
SHORT COMMUNICATION

Case report

Magnetic resonance imaging in cavitory choroidal melanoma

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PURPOSE. *To report the development of a cavitory choroidal melanoma in a patient with nevus of Ota and describe its magnetic resonance imaging (MRI) features.*

PATIENT. *A 66-year-old man with right oculodermal melanocytosis and an ipsilateral choroidal cavitory melanoma was seen. Diagnosis was suspected on the clinical, ultrasonographic and MRI findings.*

RESULTS. *T1-weighted image showed a hyperintense solid mass containing hypointense cystic-like spaces delineated by hyperintense septa with respect to the vitreous. The reverse image was observed on T2-weighted images. A choroidal melanoma comprising epithelioid and spindle cells with multilocular cavities was documented histopathologically.*

CONCLUSIONS. *There may be an association between cavitory melanoma and nevus of Ota. Characteristic MRI findings could be helpful in the differential diagnosis of cavitory uveal melanoma. (Eur J Ophthalmol 2000; 10: 335-7)*

KEY WORDS. *Cavitory melanoma, Choroidal melanoma, Magnetic resonance imaging, Nevus of Ota*

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INTRODUCTION

Uveal melanomas are typically solid tumours though microscopic cavitation occurs in 8.4% of cases, although it is rarely appreciable clinically (1, 2). Lois et al reported the clinical features of eight cavitory melanomas of the ciliary body and reviewed 12 previous cases; most of these were ciliary or ciliochoroidal melanomas (1).

In 1982 Zakka et al first reported a case of cavitation in a patient with a ciliary body melanoma associated with ipsilateral nevus of Ota (2). We describe a new case of cavitory melanoma of the choroid in a patient with nevus of Ota and discuss the MRI findings.

Case report

A 66-year-old white man was submitted to the retina unit after uncomplicated phacoemulsification to eval-

uate a large pigmentary mass in the posterior pole of the right eye. He presented a right nevus of Ota. Best-corrected visual acuity was 0.1 in the right eye and 1.0 in the left eye. Slit-lamp examination and intraocular pressure were normal. Fundusoscopic examination disclosed a large pigmentary mass involving the right posterior pole, that was estimated to measure 20 mm in diameter and 10 mm in thickness. On B-scan, the lesion was acoustically solid containing multiple cyst-like cavities with thick walls of medium to high reflectivity (Fig. 1).

T₁-weighted image disclosed a large and hyperintense dome-shaped mass, containing two hypointense cystic-like spaces delineated by thick hypertensive septa with respect to the vitreous (Fig. 2a). On T₂-weighted images, the mass and the septa were hypointense compared with the hyperintense cystic spaces, whose signal intensity was similar to the vitreous (Fig. 2b).

Histopathology of the enucleated eye disclosed a choroidal melanoma comprising epithelioid and spin-

dle cells. Within the tumor, there were multiple cavities surrounded by bridging strands of viable tumour cells. These cavities were filled with serous fluid. No areas of necrosis or haemorrhage were observed and mucoprotein substance was not detected after alcian blue tumour staining.

DISCUSSION

Oculodermal melanocytosis or nevus of Ota affects only about 0.04% of the general white population and

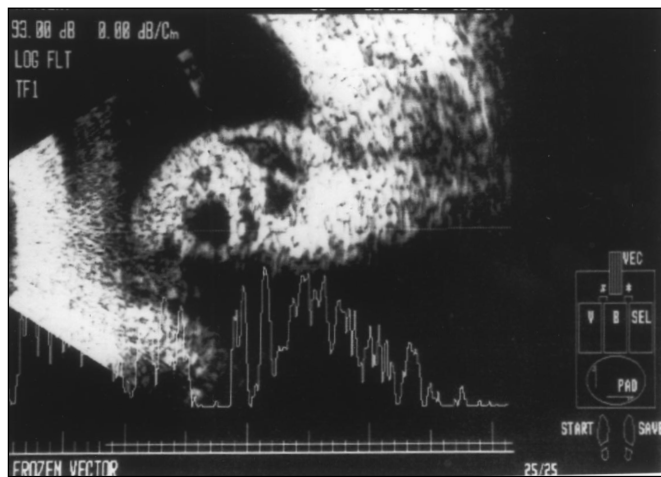


Fig. 1 - Ultrasonography. Multiple cyst-like cavities are shown within the mass. The septation demonstrates medium to high internal reflectivity.



Fig. 2a - Axial T_1 -weighted image. There is a dome-shaped hyperintense lesion containing cyst-like spaces, with an isointense signal with respect to the vitreous.

only about one in 400 of these patients followed for life develops uveal melanoma as compared to 1 in about 13,000 in the general population (3). Excessive melanocytes in the uveal tract may provide the biological basis for susceptibility to the development of uveal melanoma.

Zakka et al reported the first case of cavitory ciliary melanoma associated with a nevus of Ota, which showed a changing appearance: initially it was a solid intraocular mass and a cystic component appeared on follow-up examination (4). To our knowledge, ours is the second case of cavitory choroidal melanoma occurring in a patient with nevus of Ota. There are approximately 20 reported cases of cavitory uveal melanoma, and two of them have been associated with nevus of Ota; however the rarity of both entities makes it difficult to ascertain whether there is a true association.

Knowledge and recognition of cavitation within uveal melanoma are important for early diagnosis and proper treatment. The ciliary body is the most frequent site of cavitory melanoma, but as in our case, the choroid can also be affected (5).

Ultrasound features of cavitory melanoma, previously reported (1), are a solid mass at the base, and septation (large bands of solid tissue within the cavity) or echoes within the cyst-like cavities. The origin of the cystic spaces in uveal melanoma remains speculative. The cavitation may be related to necrosis or haemorrhage, accumulation of mucoproteinaceous sub-



Fig. 2b - Axial T_2 -weighted images. The cavities have a hyperintense signal, and the mass and the septa are hypointense with respect to the vitreous.

stance or serous exudate as in our case (1).

On MRI, solid pigmented uveal melanomas are hyperintense on T₁-weighted images, hypointense on T₂-weighted images, and hyperintense on proton-density weighted examinations. These signal characteristics have been attributed to the paramagnetic properties of melanin because of stable free radicals that shorten the T₁- and T₂ relaxation times. To the best of our knowledge, the MRI features of cavitory uveal melanoma have not been previously reported.

The finding of hypointense areas surrounded by hyperintense septa within a hyperintense mass in T₁-weighted images, and the reverse pattern in T₂-weighted images suggested the diagnosis of cavitory melanoma. In MRI, the fluid gives a signal varying in intensity depending on the presence of blood products, the amount of protein or lipoprotein material, and the degree of organization of the material accumulated in the cyst-like space (6). In this

case, the content of these spaces showed an isointense signal in both T₁- and T₂-weighted images with respect to the vitreous, suggesting a serous or exudative fluid.

Cavitory uveal melanoma should be included in the differential diagnosis of uveal cystic lesions. The characteristic MRI findings could be helpful in the diagnosis and could contribute to assessing the content of cystic spaces. However, MRI is more expensive than ultrasonography and it remains to be seen whether it improves the diagnostic accuracy.

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