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CLINICAL STUDY

Accuracy of choroidal melanoma diagnosis by general ophthalmologists: a prospective study

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Abstract

Purpose **To estimate the proportion of 'false positives' in patients referred with a diagnosis of suspected choroidal melanoma by general ophthalmologists to an ocular oncology centre.**
Methods **A prospective study of patients referred by general ophthalmologists to an ocular oncology centre was undertaken over a 14-week period. The diagnosis was made clinically in patients receiving radiotherapy or phototherapy and was confirmed by histopathology in patients requiring fine needle aspiration biopsy (FNAB) or enucleation.**
Results **A total of 132 new patients were seen in 10 consecutive ocular oncology clinics between 29 March 2004 and 5 July 2004. The mean age was 62 years (range 28–88 years) and 60 (55%) were female. Among the 83 suspected malignant posterior segment lesions, the suspected diagnosis included choroidal melanoma (73), choroidal metastasis (6), 'choroidal tumour' (3), and 'Solid retinal detachment' (1). Only 50 of the 73 suspected melanomas were confirmed (68.5%; 95% CI, 57–78%), the oncologist's diagnosis in the remaining 23 being choroidal naevus (10), choroidal metastasis (1), circumscribed choroidal haemangioma (2) and others (10). Only one of six patients with suspected metastases had this condition, the remainder having melanoma (1), lymphoma (1), circumscribed choroidal haemangioma (1), and others (2). The 'choroidal tumours' and 'solid detachments' were found to be chorio-retinal disciform scar (1), varix of vortex vein (1), eccentric CNV (1), and subretinal haemorrhage (1)**
Conclusion **Approximately 30% of patients referred to an ocular oncology service with the diagnosis of choroidal melanoma have an incorrect diagnosis.**

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Keywords: choroidal melanoma; diagnosis; general ophthalmologist

Introduction

Unnecessary enucleation because of a mistaken diagnosis of choroidal melanoma has become rare at specialist oncology centres. [1–3]

The misdiagnosis rate among ophthalmologists outside specialist ocular oncology centres has also decreased but the 'pseudo melanoma' problem persists.[4]

There has been no recent study of diagnostic accuracy among clinicians practising outside ocular oncology centres.

This study aimed to estimate prospectively the rate of 'false positives' in patients referred with a diagnosis of suspected choroidal melanoma by general ophthalmologists to an ocular oncology centre over a 14-week period.

Materials and methods

All new patients referred with a diagnosis of suspected choroidal melanoma or other posterior segment malignancy seen in the ocular oncology clinics between 29 March 2004 and 5 July 2004 were included in the study.

The diagnosis made by the referring ophthalmologist was obtained from the referral letter. Each patient had a full ocular examination and B-scan ultrasonography by the ocular oncologist and the final diagnosis was made clinically in patients receiving radiotherapy or phototherapy and was confirmed by histopathology in patients requiring fine needle aspiration biopsy (FNAB) or enucleation.

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Results

A total of 132 new patients were seen in 10 consecutive ocular oncology clinics.

The patients (60 male, 72 female) had a mean age of 62 years (range 28–88 years).

In all, 49 of these 132 patients were excluded from further analysis because they were not referred with a suspicion of choroidal melanoma or other malignant choroidal tumours. In all, 21 of these 49 patients were referred with anterior segment lesions (including conjunctival, iris, and ciliary body tumours) and the remaining 28 had suspected nonmalignant posterior segment lesions (including choroidal haemangioma, osteoma, eccentric CNV, and other benign lesions).

In the 83 patients included, the referring ophthalmologist suspected malignant posterior segment tumours including choroidal melanoma (73), choroidal metastasis (6), 'choroidal tumour' (3), and 'solid retinal detachment' (1).

Only 50 of the 73 suspected choroidal melanomas were confirmed at the ocular oncology centre (68.5%; 95% CI, 57–78%). The diagnoses in the remaining 23 are tabulated in Table 1.

Only one of six patients with suspected choroidal metastases had this condition (choroidal metastases from breast carcinoma) (Table 1).

The suspected 'choroidal tumours' and 'solid detachments' were found to be chorio-retinal disciform scar (1), varix of vortex vein (1), eccentric disciform lesion (1), and subretinal haemorrhage (1).

In all, three patients referred as neurofibroma (1) and choroidal naevus (2) actually had choroidal melanoma.

Table 1 Final diagnosis of choroidal lesions

	Suspected diagnosis				
Final diagnosis	*Melanoma*	*Metastasis*	*'Solid RD'*	*Tumour*	*Total*
Melanoma	50	1			51
Naevus	10				10
Suprachoroidal haemorrhage	3				3
Eccentric CNV	3		1		4
Circumscribed choroidal haemangioma	2	1			3
Chorioretinal disciform scar	1			1	2
Metastasis (from breast carcinoma)	1	1			2
Subretinal haemorrhage	1			1	2
Pigment epithelial detachment	1				1
Varix of vortex vein	1	1		1	3
Lymphoma		1			1
Idiopathic Sclero-choroidal calcification		1			1
Total	73	6	1	3	83

Discussion

The Collaborative Ocular Melanoma Study misdiagnosis rate was 0.48% indicating that at specialist ocular oncology centres the major challenge with regard to posterior uveal melanomas is no longer that of correct diagnosis but rather determination of the optimal treatment. However, difficult cases such as those with opaque media were excluded in that study.[1]

Chang *et al* in their 11-year study reviewed histopathology of 6169 cases in which whole eyes were submitted to the Armed Forces Institute of Pathology, Washington, DC and reported a decline in the rate of misdiagnosis from 12.5 to 1.4% between January 1970 and December 1980. Overall 6.4% (48 of 744) of eyes with clear media that were enucleated had an incorrect diagnosis. This reflected an increase in diagnostic accuracy among ophthalmologists practising outside oncology centres in the United States of America.[4]

Our study in the United Kingdom, however, found that 23 of 73 (31.5%) suspected melanomas to be mimicking lesions (10 of 23 (43%) of these were choroidal naevi). This may merely reflect a low threshold for referral of pigmented lesions by ophthalmologists to specialist centres for a second opinion. However, it was beyond the scope of this study to determine features of simulating lesions that could lead to misdiagnosis.

Of greater concern was the finding that, of the 28 patients referred with the diagnosis of benign posterior segment lesions, three (10.7%) had unsuspected melanomas.

A weakness in our study was that in most (74%) patients the diagnosis was confirmed by clinical examination and ultrasound and not by histopathology although data from previous years suggest that our clinical misdiagnosis rate is probably extremely low.

Furthermore, a direct comparison of misdiagnosis rates between our study and the previous studies would be inappropriate because our study included patients *referred* with a suspicion of melanoma while in the other studies the final clinical diagnosis was already made and eyes were enucleated.

In conclusion, approximately 30% of patients referred to a specialist ocular oncology service with the diagnosis of choroidal melanoma have an incorrect diagnosis indicating that there is scope for improvement in the diagnosis of intraocular tumours by ophthalmologists.

Further studies are required to determine features of lesions that are likely to lead to a wrong diagnosis.

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