Case report

Ocular malignant melanoma – a report of two cases

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Abstract

Introduction: Melanoma is a rare malignant tumour in the eye. **Objective**: To report two cases of malignant melanoma in the eye, one in the conjunctiva and the other in the choroid. **Cases**: The first case was in a 49-year-old lady who presented with a swelling on the inner side of left upper eyelid. The vision was 6/6. On everting the eyelid, multiple, pigmented, nodular swellings were noted on the tarsal conjunctiva. Excision biopsy confirmed the diagnosis of malignant melanoma of the conjunctiva. A pigmented nodular swelling occurred on the lower bulbar conjunctiva in the same eye one-and-a-half years after the first presentation. There were no secondary nodules in the body. Excision biopsy confirmed malignant melanoma of the conjunctiva. The second case was in a 72-year-old lady who presented with pain and bleeding in the right eye. There was no perception of light. The cornea was hazy and the details behind it could not be seen. There was micro perforation of the cornea with oozing of blood and secondary glaucoma. B-scan ultrasonography of the right eye revealed an intraocular tumour. The histopathology of the enucleated eyeball confirmed the diagnosis of malignant melanoma of the choroid. **Conclusion**: In the case of conjunctival melanoma, the occurrence of tumour at multiple sites and absence of recurrence at the original site suggests the possibility of de novo origin of the tumour. Secondary glaucoma and bleeding may be the presenting features of melanoma in the choroid.

Key words: Malignant melanoma, conjunctiva, choroid.

Introduction

Malignant melanoma in the eye can occur in the eyelid, conjunctiva, iris, ciliary body and choroid due to neoplastic proliferation of melanocytes present in these tissues. The uveal melanoma is relatively more common than conjunctival melanoma. The prognosis is better in conjunctival melanoma than in uveal melanoma because the metastatic nature of the former limits it to the regional lymph nodes. Malignant melanoma of the choroid is rare in Asians and other dark-pigmentd races (Kuo et al, 1982; margo and McLean, 1984; Manohar et al, 1991)

The literature search revealed only three case reports of ocular malignant melanoma from Malaysia. The first of these was a malignant melanoma of the conjunctiva (Kandaiah et al, 1998), the second of the choroid (Singh et al , 1998) and third was a conjunctival malignant melanoma arising from the caruncle nevus (Iqbal et al, 2006). Therefore, we are reporting these two rare occurrences of malignant melanoma, one in the conjunctiva and the other in the choroid.

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Case 1

A 49-year-old lady presented to the eye clinic with a swelling of two months duration on the inner side of the left upper eyelid. The swelling had gradually increased in size, was painless and did not interfere with the vision. The left eye vision was 6/6. On everting the upper eyelid, multiple, pigmented, nodular swellings of different sizes (5 - 15 mm) were noted on the upper margin of the tarsal conjunctiva (Fig 1A). A slit-lamp examination of the anterior segment, intraocular pressure and indirect ophthalmoscopic examination of the fundus were normal. The right eye vision, anterior segment, intraocular pressure and fundus were normal. There was no enlargement of pre-auricular lymph nodes or of any other lymph nodes in the neck. Systemic examination did not reveal any abnormality.

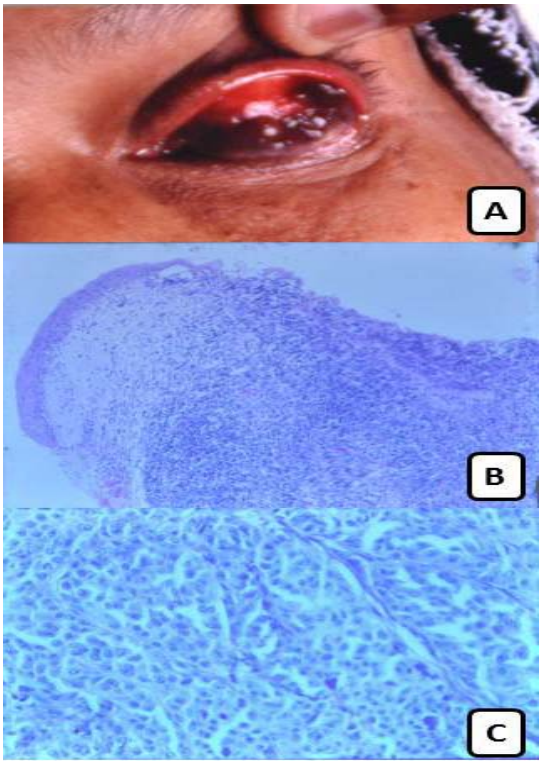

Figure 1: Showing (A) multiple, pigmented, nodular growths on the tarsal conjunctiva of the left upper eyelid; (B) Sheets of malignant cells under the stratified squamous epithelium of the conjunctiva, H & E, X - 100; (C) Tumour cells with hyperchromatic nuclei, X - 400.

Under topical anaesthesia, an excision of the tumours from the tarsal conjunctiva, with 2 mm surrounding margins, was done, followed by cryotherapy of the conjunctiva. Histopathologically, sheets of malignant cells were seen under the stratified squamous epithelium of the conjunctiva (Fig 1B). The tumour cells were large with hyperchromatic nuclei (Fig 1C). There were occasional spindle cells with brown pigmentation. Special stains (Masson Fontana, S - 100, HMB 45) confirmed it to be melanin pigment. The features were consistent with that of malignant melanoma of the conjunctiva.

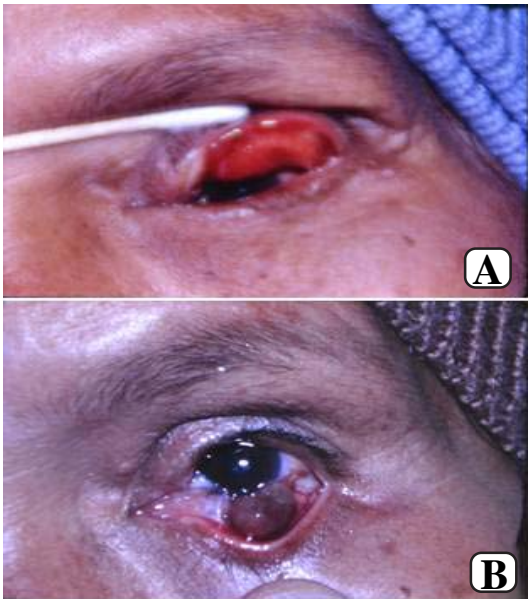

Figure 2: Showing (A) smooth tarsal conjunctiva of the left upper eyelid without any evidence of recurrence, seen one year after excision of the tumour; (B) pigmented circular swelling of the conjunctiva below the lower limbus in the bulbar conjunctiva of the left eye seen one-and-a-half years from the first presentation.

Post-operatively, the conjunctival wound healed well. A CT scan of orbits and brain, ultrasound of the abdomen and chest X-ray did not reveal any secondaries. The patient was discharged on gentamycin eye drops twice daily in the left eye. She was followed up in the eye clinic bi-monthly.

There was no evidence of any recurrence at the follow-up visit one year after excision of the tumour (Fig 2A). The vision, anterior segment and fundus were normal in the left eye. The right eye was normal. She was advised to come back to the hospital if she has any problem in the eyes.

She came to the eye clinic six months later (one-and-a-half years from the first presentation) with a history of swelling of one month duration in the lower part of the left eye, which was slowly increasing in size. The vision in the left eye was 6/6. A pigmented, circular, hard swelling of 10 mm diameter was noted in the lower bulbar conjunctiva below the limbus. There was another small swelling of the conjunctiva, near the outer canthus next to the pigmented swelling (Figure 2B).

The slit lamp examination of the anterior segment and fundus was normal in the left eye. The patient was admitted to the eye ward for investigations to look for any secondaries. X-ray chest showed multiple cannon ball lesions in both lungs. CT scans of the orbits and brain and the ultrasound abdomen did not reveal any secondaries. Histopathology of the excised tumours in the bulbar conjunctiva confirmed the diagnosis of malignant melanoma. The patient was explained about the condition of the eye and advised to undergo radiotherapy as further treatment. She was referred to the radiotherapy department. However, she defaulted radiotherapy.

Case 2

A 72-year-old lady presented to the eye clinic with pain and bleeding of one week duration in the right eye. The patient also gave a history of gross diminution of vision since four months. The right eye had no perception of light. The slit-lamp examination showed a micro perforation of the cornea in the lower part, through which blood was oozing out of the eye. The cornea was hazy and the details behind the cornea were not visible. Intraocular pressure with tonopen was 42 mm Hg.

The left eye vision was 6/18. The slit-lamp examination of the anterior segment was normal except for an immature cataract. Intraocular pressure with tonopen was 16 mm Hg. The fundus was normal.

She was admitted to the eye ward. Gentamycin eye ointment was put in the right eye and a pressure patch was applied to control the bleeding. The results of other routine blood tests were within the normal ranges. B-scan ultrasonography of the right eye showed a tumour mass protruding into the vitreous and pushing the lens and iris forward. The possibility of malignant melanoma was kept in mind. X-ray chest, CT scans of the orbits and brain and an ultrasound of the abdomen did not show any secondaries. The patient and relatives were explained about the nature of the eye disease and removal of the eye was advised for which they agreed.

Enucleation of the right eye was done under general anaesthesia and the eye ball was sent for histopathology examination. Cut sections of the globe showed a black mass arising from the posterior wall of the globe filling the whole vitreous cavity and infiltrating the ciliary body. Histopathology revealed malignant cells bearing intra-cytoplasmic black pigments. A few cells showed typical intra-nuclear inclusions (Figure 3A). The Masson Fontana stain (Figure 3B), S - 100 and HMB 45 stains confirmed the pigment to be melanin, supporting the diagnosis of melanoma of the choroid. The tumour cells were also seen in the ciliary body, with neovascularization. The optic nerve was free of the tumour cells. Post-operatively, the conjunctival wound healed well. The patient was advised to come for follow-up once in three months. After two follow-ups, the patient defaulted.

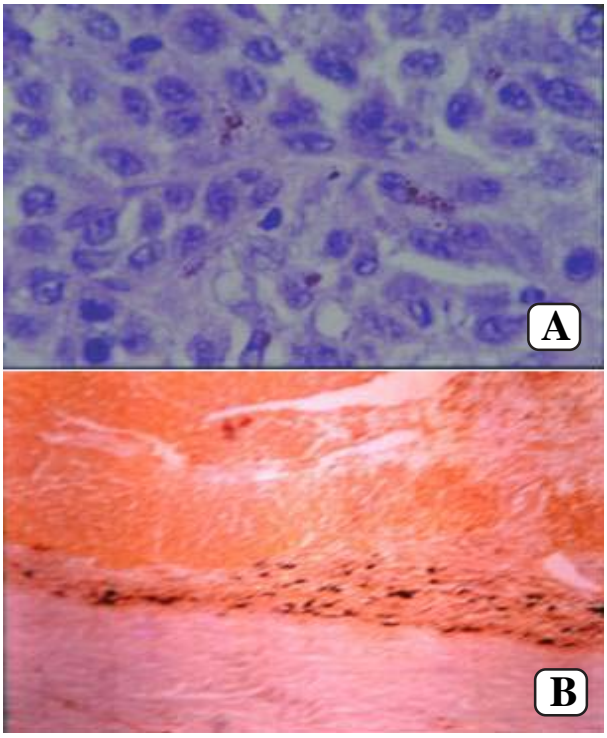

Figure 3: Showing (A) Malignant cells with intracytoplasmic black pigments and typical intranuclear inclusions, H & E, x - 1000; (B) Masson Fontana special stain showing melanin pigment (x - 100).

Discussion

Conjunctival melanoma is a rare condition and accounts for 2 % of all ocular malignancies. Seventy-five percent (75 %) of conjunctival melanomas arise from primary acquired melanosis with atypia which appear as a black or grey vascularised nodule that may be fixed to the episclera; 20 % arise from a pre-existing naevus (junctional or compound). The amelanotic tumours are pink and have smooth 'fish flesh' appearance. Histologically, they show sheets of malignant cells within the sub-epithelial stroma (Kanski and Bowling, 2011).

Clinically, conjunctival melanoma arises from anywhere including the bulbar, limbal, palpebral conjunctiva or the caruncle. It is commonly a nodular mass with variable pigmentation and shows feeder vessels with high intrinsic vascularity that lead to an easy bleeding surface. The tumor has the ability to locally spread and invades the globe and orbit and may show lymphatic spread to the draining lymph nodes (Shields et al, 2000).

Surgical excision with a wide margin and adjunctive cryotherapy seems to be the most accepted mode of treatment, with some authors preferring brachytherapy over cryotherapy particularly in the management of local recurrences. Additional use of topical mitomycin C is done in cases of diffuse melanomas (Layton and Glasson, 2002). Orbital exenteration is required in 15 % to 20 % of cases when the recurrent malignant melanoma invades the orbit. Such radical therapy does not improve the prognosis for life but may be necessary to debulk the tumour and relieve local symptoms (Eagle, 2011).

Inadequate surgical management including incisional biopsy and incomplete excision increases the risk of local recurrence and metastatic death (Eagle, 2011). Risk factors for metastasis include a younger age group, large tumor size, tumor extension to the surgical margin, extra-limbal location of the tumor, multi-centricity, epithelioid cell type and lymphatic invasion. Overall, metastatic disease from conjunctival melanoma has been found in 14 % to 27 % of patients (Shields et al, 2000). The main sites of metastases are the regional lymph nodes, lung, brain and liver. The overall mortality is 12 % at 5 years and 25 % at 10 years (Kanski and Bowling, 2011). The survival rate of 82.9 % at 5 years and 69.3 % at 10 years was reported by Parideans et al, 1994, while Shields et al (2000) reported that 30 % of patients died of metastasis after 10 years of the diagnosis.

Poor prognostic features include multifocal tumours, extra limbal tumours involving the caruncle, fornix or palpebral conjunctiva, large tumour, recurrence, lymphatic or orbital spread, involvement of margins and de novo melanomas without primary acquired melanosis (Kanski and

Bowling, 2011; Eagle, 2011; Shields et al, 2000; Parideans et al, 1994).

A malignant melanoma arising from the tarsal conjunctiva is extremely rare. The goal of treatment should be eradication of the tumor as well as preservation of a functionally and cosmetically acceptable eye. The first patient presented with multiple small swellings arising from the tarsal conjunctiva of the upper eyelid. The occurrence of pigmented tumour in the lower bulbar conjunctiva after one-and-a-half years of the first presentation and the absence of any recurrence of the tumour in the previous site (tarsal conjunctiva of upper eyelid) suggest that the origin of the tumour was probably de novo in nature. Moreover, there were no pigmented areas in the conjunctiva suggesting primary acquired melanosis. The poor prognostic features in our patient were tumour in the upper palpebral conjunctiva, multifocal tumours, and more than 2 mm tumour thickness.

Choroidal melanoma is rare in Asians and other pigmented races compared to white people. The mean age of patients at diagnosis ranged from 43.7 to 60.1 years; and the disease was seen more often in males than in females (Biswas et al, 2004; Kuo et al, 1982; Hudson et al, 1994; Margo and McLean, 1984; COMS, 1998). It is the most common primary intraocular malignancy in adults and account for 80 % of all uveal melanomas. It presents as a solitary, elevated, sub-retinal, dome-shaped, pigmented mass with an overlying exudative retinal detachment. Clumps of orange pigment are frequently seen in the retinal pigment epithelium. If the tumour breaks through the Bruch membrane, it acquires a collar-stud appearance. A diffuse tumour is rare and is characterised by a flat or slightly raised morphology with grey or brown irregular discolouration. It is diagnosed by indirect ophthalmoscopy and ultrasonography (Kanski and Bowling, 2011).

The metastatic spread is common to the liver and lungs. Only 1 - 2 % of patients have detectable metastasis at the time of presentation. Depending on the size and location of the tumour, the treatment modalities include brachytherapy, external beam radiotherapy, stereotactic radiotherapy, trans-pupillary thermotherapy, trans-scleral choroidectomy and enucleation (Kanski and Bowling, 2011).

In a large series of 103 Indian patients who underwent enucleation for uveal melanomas, Biswas et al (2004) found that the anterior segment involvement (rubiosis iridis, neovascular glaucoma, anterior uveitis, secondary glaucoma) was seen in 31.06 % of the patients.

Our patient with choroidal melanoma presented with pain due to secondary glaucoma and also bleeding from the eye. The high intraocular pressure could be due to angle closure, because of the presence of the tumour in the whole vitreous cavity pushing the lens and iris forward. The bleeding from the eye could be due to ruptured neovascularization of the iris. Acute glaucoma as the first manifestation of malignant melanoma of the choroid has been reported by DeGottau et al (1993). The B-scan ultrasonography should be performed with an opaque media in all the eyes to clinically rule out the possibility of intraocular tumour; and histopathological examination of all blind eyes is essential to rule out intraocular malignancy.

Conclusion

The special features in our cases were the occurrence of the tumour at multiple sites and the absence of recurrence at the original site, suggesting the possibility of a de novo origin of the tumour in the case of conjunctival melanoma and secondary glaucoma and bleeding as presenting features in the case of choroidal melanoma. B - scan ultrasonography helps to rule out the presence of intraocular tumour in the eyes where the fundus cannot be seen.

References

Biswas J, Kabra S, krishnakumar S, Shanmugam MP (2004). Clinical and histopathological characteristics of uveal melanomas in Asian Indians – A study of 103 patients. Indian J Ophthalmol; 52(1): 41-44.

DeGottau P, Holbach LM, Naumann GO (1993). Acute glaucoma: first manifestation of malignant melanoma of the choroid (article in French). J Fr Ophthalmol; 16(4): 275-277.

Eagle RC Jr (2011). Eye pathology – an atlas and text. 2nd ed. Lippincott Williams & Wilkins, Philadelphia; 70.

Hudson HL, Valluri S, Rao NA (1994). Choroidal melanoma in Hispanic patients. Am J Ophthalmol; 118(1): 57-62.

Iqbal T, Reddy SC, Fauzi A, Jayalakshmi P (2006). Conjunctival malignant melanoma arising from caruncle naevus. Asian J Ophthalmol; 8(4): 156-158.

Kandaiah R, Sukumar K, Chandran S, Jayalakshmi P (1998). Malignant conjunctival melanoma – A case report. Med J Malaysia; 43(2): 178-180.

Kanski JJ, Bowling B (2011). Clinical Ophthalmology – A systematic approach. 7th ed, Elsevier Saunders, Edinburgh; 482-483, 496-504.

Kuo PK, Puliafito CA, Wang KM, Liu HS, Wu BF (1982). Uveal melanoma in China. Int Ophthalmol Clin; 22(3): 57-71.

Layton C, Glasson W (2002). Clinical aspects of conjunctival melanoma. Clin Exp Ophthalmol; 30(2): 72-79.

Manohar S, Ramachandran R, Das T , Namperumalsamy P (1991). Malignant melanoma of choroid. Indian J Ophthalmol 39(2): 70-73.

Margo CE, McLean IW (1984). Malignant melanoma and choroid and ciliary body in black patients. Arch Ophthalmol; 102(1): 77-79.

Parideans AD, Minassian DC, McCartney AC, Hungerford JL (1994). Prognostic factors in primary malignant melanoma of the conjunctiva: a clinicopathological study of 256 cases. Br J Ophthalmol; 78(4): 252-259.

Shields CL, Shields JA, Gündüz K, Cater J, Mercado GV, Gross N, Lally B (2000). Conjunctival melanoma: Risk factors for recurrence, exenteration, metastasis and death in 150 consecutive patients. Arch Ophthalmol;118(11):1497-507.

Singh M, Kaur B, Annuar NM (1998). Malignant melanoma of the choroid in naevus of Ota. Br J Ophthalmol; 72(2): 131-133.

The collaborative ocular melanoma study (COMS) randomised trial of pre-enucleation radiation of large choroidal melanoma 1: Characteristics of patients enrolled and not enrolled. COMS report No. 9 (1998). Am J Ophthalmol; 125(6): 767-778.

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