

# High-risk actinic cheilitis treated with fractionated ablative carbon dioxide laser in combination with trichloroacetic 30% peel and topical tretinoin 0.05% cream

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## Case Report

Actinic cheilitis (AC) is a premalignant disease associated with chronic sun exposure that may develop squamous cell carcinoma of the lip. Its manifestations vary from being asymptomatic to pain and swelling of the lips and the development of scaly crust on the vermilion commonly seen in the lower lip. We present a case of 50-year old female presenting with painful fissured plaques of both upper and lower lip. Biopsy results were consistent with high-risk AC. The patient was treated with fractionated ablative carbon dioxide (CO<sub>2</sub>) laser in combination with trichloroacetic acid (TCA) 30% peel and topical tretinoin 0.05% cream.



Figure 1. Clinical presentation of AC. multiple, erythematous, fissured plaques with areas of hyperpigmented macules on both upper and lower lip (1A), one month after second treatment (1B) and six months after second treatment (1C)

## Discussion

AC is a premalignant disease associated with chronic sun exposure that may develop squamous cell carcinoma of the lip.<sup>1</sup> It most commonly affects the lower lip because the upper lip is relatively shaded from ultraviolet exposure.<sup>2</sup> Histopathology of AC indicates epithelial hyperplasia, parakeratosis, and variable degrees of epithelial dysplasia as well as chronic inflammatory infiltrate, solar elastosis, and vasodilatation. The degree of epithelial dysplasia cannot be predicted by clinical presentation.<sup>3,4</sup> The patient's upper and lower lip involvement and histopathologic findings of hyperchromasia, mitosis and dilated blood vessels may indicate the risk of progression to squamous cell carcinoma.

Carvalho et al<sup>5</sup> reviewed that surgical treatment, like vermilionectomy, was more favorable than non-surgical treatment in terms of remission and recurrence. Despite this, non-surgical treatments are preferred for lesser chance of adverse effects and convenience. CO<sub>2</sub> laser vaporizes the epithelium removing the dysplastic cells. This is a bloodless procedure with limited side effects.<sup>1</sup> TCA 30% removes the epidermis and has been shown to decrease the expression of UV-induced cell-cycle regulatory proteins.<sup>6</sup> Tretinoin normalizes desquamation by promoting differentiation, and blocks several inflammatory pathways.<sup>7</sup> The combination of treatment effects worked synergistically addressing the pathology in AC.

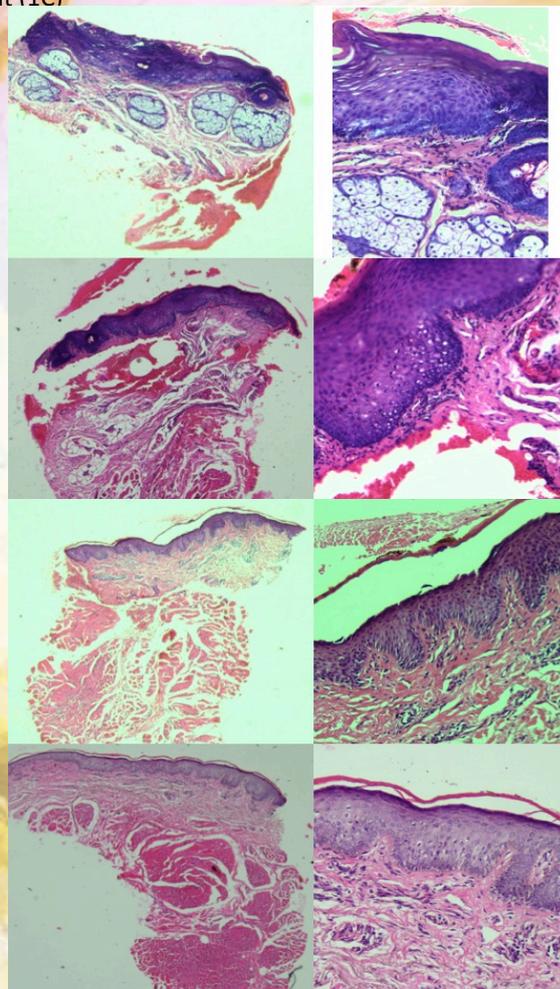


Figure 2. Histopathology of AC. (A, B) Irregular hyperplasia with crowding of basal keratinocytes showing hyperchromatic nuclei and several mitotic figures on the upper lip (H&E; original magnification 40x). (C, D) Psoriasiform hyperplasia and spongiosis with eosinophilic exocytosis with crowding of the basal keratinocytes, some showing hyperchromatic nuclei, moderately dense superficial infiltrates of lymphocytes, plasma cells and melanophages and dilated vessels on the lower lip (H&E; original magnification 40x).

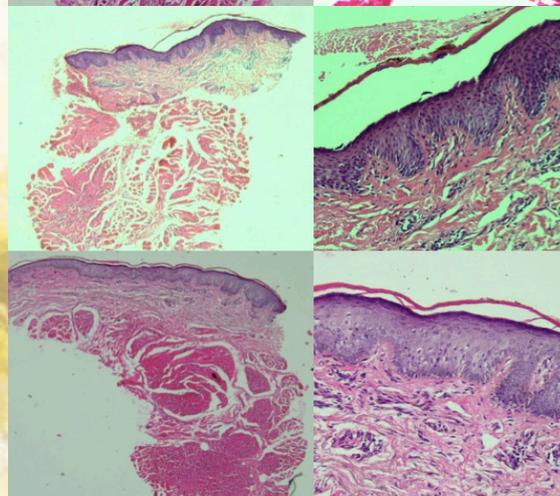


Figure 3. Histopathology of AC six months after treatment. (A, B) Normal epidermis of the upper lip and (C, D) lower lip (H&E; original magnification 40x).

## Conclusion

In conclusion, AC is a premalignant condition that should be treated promptly. Non-surgical treatments are preferred for lesser chance of adverse effects and convenience. Combination treatment of non-surgical options might work better synergistically than given alone.

## References

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