

## PIGMENTED ACTINIC KERATOSIS MASQUERADE AS MALIGNANT MELANOMA

Rupali Chopra<sup>1</sup>, Arun Bhatt<sup>2</sup>, Kanwardeep Kwatra<sup>3</sup>, Nitin Batra<sup>4</sup>

<sup>1</sup>Professor, Department of Ophthalmology, Christian Medical College and Hospital, Ludhiana, Punjab.

<sup>2</sup>Assistant Professor, Department of Ophthalmology, Christian Medical College and Hospital, Ludhiana, Punjab.

<sup>3</sup>Professor, Department of Pathology, Christian Medical College and Hospital, Ludhiana, Punjab.

<sup>4</sup>Professor and HOD, Department of Ophthalmology, Christian Medical College and Hospital, Ludhiana, Punjab.

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### PRESENTATION OF CASE

A 28-year-old Asian, agriculturist by profession, presented to the Department of Ophthalmology with history of two pigmented lesions one each on the temporal and nasal bulbar conjunctiva of the right eye for the past one month. The patient reported that the lesions had displayed a rapid growth in the past two weeks. He had no previous ophthalmic problems. He had no history of any conjunctival nevus before the appearance of these lesions. His past medical history was unremarkable.

Ocular examination demonstrated two pigmented lesions one each on the nasal and temporal bulbar conjunctiva of the right eye measuring 4x4x2 mm and 7x3x2 mm respectively (Figure 1). The lesions were raised, pigmented, with irregular surface due to plaque formation. The margins of the lesions were well defined and there was no corneal involvement seen on either side. Feeder vessels were identified for both the lesions.

### CLINICAL DIAGNOSIS

Malignant Melanoma

### DIFFERENTIAL DIAGNOSIS

1. Primary Acquired Melanosis
2. Actinic Keratosis
3. Conjunctival Intraepithelial Neoplasia (CIN)

### PATHOLOGICAL DISCUSSION

Pigmented actinic keratosis is a rare, premalignant, epidermal tumour that occurs on the sun exposed areas of fair skinned individuals. The face, scalp, ears, hands and forearms are the usual sites of predilection.<sup>1</sup> Reports of pigmented actinic keratosis arising from the conjunctiva are limited and this can sometimes be clinically misdiagnosed as primary conjunctival melanoma owing to its pigmented appearance. These lesions can be difficult to distinguish from other benign and malignant pigmented conjunctival lesions such as seborrhoeic keratosis, senile lentigo,

melanocytic naevus, lentigo maligna, and lentigo malignant melanoma.<sup>2</sup>

Histological examination of both the lesions showed proliferating squamous cells with acanthosis, parakeratosis and hyperkeratosis. The squamous cells in some areas showed loss of polarity with moderate nuclear atypia and increased mitotic activity. Increased melanin pigment was identified within the melanocytes, some epithelial cells and subepithelial melanophages. The subepithelial substantia propria showed scattered stromal basophilic plaques (Figure 2b), a characteristic feature of actinic keratosis, and prominent solar elastosis. The capillaries were ectatic and stroma showed mild chronic inflammatory infiltrate. Immunohistochemistry (IHC) for melanocyte markers - HMB45 and S-100, was done. Epithelial proliferation was assessed using proliferation marker - Ki67. IHC results showed mild increase in melanocytes (Figure 2d) and increased proliferative index (Figure 2c) in the surface epithelium. There was no lentiginous proliferation of melanocytes. Histological findings were consistent with the diagnosis of pigmented actinic keratosis of the conjunctiva with moderate epithelial atypia. The surgical resection margins were free of involvement by the lesion.



**Figure 1. Raised Pigmented Lesions with Plaque Formation on the Temporal and Nasal Bulbar Conjunctiva**

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Corresponding Author:

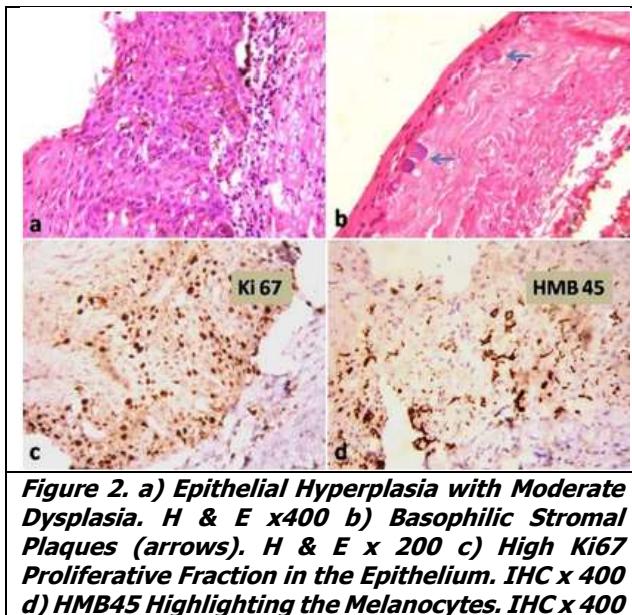
Dr. Rupali Chopra,

Department of Ophthalmology,  
Christian Medical College and Hospital,  
Ludhiana, Punjab.

E-mail: rupalichopra@gmail.com

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## DISCUSSION OF MANAGEMENT

Based on the clinical examination, a provisional diagnosis of malignant melanoma was made. Both the lesions were excised with a tumour free margin of 4-5 mm. Subsequently cryotherapy was applied to the conjunctival edges keeping in view our provisional diagnosis of malignant melanoma.

Actinic keratosis is a premalignant lesion that occurs on sun exposed skin and predisposes to the development of squamous cell carcinoma. Conjunctiva is a rare site for the occurrence of actinic keratosis.<sup>3,4</sup> Literature search revealed only one case of pigmented actinic keratosis of the conjunctiva in a 56 year old male from Korea.<sup>5</sup> He also demonstrated a pigmented conjunctival lesion of recent onset, part of which was encroaching onto the cornea. Actinic keratosis of the conjunctiva was also reported in a 73-year-old male from France, with similar histological findings but no pigmentation.<sup>3</sup> Mauriello et al, reviewed the charts of forty-five patients with intraepithelial neoplastic lesions of the conjunctiva. Twenty-four of these patients had actinic keratosis and twenty-one had dysplasia. The actinic keratosis lesions were focal and leukoplakic in his study.<sup>4</sup>

In addition to the typical histological features of actinic keratosis, a considerable amount of melanisation, with normal number and appearance of melanocytes is seen in pigmented actinic keratosis. Numerous melanophages are seen in the upper dermis as well. A melanocyte-keratinocyte melanin transfer block has been postulated as the cause for hyperpigmentation in these lesions.<sup>6</sup> The abnormal pigmentation of the conjunctival lesion may be due to a disturbance in the melanosome transfer pathway from melanocytes to epithelial cells, and there could be a possible defect in the uptake of melanin by keratinocytes.<sup>5</sup>

Malignant melanoma of the conjunctiva presents as a raised, pigmented or non-pigmented lesion. This lesion though uncommon is potentially lethal. It can arise in previously unblemished and unpigmented region (approximately 10%), from a pre-existing nevus (approximately 20%), or from the flat, spreading pigmentation of primary acquired melanosis with atypia (60-70%). Malignant melanoma arises from the melanocytic cells found in the basal layer of the conjunctiva. If malignant melanoma is suspected, the mass is excised, using a dry, no touch technique with a safety margin zone of 4-6 mm. After excision, double freeze, slow thaw cryotherapy is applied to the conjunctival margins. Lesion origin is a critical factor for determining prognosis, with de novo melanomas having the worst prognosis.<sup>7</sup> In our patient also as malignant melanoma was suspected excision with cryotherapy of the conjunctival edges was performed.

On the other hand, pigmented actinic keratosis presents as elevated erythematous lesions with patchy areas of ulceration, clinically difficult to differentiate from malignant melanoma especially if the lesion is pigmented.

This case highlights the importance of differentiating pigmented actinic keratosis from malignant melanoma by histological examination as the management and prognosis in the two condition differs.

## FINAL DIAGNOSIS

Actinic Keratosis with Plaque Formation Involving the Bulbar Conjunctiva.

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