

Case Report

# Actinic Cheilitis: A Case Report with Review of Literature

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## ABSTRACT

Actinic cheilitis (AC) is a chronic inflammatory disorder that occurs mainly on the lower lip in the susceptible individuals.<sup>[1]</sup> It is usually caused by chronic and excessive exposure of the lips to solar ultraviolet (UV) radiation. The lesion is potentially malignant and may transform into squamous cell carcinoma (SCC).<sup>[2]</sup> Clinical features include diffuse and poorly demarcated atrophic, erosive or keratotic plaques that may affect some parts of, or the entire vermilion border. People with fair complexion, engaged in more amount of outdoor activities and with eversion of lips are more commonly affected by Actinic cheilitis.<sup>[3]</sup> Prophylactic measures against Actinic cheilitis must include limitation of prolonged exposure to sunlight, the use of appropriate protective clothing, and the use of a sunscreen cream. This is a case report of actinic cheilitis, its clinical features and treatment options.

**Keywords:** Actinic cheilitis, UVB, Squamous cell carcinoma.

## INTRODUCTION

Actinic cheilitis (AC) is a chronic inflammatory disorder of the lips that exclusively occurs on the vermilion regions of the lower lip. It is caused due to regular and prolonged exposure to sunlight in susceptible individuals. Actinic cheilitis is derived from the Greek words “aktis” meaning “ray” and “cheilos” meaning “lips.”<sup>[1]</sup> It is considered as a potentially malignant lesion by the world health organization (1997).<sup>[2]</sup> This may lead to the development of SCC. The labial mucosa is more prone to dysplastic alterations by solar radiation which is due to the fact that it is more exposed to the environment and hence more susceptible to various disorders compared to the upper lip. The vermilion border is more subjected to the effects of UV rays because of thinner epithelium, low melanin content, less sebaceous and sweat secretion.<sup>[3]</sup> Other names of actinic cheilitis include solar keratosis, actinic keratosis,

actinic cheilosis, and cheilitis exfoliativa. Here we present a case report, a case of actinic cheilitis in a 45 year old female.

## CASE REPORT

A 45 year old female patient came to the Department of Oral Medicine and Radiology, Government dental college and hospital, Kadapa with the chief complaint of pain in the lower lip since 1 month. Patient was apparently normal before 2 months after she developed encrustations and pain in the lower lip, which was insidious in onset, initially small sized which gradually increased and attained the present size, pain, burning and tingling sensation was also present. On inspection encrustations were present on the lower lip, two in number, extending on the vermilion border of the lower lip, 1.5x1cm & 0.5x0.5 cms in size each on the right and left half of the lower lip respectively, roughly oval in shape, Margins are well defined, edges are rolled

out, floor of the ulcer is covered with granulation tissue with erythematous borders, surrounding mucosa was pigmented, crusted along the periphery. On palpation the lesion is tender with no bleeding on application of pressure, attached to the deeper structures, rolled out margins present.

Based on the history and clinical findings it has been provisionally diagnosed as actinic cheilitis. A differential diagnosis of traumatic ulcer, cheilitis glandularis, erythema multiforme was also included. The patient was then subjected to hematological investigations like complete blood picture, HIV, HbsAg, HCV.

## DISCUSSION

Skin is the organ most exposed to environmental sunlight. Sunlight consists of radiation that varies in wavelength from 200 to 1800 nm. Ultraviolet (UV) B rays which range from 290 to 320 in wavelength, cause the superficial burning of the skin that leads to sunburn.<sup>[4]</sup> Lauren Marot et al, in 2008 has stated that The role of UVB in tumor induction has been accepted for decades and the contribution of UVA has been ignored for a long time. UV B rays are primarily responsible for sun-induced changes in the lip. Several studies have now provided substantial evidence of UVA involvement in the development of tumours and in the depression of immune functions.<sup>[5]</sup> In a study conducted by Agar s et al, in 2006 stated that the predominance of UVA mutations in the basal cell layer reinforces the pivotal role UVA may play in the malignant transformation of human skin. Hence it is important to protect the population not just from UVB but also from UVA irradiation, as it has profound implications on public health.<sup>[6]</sup> Actinic cheilitis affects the lower lip exclusively because of its anatomic orientation that exposes it to sunlight. It occurs in people who are habitually associated to sunlight such as farmers, peddlers, golfers. It was believed that Actinic cheilitis most commonly in fair-skinned people, it is also

found in dark-skinned people of India.<sup>[7]</sup> In a study conducted by Cavalcante et al, in 2008 he stated that Actinic cheilitis is not exclusive to fair-skinned individuals. There is a high incidence of actinic cheilitis in Somalia, where most of the inhabitants of the country were black. He also inferred that men and women are equally effected by Actinic cheilitis as they both share similar working environment.<sup>[1,8]</sup> Risk factors for Actinic cheilitis include outdoor activity and skin type. Other factors such as smoking and dietary habits, genetic predisposition are believed to be associated with carcinoma of lip. Exposure to sunlight associated with other factors such as smoking and dietary habits might produce a synergistic effect. Actinic cheilitis initially occurs as an asymptomatic dry lip affecting the lower lip vermilion. Advanced lesions may manifest as parallel folds or fissures, a loss of normally distinct cutaneous vermilion border, mottling, keratotic plaques, and erosions. The attack frequently begins with a group of vesicles on the vermilion surface of the lower lip, which soon becomes confluent, crusted, and scaling inflammation sometimes with swelling. In a study conducted by Markopoulos *et al*, He found that Actinic cheilitis manifested clinically in three forms; white non ulcerated lesions, erosions of ulcers of lip, mixed white non erosive.<sup>[9]</sup> Kaugars *et al*. found that on palpation, these lesions give the sense of gloved sliding finger on fine sand paper.<sup>[10]</sup> Actinic cheilitis may appear clinically with localized or diffused lesions. Markopoulos et al, in his study inferred that patients with lip cancer have lesions >1.0cm in diameter at the time of their initial diagnosis.<sup>[9]</sup> Hence the early diagnosis of actinic cheilitis is very crucial.

Martinez et al found that epithelial expression of P53 and murine double minute (mdm2) gene was significantly increased in Actinic cheilitis.<sup>[10]</sup> Freitas et al, in his study concluded that the expression of P53 and MDM2 proteins in Actinic cheilitis can be an important indicator in lip carcinogenesis, regardless of the degree of

epithelial dysplasia.<sup>[12]</sup> Yanamoto et al, studied in his study in 2002 confirmed a correlation between the super expression of the MDM2 protein and an unfavourable prognosis for the disease.<sup>[13]</sup> Actinic cheilitis is a potentially malignant lesion that affects the lower lip and is caused by excessive exposure to solar radiation. The malignant transformation rate of actinic cheilitis into squamous cell carcinoma (SCC) of the lip ranges from 10% to 30%. SCC of the lip is common form of oral cancer corresponding to 95% of all oral malignant lesions. Actinic cheilitis is thus a primarily UVB induced intra epithelial neoplasm. And the mutations induced by UVB can cause squamous cell carcinoma.

Diagnosis of the case is by clinical examination and history of exposure to sun. In this case the patient was a shepherd which causes prolonged exposure to sunlight. As there was no deleterious habit reported and trauma from the opposing tooth was also ruled out, a diagnosis of actinic cheilitis was made.

Treatment options for actinic cheilitis include prophylactic measures like avoiding exposure to sun, covering the skin surfaces from sun light using a cap, and applying sunscreen lotions with relevant sun protection factors. Treatment should be aimed not only for discomfort and disfigurement but also for potential malignancy. The treatment options available for actinic cheilitis can be broadly divided into surgical and non surgical methods. Surgical treatment includes electrodesiccation, cryosurgery, and laser treatment. Non surgical treatment includes topical chemotherapy with antineoplastic agent 5-fluorouracil or the immunomodulator imiquimod chemo exfoliation and dermabrasion. It has recently been reported that photodynamic therapy using the methyl-ester of aminolevulinic acid as a photosensitizing agent is a very effective treatment modality for actinic cheilitis. It is well tolerated by patients and provides excellent cosmetic outcomes.<sup>[14]</sup> Topical / systemic retinoids, intra lesional

injection of alpha interferon are also being tested for its efficacy in treating Actinic cheilitis.

## CONCLUSION

Actinic cheilitis deserves a special attention because of its malignant potential. The intimate association of the disorder with exposure to sunlight is an important factor to be noted in the history. Careful clinical examination and recording the occupation is the key to diagnose actinic cheilitis. Early diagnosis is of paramount importance as actinic cheilitis has the susceptibility to convert into squamous cell carcinoma and therefore may deteriorate the prognosis of the treatment outcome. Preventive measures should always be followed when exposure to sun cannot be avoided. Chemical and physical sunscreens will help to lower the risk of damage caused by radiation to the skin. In this case the patient had everted lower lip due to which there was direct exposure of sunlight making it more susceptible to hazardous effects of radiation. Moreover her occupational history revealed prolonged outdoor activity. This case gives us an insight into the importance of clinical examination combined with occupational history, the synergistic combination of which helps us to arrive to the diagnosis. Hence early intervention can be done so as to prevent harmful outcomes like squamous cell carcinoma that may cause unfavorable prognosis to the patient.



Figure 1. Showing profile of the patient.



Figure 2. Showing right lateral profile of the patient.



Figure 3. Showing encrustations on the lower lip.



Figure 4: Showing encrustations on the lower lip.

## REFERENCES

1. Cavalcante A.S.R, Anbinder A.L, Carvalho Y.R et al, Actinic cheilitis clinical and histological features 2008 American Association of Oral and Maxillofacial Surgeons J Oral Maxillofac Surg 66:498-503, 2008.
2. MacFarlane GE, Terezhalmay GT et al; Actinic cheilitis: Diagnosis, prevention, and treatment. US Navy Med 73:22, 1982.
3. Wood NH, Khamissa R, Meyerov R, Lemmer J, Feller L et al, Actinic cheilitis: A case report and a review of the literature. Eur J Dent 2011;5:101-106.
4. Gomes A.P.N, Johann J.E, Lovato G.G, Ferreira A.M et al, Comparative analysis of the mast cell density in normal oral mucosa, Actinic cheilitis and Lip squamous cell carcinoma. Braz Dent J(2008) 19(3): 186-189.
5. Laurent Marrot, Jean-Roch Meunier, Aulnay-sous-Bois et al: Skin DNA photodamage and its biological consequences J Am Acad Dermatol 2007;58:S139-48.)
6. Agar N.S, Halliday GM, Barnettson RS, Ananthaswamy HN, Wheeler M, Jones M et al, The basal layers in human squamous tumor harbours more UVA than UVB finger print mutations : A role for UVA in human skin carcinogenesis, PNAS 2004, vol.101, no.14.
7. Elogavan samasundaram et al, Actinic cheilitis : a review J Indian Acad Oral Med Radiol 2015;27:569-71.
8. Goracci G, Colangelo G, Nini G et al: Incidenza delle cheilitis attiniche in Somalia. Riv Ital Somatol 50:1009, 1981.
9. Markopoulos A, Albanidou-Farmaki E, Kayavis I. Actinic cheilitis: clinical and pathologic characteristics in 65 cases. Oral Dis. 2004;10:212-216.
10. Kaugars GE, Pillion T, Svirsky JA, Page DG, Burns JC, Abbey LM. Actinic cheilitis: A review of 152 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1999;88:181-186.
11. Martinez A, Brethauer U, Rojas IG, Spencer M, Mucientes F, Borlondo J, et al. Epithelial expression of apoptotic and cell proliferation regulatory proteins in actinic cheilitis. J Oral Pathol Med. 2005;34(5):257-62.
12. Freitas, Ramalho, Xavier, Moreira, Reis et al, p53 and MDM2 protein expression in actinic cheilitis. J Appl Oral Sci. 2008;16(6):414-9.
13. Yanamoto S, Kawasaki G, Yoshitomi I, Mizuno A. p53, mdm2, and p21 expression in oral squamous cell carcinomas: Relationship with clinicopathologic factors. Oral Surg Oral Pathol Oral Radiol Endod. 2002; 94(5):593-600.
14. Rossi R, Assad GB, Buggiani G, Lotti T. Photodynamic therapy: treatment of choice for actinic cheilitis? Dermatol Ther 2008; 21:412-415.

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