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Porokeratosis on the lip: a Case Series

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Abstract

Porokeratosis is a skin condition that involves the formation of plaques, characterized by a hyperkeratotic ridge with an atrophic center. There is a histological presence of a cornoid lamella, which is a parakeratotic column that traverses through the stratum corneum. The plaques are mostly benign but have the potential to become squamous cell carcinomas if left untreated. Porokeratosis lesions typically occur on the extremities, but they can develop anywhere. The occurrence of porokeratosis on the lip is exceedingly rare. We report three cases of porokeratosis on the lip. Each incidence was treated with cryotherapy, which was unsuccessful in two. One of these two patients did not elect for topical treatment and is being monitored for lesion changes. The second patient was successfully treated via shave biopsy. The third patient was lost to follow-up post-cryotherapy.

Keywords: cornoid, cryotherapy, lamellae, lip, porokeratosis

Introduction

Porokeratosis is a keratinization disorder that involves the development of plaques demonstrating an atrophic center and a hyperkeratotic ridge [1]. It has been reported on various locations of the body, most often the extremities. Diagnosis involves a histological cornoid lamella, which is defined as a parakeratotic column through the stratum corneum with an absent or diminished granular layer [2]. Typically, the plaque is benign but can become a squamous cell carcinoma if left untreated. Development of porokeratosis can be genetic but has also been associated with other causes, such as UV light exposure or immunosuppression [3].

Current treatments include cryotherapy, CO_2 laser vaporization [4], topical retinoids [3], topical imiquimod, topical 5-fluorouracil, topical tacrolimus, and surgical excision [2]. The most reproducible treatment for porokeratosis is oral retinoids. However, once use of the oral retinoid is terminated, the porokeratosis may return [3]. Rarely does porokeratosis develop on the lip, with only five reported cases between 1965 and 2010, and only a handful additional cases since [1,4,5]. Previous successful treatment of porokeratosis on the lip has been accomplished through topical 1% 5-fluorouracil as well as cryotherapy combined with CO_2 laser vaporization [4,5].

Case Synopsis

We present three individual cases of porokeratosis occurring on the lip.

Patient 1

The first patient is a 42-year-old man with no family history of melanoma and no previous skin cancer. The patient presented for follow-up with two unknown lesions on the lip that remained unresolved by desonide 0.05% topical treatment, at which time a shave biopsy was conducted. The left inferior and right inferior vermillion lip each developed one plaque (**Figure 1A**). Microscopic examination of the lesions showed the characteristic cornoid lamella, confirming the diagnosis of porokeratosis (**Figure 1B**). Liquid nitrogen was administered on the left inferior vermillion lip, but

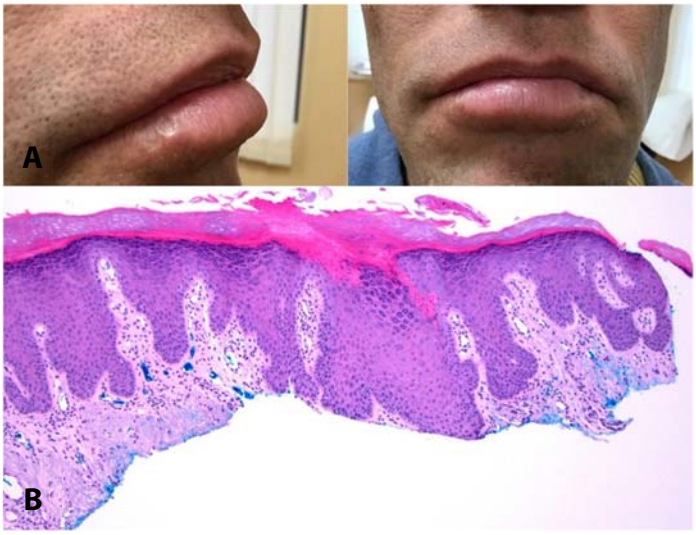

Figure 1. ***A)*** *Two porokeratosis plaques on the right and left inferior vermillion lip.* ***B)*** *Histologic image of one plaque, with the characteristic parakeratotic column (cornoid lamella). H&E, 100×.*

the patient reported no improvement and elected to forgo topical treatment. The lesions continue to be monitored for changes during follow-up.

Patient 2

The second patient is a 58-year-old woman with a previous history of basal cell carcinoma and squamous cell carcinoma. She has no reported family history of melanoma or skin cancer. The lesion on the left superior vermillion border (**Figure 2A**) was treated twice with liquid nitrogen cryotherapy with no resolution. Shave biopsy was performed, which led to the diagnosis of porokeratosis owing to the presence of a cornoid lamella on histology (**Figure 2B**). The shave biopsy successfully treated the porokeratosis and the lesion is now well healed.

Patient 3

The third patient is a 71-year-old man with a previous medical history of basal cell carcinoma and no reported family history of melanoma. During full-body skin examination, the lesion on the right upper cutaneous lip was identified (**Figure 3A**) and biopsied through the shave method. The histology aided in the diagnosis of porokeratosis (**Figure 3B**) because of the presence of a prominent cornoid lamella. Liquid nitrogen cryotherapy was administered to treat the porokeratosis. The patient was unfortunately lost to follow-up.

Case Discussion

Porokeratosis lesions typically occur on the extremities and have rarely been reported on the lip. As we report three cases, their clinical significance is exacerbated by the scarcity in previously reported occurrences of porokeratosis at this location. A

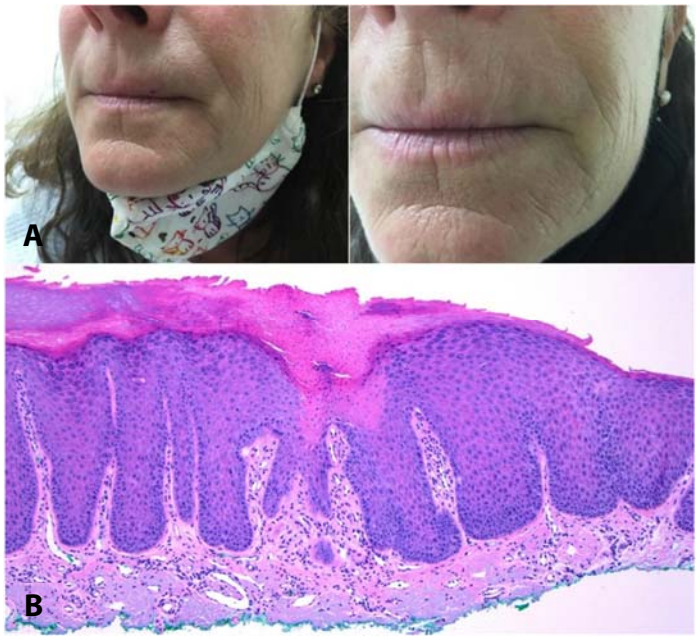

Figure 2. ***A)*** *Solitary lesion on the left superior vermillion border and clearing is shown after shave biopsy.* ***B)*** *Histology slide of the lesion with the characteristic cornoid lamella. H&E, 100×.*

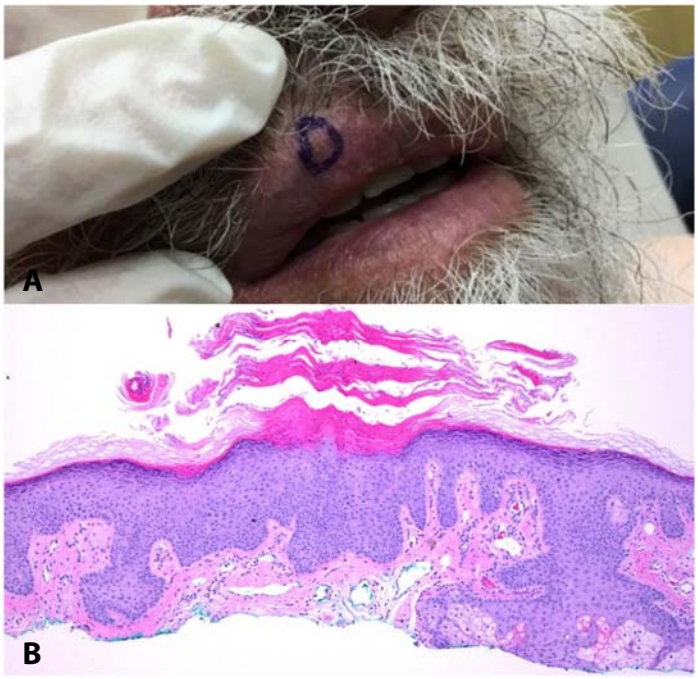

Figure 3. ***A)*** *Lesion on the right upper cutaneous lip.* ***B)*** *Cornoid lamella with absent granular layer from the lesion. H&E, 100×.*

previous case report of porokeratosis on the lip demonstrated successful resolution with liquid nitrogen and CO_2 laser vaporization [4]. The microscopic examination of that lesion contained the definitive cornoid lamella necessary for a porokeratosis diagnosis. However, the authors suggested the consideration of a different subtype of porokeratosis for the lesion because of its unique location and the lack of both a hyperkeratotic ridge and dermal lymphocytic infiltrate. We present three cases of porokeratosis on the lip, all demonstrating the characteristic cornoid lamellae and hyperkeratotic ridge, which are sufficient to characterize the lesions as porokeratosis. In another case report, the patient had a history of topical corticosteroid use, possibly leading to local immunosuppression, which may have contributed to the development of porokeratosis [1]. This was not true for the three cases we present.

Liquid nitrogen cryotherapy was unsuccessful in our first two cases and results of the liquid nitrogen treatment in the third patient are unknown due to lack of follow-up. Shave biopsies were performed on the first two cases, resulting in the successful resolution of the lesion for the second patient. Although liquid nitrogen has been successful in the treatment of porokeratosis in several patients in previous reports, including porokeratosis on the lip, it did not resolve the porokeratosis on our two patients that had been seen after the cryotherapy administration. It is yet to be seen if our third patient will require additional treatment to resolve the porokeratosis.

Conclusion

Porokeratosis is a keratinization disorder involving the development of plaques, which rarely occur on the lip. In this case report, we discuss three cases of porokeratosis on the lip. Each patient's plaques demonstrated the histological finding of a cornoid lamella, characteristic of porokeratosis. Treatment varied among our three patients, with successful resolution of the lesion in one patient, owing to shave biopsy. Our remaining two patients require continued monitoring. Although porokeratosis is not cancerous, it has a low potential of becoming squamous cell carcinoma if left untreated.

Potential conflicts of interest

The authors declare no conflicts of interest.

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