical presentation is an uncommon feature if the tumor is solely intraocular.*
METHODS. *Case report.*
RESULTS. *The authors describe a patient with a medium-sized necrotic uveal melanoma, without extraocular spread, presenting with the clinical picture of orbital cellulitis.*
CONCLUSIONS. *The ophthalmologist needs to be aware of this uncommon presentation of uveal melanoma, and not assume the presence of proptosis and orbital inflammation as signs of extraocular extension. (Eur J Ophthalmol 2006; 16:647-50)*

KEY WORDS. *Uveal melanoma, Necrosis, Orbital inflammation*

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INTRODUCTION

Extraocular extension of uveal melanoma is often associated with proptosis and orbital inflammation, due to tumor spreading into the orbit (1). Orbital inflammation in the absence of extrascleral extension represents an unusual feature and could be a diagnostic challenge to the physician (2). The mechanism causing orbital inflammation in this case is unknown. Massive necrosis within large melanomas has been associated with orbital inflammation (2-5).

This case report describes an elderly woman with a necrotic uveal melanoma without extrascleral extension developing a secondary orbital inflammation.

Case report

A 56-year-old white woman was referred for an intraocular tumor associated with a remarkable inflammation of the right eye and periocular tissues. The patient complained of pain and visual loss, first noticed 2 weeks before. She had been diagnosed with orbital cellulitis after computed tomography scan (Fig. 1A). Subsequently, magnetic resonance imaging scan revealed intraocular tumor. Her medical history was unremarkable. On examination, there was a moderate degree of proptosis associated with lid edema and erythema. Severe conjunctival vascular congestion and ciliary flush were noticed; the anterior chamber (AC) was filled by partially pigmented tissue (Fig. 1B). The visual acuity was limited to light perception, and the intraocular pressure was 32 mmHg. B-scan ultrasonography detected a solid lesion from the ciliary body into the AC, showing low internal reflectivity and measuring 10.73 x 6.59 x 3.95 mm. Ciliary body melanoma was the working diagnosis. The patient underwent enucleation of the right eye. Increased bleeding and marked edema of the orbital tissues were observed during surgery. The pain and inflammatory signs gradually resolved completely within a few days after enucleation.

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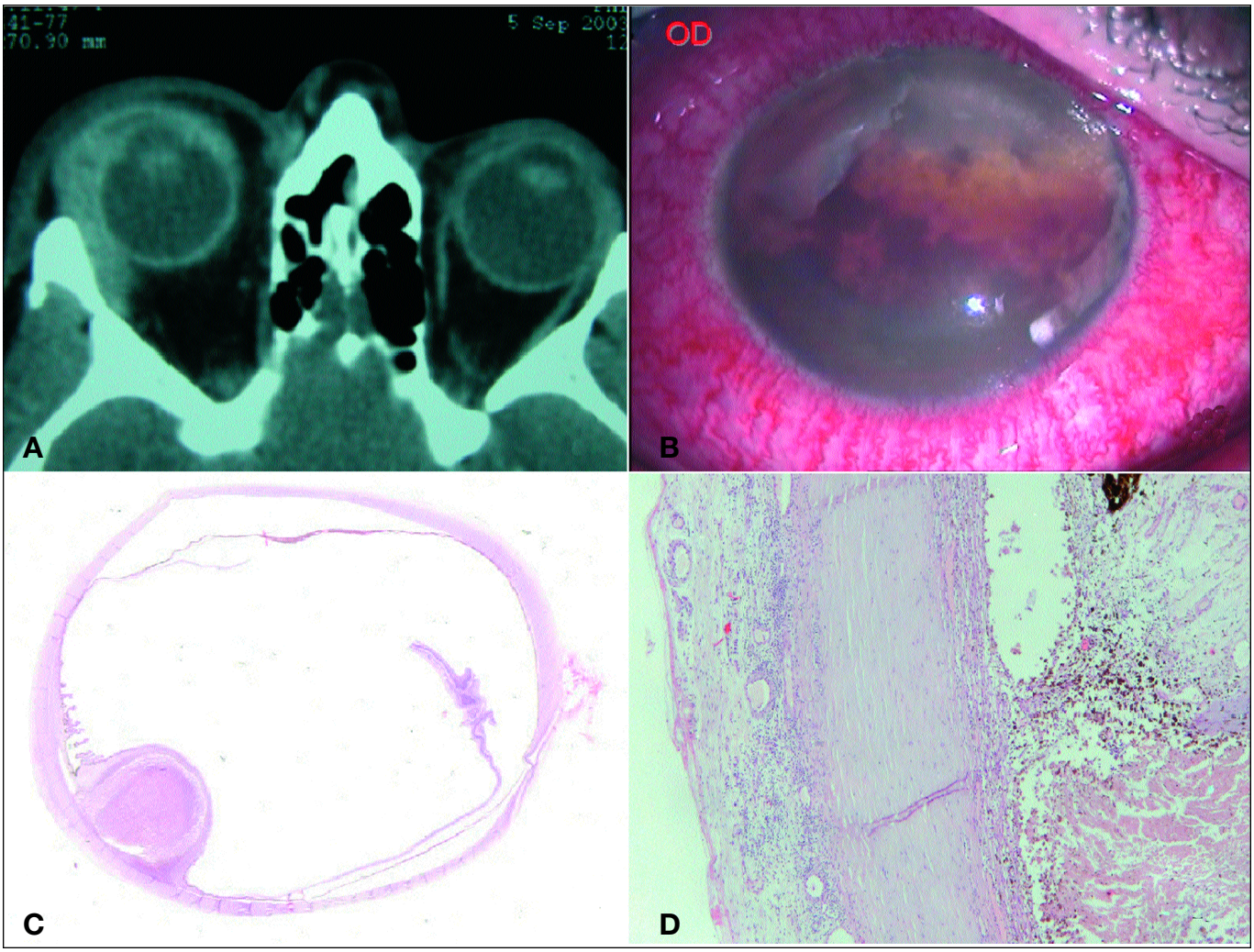

Fig. 1 - (A) *Computed tomographic scan of the orbits, with contrast enhancement, axial view.* **(B)** *Severe conjunctival vascular congestion and ciliary flush, anterior chamber filled by neoplastic tissue.* **(C)** *Macroscopic section of the enucleated eye, tumor involving the ciliary body (H-E, original magnification x 20).* **(D)** *Chronic inflammatory infiltrate overlying the sclera (episcleritis) (H-E, original magnification x 40).*

Gross examination showed a gray neoplasm involving ciliary body, 8 x 6 x 3 mm, and a small mass attached to the iris (Fig. 1C), made of eosinophilic material occluding the anterior chamber angle. Dilated vessels in the iris stroma and episcleritis overlying the tumor area were observed (Fig. 1D). The tumor was almost completely necrotic, with a few viable areas of moderately pigmented spindle cells (Fig. 2, A and B), positive for melanoma cell markers S100 protein and gp100 (Fig. 2C). The immunostaining for CD68 confirmed the presence of a large amount of macrophages (Fig. 2D).

The gross and microscopic examination did not reveal any extraocular extension of melanoma. Those findings correlate with the results of the ultrasonographic examination showing only an intraocular neoplasm. The patient has no local recurrence or metastasis after 1 year.

DISCUSSION

Necrotic areas are common in uveal melanomas, and necrotic melanomas, according to Bujara, fall into two groups (6). The first, which includes tumors with no or few viable cells, is very rare. Tumors included in this group are called totally necrotic melanomas. In the second group there are tumors with a necrotic area of more than 50% tumor mass, defined as par-

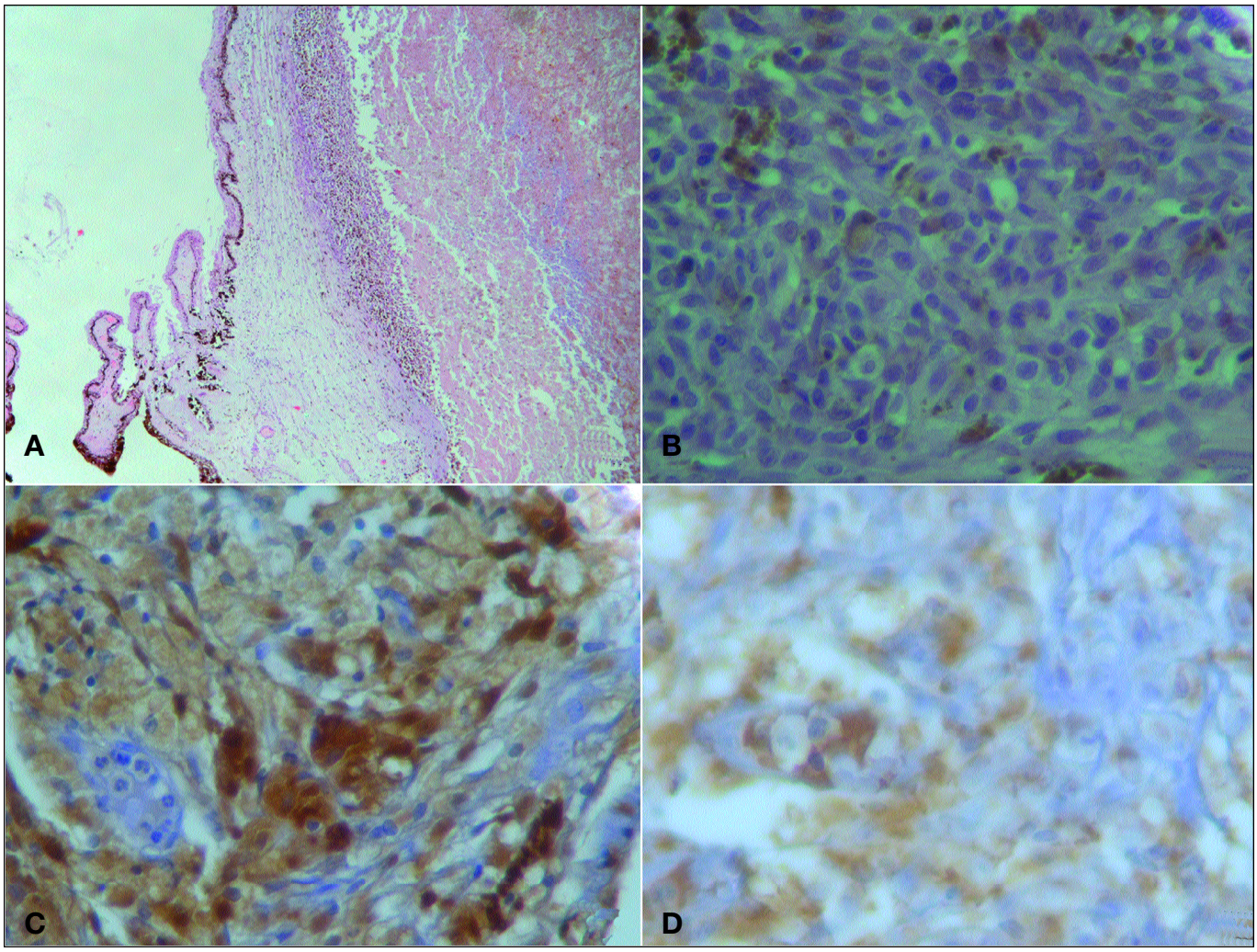

Fig. 2 - (A) *Tumor almost completely necrotic with a few viable peripheral areas of spindle cells (H-E, original magnification x 40).***(B)** *High magnification spindle-shaped cells with atypical nuclei and large eosinophilic nucleoli (H-E, original magnification x 400).***(C)** *Positive immunohistochemical stain for S100 protein (LSAB-peroxidase, x 400).* **(D)** *Positive immunohistochemical stain for CD68 (LSAB-peroxidase, x 400).*

tially necrotic melanomas. There are different studies on the incidence of totally necrotic melanoma. Callender et al (7) quoted a frequency of 9%, Paul et al (8) 7%, and Bujara (6) 3.6%. The reason for these decreasing numbers can be partly attributed to earlier diagnosis and treatment.

The COMS (9) found that 66.2% of tumors with heavy pigmentation showed some necrosis and macrophages increased with necrosis. Necrotic type tumors were associated with a larger tumor size, epithelioid cell type, and heavy pigmentation.

The cause of the tumor necrosis is unknown, but both ischemia and immunity may play a role (10). Ischemic damage occurs because of the insufficient blood supply for the metabolic demand of the rapidly growing tumor cells, which die following the structural changes of the lipidic membranes and intracellular activation of lysosomal enzymes.

Necrotic tissue is a powerful stimulus to the inflammatory response. Through the release of inflammatory mediators and cytokines, necrosis is capable of causing the clinical features of intraocular inflammation (10).

However, it is unusual for melanomas without extrascleral extension to be associated with orbital inflammation, as in this case. Rose et al (2), Hardman Lea et al (3), Tabassian and Zuravleff (4), and Biswas et al (5) reported a total of six cases of necrotic uveal

melanoma with an initial manifestation as orbital cellulitis and no evidence of extrascleral extension. The mechanism to account for that is probably multifactorial. One possible mechanism is the spread of inflammatory mediators, including cytokines produced by macrophages and necrotic products from tumour cell lysis, into the orbital space. These substances may reach the orbital adipose and soft tissues through the vortex veins system and/or, via the trabecular meshwork, the episcleral veins.

We described a medium-sized, moderately pigmented, spindle-cell type, totally necrotic melanoma, without extrascleral spread, presenting with symptoms and signs of orbital inflammation mimicking orbital cellulitis. Although this clinical presentation of uveal melanoma is very uncommon, the ophthalmologist needs to be aware of it, and should not assume the presence of extraocular extension in patients with uveal melanoma who present with proptosis and orbital inflammation.

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Reprint requests to:
Maria Antonietta Blasi, MD
Clinica Oculistica
Ospedale San Salvatore
67100 L'Aquila, Italy
ma.blasi@flashnet.it

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