CASE REPORT

Actinic cheilosis: early intervention prevents malignant transformation

Arvind Muthukrishnan,¹ Laliytha Bijai Kumar²

¹Department of Oral Medicine and Radiology, Saveetha University Saveetha Dental College, Chennai, Tamil Nadu, India

²Saveetha University Saveetha Dental College, Chennai, Tamil Nadu, India

Correspondence to

Dr Arvind Muthukrishnan, arvindmuthukrishnan@yahoo.com

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SUMMARY

Potentially malignant disorders (PMD) have a high risk of malignant transformation. Habits such as tobacco and alcohol use predispose to PMD and subsequently to an oral carcinoma. Oral squamous cell carcinoma (OSCC) can occur even without the usage of tobacco. Occupational exposure to actinic rays may predispose to the development of OSCC in the lip. People who are involved in farming or those exposed to an environmental background radiation, such as ultraviolet rays, develop a PMD called actinic cheilosis. A high proportion of patients with actinic cheilosis develop an oral carcinoma when not diagnosed and treated in early stages. This case depicts the clinical and histological changes in a 61-year-old Indian man with actinic cheilosis.

BACKGROUND

Many orofacial disorders are occupation related. Some of them occur in a mild form, whereas others could be serious and life threatening. One such occupational disorder occurring in farmers and sailors who are constantly exposed to actinic rays from atmosphere is actinic cheilosis. It characteristically affects vermillion border of upper lip, lower lip and facial skin. The condition can be completely treated and a malignant transformation can be prevented by a simple lifestyle modification, precautionary measures and with therapeutic agents.¹

CASE PRESENTATION

A 61-year-old male patient reported with a growth on the lower lip of 4-month duration. History revealed that patient developed a fluid filled blister on the right lower lip 4 months ago which underwent a spontaneous regression in 10 days. The healing of the fluid-filled blister was followed by a formation of a thick, dry and white plaque over the entire lower lip which was persistent for 3 months. Over this white plaque, the patient gave a history of erythematous areas which developed with crustations and he used to peel off these dry crustations. He did not undergo any treatment for these lesions. He then noticed a sudden increase in the size of the white patch which was accompanied by a mild pain since 10 days. He subsequently visited his primary care dentist who prescribed a 0.2% chlorhexidine gluconate gel for topical application and referred the patient to our hospital for further evaluation.

Personal history further revealed that the patient was an agricultural worker since 45 years and was

exposed to prolonged sunlight throughout the day. Patient did not give history of tobacco and alcohol use in any form. His social and family history was unremarkable.

On clinical examination, generalised areas of hypopigmentation were present on the upper and lower lip. A localised sessile and circumscribed growth which measured 1.5×1.5 cm was noticed on right side of the lower lip in relation to the mandibular incisors. The surface and surrounding areas of the growth were dry, rough and scaly (figure 1). Pinpoint areas of erythema were seen. Margins of this growth were well defined. There was also a mild enlargement of the lower lip with positive signs of inflammation (figure 2). On palpation, the growth was firm in consistency, tender (VAS score: 4) and base of the growth was mildly indurated. There was a solitary, mildly tender and palpable right submandibular lymph node.

On the basis of history and clinical findings, a provisional diagnosis of an actinic cheilosis with a malignant transformation was made.

INVESTIGATIONS

An excisional biopsy of the entire ulceroproliferative growth site revealed lip mucosa with an exophytic growth with finger-like papillomatosis, an extensive acanthosis and microinvasive tumour with the loss of basement membrane. Tumour was composed of closely packed polyhedral cells with vesicular nuclei and prominent nucleoli. Mitosis was increased. Many cells showed intranuclear inclusion bodies. Small focal keratinisation was seen. The subcutaneous tissue showed diffuse dense plasma cell and lymphocyte infiltrate. All resected margins and surface were free of tumour infiltration. Resected circumferential margin was free of tumour. Resected ends showed mild acanthosis with intranuclear vacuolation. Deep resected connective tissue was free of tumour infiltration (figure 3). On the basis of history, clinical features and histopathological correlation, a final diagnosis of actinic cheilosis with a well-differentiated microinvasive carcinoma of the lip was made.

DIFFERENTIAL DIAGNOSIS

1. Cheilitis glandularis: As the patient had swollen lips, nodular growth with an everted margin, ulceration; cheilitis glandularis, a chronic inflammatory condition manifesting as a minor salivary gland hypersecretion with ductal ectasia can be considered.²
2. Cheilitis granulomatosa: A rare condition manifesting as an episodic, non-tender enlargement

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Figure 1 A localised sessile, circumscribed growth, measuring 1.5x1.5 cm on the right side of lower lip in relation to mandibular incisors. The surface of the growth and surrounding areas of growth were dry, rough and scaly.

Figure 2 Mild enlargement of lower lip with a localised proliferative growth.

of one or both the lips. On palpation of the enlarged lips, it feels firm and nodular.³

3. Exfoliative cheilitis: As the histological picture of our case showed hyperkeratosis, areas of erythema; exfoliative cheilitis could be considered but exfoliative cheilitis is associated with a history of factitial injury.⁴
4. Pemphigus vulgaris: An immunobullous lesion characterised by blisters, erosion and an ulcer involving the lip and buccal mucosa. The oral lesions in more than 85% cases precede a cutaneous lesion.⁵
5. Contact cheilitis: Triggered by allergy to tooth paste or beauty care products or an irritation by extremes of hot, cold and dry weather which is characterised by scaling and erythema along the vermillion border of the lips with sloughing of surface epithelium.⁴

TREATMENT

On the first visit, the patient was prescribed a topical application of petroleum jelly, 0.1% of triamcinolone acetate paste (kenalog orobase), three times a day. Following the biopsy, he was prescribed tablet amoxicillin 500 mg three times a day and tablet

Figure 3 Histopathological section (200x) shows loss of basement membrane and invasion of squamous malignant cells into the submucosa at the base of the lesion.

Figure 4 Postoperative healing phase after excision and partial vermillionectomy.

ibuprofen 200 mg three times a day for 5 days. Following the pathological report, under general anaesthesia, a wedge-shaped incision was made and lesion was surgically excised and a superficial vermillionectomy was performed along the region of erythema and scaling. Primary wound closure was obtained.

OUTCOME AND FOLLOW-UP

The postoperative healing was satisfactory (figure 4). The patient was asymptomatic and 6-month follow-up has been done. The patient was advised to avoid sun exposure especially between 10:00 and 16:00 when the wavelength of actinic rays is high. He was also advised to keep his lips moist and use a lip screen and petroleum jelly regularly.

DISCUSSION

Majority of the oral carcinomas are related to the use of tobacco and tobacco products. A few cases of oral squamous cell carcinoma also arise as a result of occupational hazard such as an exposure to sunlight. One such potentially malignant disorder which arises due to exposure to ultraviolet (UV) rays is solar keratosis. Exposure to sunlight leads to sun burns, premature ageing of skin and cutaneous carcinoma. Actinic keratosis of skin manifests early and ultimately progresses to squamous cell carcinoma.

Actinic cheilosis is the labial equivalent of solar keratosis of the skin. Demographically, statistics reveal actinic cheilosis affects men of more than 40 years of age.^{6 7}

Even though the terminology actinic cheilitis is commonly used, recently it has been renamed as actinic cheilosis or solar

cheilosis because this sun-induced neoplastic process is primarily non-inflammatory in nature.⁸

The UV light from the sun is classified as UV-A, B and C depending on its wavelength. UV-C is completely filtered by the atmosphere. But UV-A and UV-B are not filtered which produces skin damage by degrading vitamin A, destroying the collagen, inducing ionisation and finally releasing free radicals which can cause DNA damage.⁹

Actinic keratosis of the skin and actinic cheilosis of the lips is primarily induced by UV-B rays.¹⁰

Two forms of actinic cheilosis occur; an acute and a chronic form. Acute form is more predominant in younger age group who are exposed to an intermittent episode of an intense sun exposure and clinically, there is a presence of oedema, redness and ulcerations over the lip. The lesion of an acute form can completely regress when the patient is weaned away from exposure to the sun. The chronic form of actinic cheilosis occurs due to a prolonged and continuous exposure to the sun. The exposed areas of the lip will become atrophic, dry with the presence of keratotic white and grey area. The lesions here are asymptomatic and this could be one reason why patients do not report at an early stage. Owing to the same reason of being asymptomatic, our patient also did not report for treatment even though the lesion was present for 4 months. He reported to us only after it started to increase in size and was accompanied by pain. Owing to reduced thickness of the epithelium on the vermilion border of the lower lip, less keratin thickness and lower melanocyte content, this area is susceptible to UV-induced lesion. Literature shows incidence of actinic cheilosis is more on the right side of upper or lower lip. Our patient also developed the proliferative growth on the right lower lip region.⁶

The treatment of actinic cheilosis should always be based on the clinical presentation as well as considering histopathological picture. In case like ours, where there is erythema, scaling and ulceroproliferative growth, biopsy is mandatory.

The therapeutic strategies for actinic cheilosis include prevention, an early diagnosis, an effective therapeutic intervention and a long-term follow-up of the patient.¹

If the lesion just presents as actinic cheilosis with scaling and erythematous surface then the treatment of choice would be electrocautery, cryotherapy or a carbon dioxide laser excision.¹¹ The other commonly used surgical option is a vermilionectomy and the mucosal flap to close the defect after excision.¹² Actinic cheilosis with progression to verrucous carcinoma or squamous cell carcinoma is treated by a conventional surgical excision.

The clinical behaviour of carcinoma of lip is similar to that of the skin. The incidence rates of carcinoma of lip are around 13.5 per 100 000 in Oceania, 12 per 100 000 in Europe and 12.7 per 100 000 in North America. About 90% of tumours arise in the lower lip with 7% occurring in the upper lip and 3% at the oral commissure.¹³

According to a retrospective study by Maruccia *et al*, there was an evidence to confirm independent effect of exposure factors related to lip carcinoma. There was also a significant association between lip cancer and risk factors such as exposure to sun and adverse habits like use of tobacco and alcohol drinking.¹⁴

The rate of malignant transformation from actinic cheilosis over a period of 1–20 years is as high as 10–20%.⁶

Carcinoma arising from an actinic cheilosis carries a risk of local metastases up to 15% for T1 tumours and up to 35% for T2 tumours. Metastases are common to submandibular, submental, jugular and intraparotid group of nodes.

The 5-year crude survival rates for the surgical management of carcinoma of lip are about 75–80% for T1 to T2 tumours and reducing to 40–50% for T3 and T4 tumours.¹⁵

In conclusion, individuals whose occupation makes them vulnerable to an exposure to the sunlight and UV light should be advised about the possible complications of sun exposure to the skin and oral mucosa. Necessary preventive measures like change in lifestyle patterns and use of sunscreen products with a sun protective factor of 30 or higher are to be advised.¹⁶

Periodic follow-up of these patients is necessary to prevent any carcinomatous change. Any clinical presentation of scaling, erythema, ulceration over the lips should be biopsied and if it shows any dysplastic changes, the treatment should be initiated accordingly. Well-established cases of carcinoma from actinic cheilosis should be referred to the head and neck oncologist to maximise prognostic outcomes.

Learning points

- ▶ Actinic cheilosis, a potentially malignant condition is common among people exposed to sunlight and is currently under-recognised.
- ▶ Dental practitioners should be aware and competent enough to identify patients with actinic cheilosis and should initiate the most appropriate treatment to prevent a malignant transformation.
- ▶ Approximately 20% of patients with actinic cheilosis develop an oral squamous cell carcinoma. An early diagnosis, appropriate treatment, patient education and follow-up by the dental surgeons help in better prognosis and reduce the morbidity and mortality.
- ▶ Owing to this high possible malignant transformation, actinic cheilosis needs to be diagnosed early, suitable preventable measures should be taken and an early treatment needs to be initiated.

Contributors This article was authored by AM and LBK, who were involved in examining the case, recording the history and performing necessary investigation. AM and LBK were also involved in following the case, during post-treatment, and in preparation of the final manuscript. AM also submits that all details in the case report are original.

Competing interests None declared.

Patient consent Obtained.

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Reminder of important clinical lesson

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