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SHORT COMMUNICATION

Case report

Indocyanine green angiography of optic nerve head melanocytoma

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ABSTRACT: Purpose: *To determine the features of fluorescein and indocyanine green angiography of melanocytoma.*
Methods: *Fluorescein and indocyanine green angiography is used to assess an optic nerve head melanocytoma in a 45-year-old female.*
Results: *Fluorescein angiography revealed increased vascularity on the surface, with staining around the lesion in the late stages. The lesion was hypofluorescent in all stages of indocyanine green angiography.*
Conclusions: *Indocyanine green angiography is helpful in identifying the benign nature of the lesion by showing hypofluorescence, indicating lack of vascularity in the tumor. (Eur J Ophthalmol 1999; 9: 68-70)*

KEY WORDS: Melanocytoma, Fluorescein angiography, Indocyanine green angiography

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INTRODUCTION

Since the introduction of the ophthalmoscope in 1851, a few pigmented tumors arising from the optic nerve have been reported (1, 2). In such tumors, it is crucial to determine whether the lesion is benign or malignant. Here, fluorescein and indocyanine green angiographic findings in a case with optic nerve head melanocytoma are reported, and differential diagnosis is discussed.

Case report

A 45-year-old woman without any complaint was seen for a routine ocular examination. Best-corrected visual acuities were 20/20 OU. Anterior segment examination was within normal limits. Fundus examination of the right eye revealed a greyish-black, elevated lesion covering more than 3/4s of the optic nerve head, situated inferiorly (Fig. 1a). Very little glial tissue over the lesion was barely discernible. There was no peculiar fibrillary edge. The left fundus was normal. Upon questioning, the patient remembered being told of “something like nevus at the back of the eye” 5 years earlier.

Visual field testing with high resolution perimetry was normal. Ultrasonography disclosed a 1.8 mm thick lesion on the disc with high internal reflectivity, along with normal posterior contours of the optic nerve.

Fluorescein angiography (FA) revealed hypofluorescence of the lesion at an early stage (Fig. 1b), increased vascularity on the surface with staining around the lesion, but no significant disc staining during the late stages (Fig. 1c). The lesion was hypofluorescent in all stages of the indocyanine green angiography (ICGA) (Fig. 1d). At 12 months follow-up, the lesion had not changed either in size or in color.

DISCUSSION

A variety of pigmented tumors can involve the optic nerve head (1, 2). These can be mainly classified into 2 groups as melanocytomas and melanomas (3).

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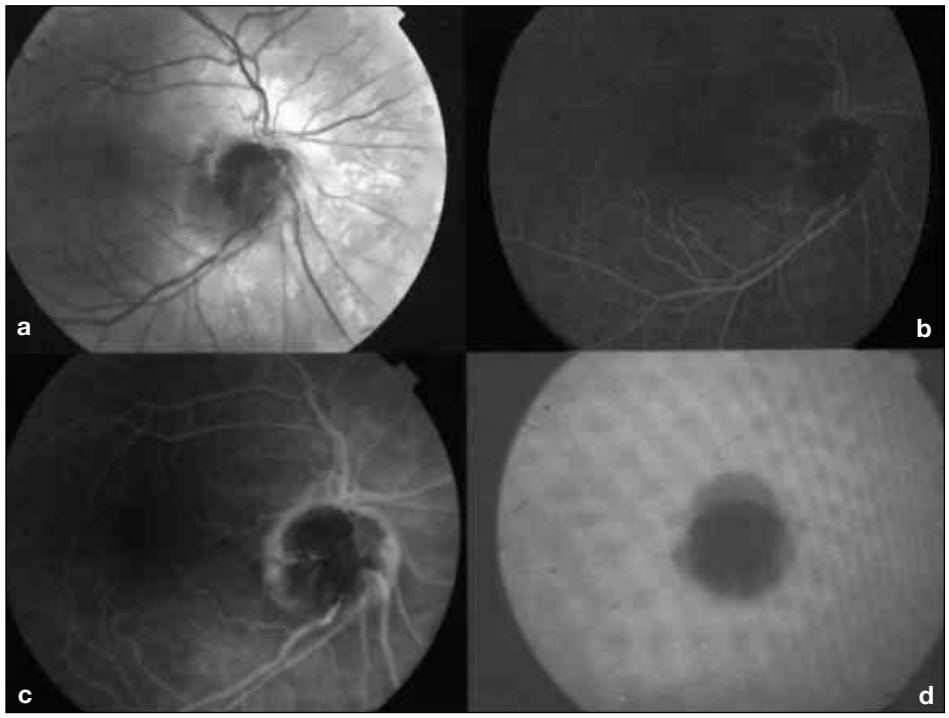

Fig. 1a) - *Upper left: Melanocytoma covering more than 3/4 of the optic nerve head.*

b) - *Upper right: Fluorescein angiography early stage revealing hypofluorescence of the lesion.*

c) - *Lower left: In the later stages of fluorescein angiography increased vascularity on the surface with staining around the lesion, but no significant disc staining.*

d) - *Lower right: The optic disc and the lesion are hypofluorescent on ICGA.*

Differential diagnosis of melanocytomas include peripapillary malignant melanoma, juxtapapillary retinal pigment epithelial adenoma and adenocarcinoma, and combined hamartoma of the retina and retina pigment epithelium (1, 2, 4, 5).

In this case, the appearance of the tumor is strongly suggestive of melanocytoma, however lack of a definite fibrillated margin and the greyish portion resembling glial tissue especially on the nasal side of the lesion introduces the possibility of a limited combined hamartoma. By definition, a combined hamartoma should produce clinically obvious traction on the sensory retina (6). In our case, however, there was only very slight distortion of retinal capillaries temporal to the disc. FA of combined hamartomas usually demonstrates considerable vascular tortuosity, abnormal retinal capillaries with small vessel arteriovenous communications, and leakage from the vessels within the lesion (6). Melanoma is the other lesion that should be differentiated. Melanomas lack the fibrillated margin characteristic of melanocytomas and have a greater tendency to become mushroom-shaped (2). A juxtapapillary melanoma would be expected to show prominent vessels within the tumor, a finding not seen with a melanocytoma. With FA, probably due to relative avascularity, most melanocytomas are hypofluorescent, except for the hyperfluorescence of the adjacent disc when there is disc edema (1, 2). Fluorescein angiographic pattern seen with melanomas is dependent upon the amount of pigment within the tumor. Diffuse melanomas affecting the disc usually demonstrate either diffuse hyperfluorescence of the disc or hyperfluorescence interposed with areas of hypofluorescence (2). But FA is of limited diagnostic value in differentiation of large melanocytomas from malignant melanomas arising near the optic nerve head. Both large melanocytomas and malignant melanomas show a similar pattern of blood vessels near the tumor surface, as well as evidence of edema within and surrounding the tumor (7). As FA of the lesion in our case had also shown blood vessels near the tumor surface and surrounding staining, ICGA was performed to see any hint of choroidal vascularity within the lesion. It is reported that indocyanine green imaging of pigmented choroidal melanomas demonstrates variable findings depending on the degree of pigmentation, thickness of tumor, and intrinsic vascularity. In late frames, minimally elevated pigmented choroidal melanomas often remain hypofluorescent, or develop a fuzzy, mild fluorescence. The fluorescence is mostly homogenous, but in some cases three-ring pattern of staining may be seen. As the tumor thickens or in-

trinsic vascularity becomes prominent, the fluorescence also increases (8). So ICGA is not always helpful to differentiate melanocytomas from malignant melanomas, as well. Follow-up with serial photographs is essential. Melanomas generally demonstrate growth over a period of months. However, melanocytomas grow very slowly if they ever do (1, 2). Our case had a history of at least 5 years, though the initial size of the lesion is unknown to us. At 12 months follow-up, there was no change in size.

In conclusion, ICGA was helpful to FA, in the diagnosis of optic nerve head melanocytoma in this case.

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