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Lichen simplex chronicus of the eyelid: A case report and literature review

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ABSTRACT

Purpose: To report a case of lichen simplex chronicus (LSC) of the eyelid and to perform a literature review on this topic.

Observations: A 59-year-old African American man presents with chronic and recalcitrant recurrent chalazion of both upper eyelids despite aggressive medical management. An incision and drainage procedure was performed along with biopsy of the eyelid, which was found to be consistent with LSC. A thorough review of the English literature pertaining to LSC of the eyelids was performed by querying PubMed and Google Scholar. Though two clinical reports of LSC of the eyelid were found in older literature, only one such case confirmed by biopsy has been reported until now.

Conclusions: LSC of the eyelid is rare and this is the first reported case that is associated with chronic and recalcitrant chalazion.

1. Introduction

Lichen simplex chronicus (LSC) is a common skin condition which appears as a circumscribed and scaly plaque in the setting of chronic rubbing. Over the past century the disease entity has often been referred to by multiple other names, including lichen chronicus circumscriptus, circumscribed neurodermatitis, and neurodermatitis.[1] LSC is usually a secondary stage change that caused by an underlying primary pruritic dermatosis such as eczema, arthropod bite, or actinic keratosis.[2,3] Biopsy confirmed LSC of the eyelid has been rarely reported.[4] We report a case of LSC of the eyelid in an African American in the setting of chronic recurrent chalazion and perform a literature review.

2. Methods

2.1. Case description

A 59-year-old African American man with a remote history of eyelid laceration of the right upper eyelid presented with red and swollen upper eyelids bilaterally. On initial examination, there was a hordeolum internum of the left upper eyelid and squamous blepharitis and meibomian gland disorder of both upper eyelids. The patient was treated with topical neomycin, polymyxin B and dexamethasone ophthalmic ointment for 4 months with only mild improvement. Incision and drainage for bilateral upper eyelid chalazion was performed. Two months later, the patient again presented with persistent eye drainage, redness, pruritis, and blurry vision. External examination, as shown in Fig. 1, demonstrated nodular appearance of bilateral upper eyelids, large internal hordeolum of the right inferior palpebral conjunctiva, and excoriation and erosion of the periorbital skin and the left upper eyelid. Computer tomography (CT) of orbits and sella showed soft tissue swelling of the right supraorbital region without evidence of abscess formation. The patient was treated with repeated systemic oral antibiotics and topic antibiotic and corticosteroid ointments without relief. Repeat incision and drainage with biopsy of the right upper eyelid was performed 10 months later. Biopsy results revealed findings consistent with LSC. On histological examination, there was hyperkeratosis, a stratum lucidum, prominent hypergranulosis, and irregular acanthosis. Diffuse dermal perivascular and interstitial lymphocytic infiltrate was present (Fig. 2a–b). Collagen in dermal papillae was arranged in vertical orientation (Fig. 2b). Characteristic inflammatory changes seen in chalazion such as granulomatous inflammation and Touton giant cells were

; LSC, lichen simplex chronicus.

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not present. However, it is possible that the biopsy specimen was not deep enough to have sampled an underlying lesion.

The patient was followed up 6 months later and was found to have developed a 4+ nucleus sclerosis cataract in the right eye. Our latest treatment guidance has been for the patient to continue erythromycin ointment application, regular warm compresses, and consider cataract surgery.

2.2. Literature review

A thorough review of the English literature pertaining to eyelid LSC disease was performed by querying PubMed and Google Scholar for "eyelid" and "conjunctiva" together with the terms "lichen simplex chronicus," "lichen simplex," "lichen Vidal," "Vidal's disease," "Vidal's syndrome," "neurodermitis circumscripta," "circumscribed neurodermatitis," and "neurodermatitis."

3. Results

In total, there were 4 reported cases, two of which were diagnosed clinically,[5,6] while one case of LSC of the eyelid, and one case of LSC of the conjunctiva, were confirmed with biopsy.

4. Discussion

LSC is common skin condition that rarely affect the eyelids. Clinical manifestation includes circumscribed, scaly, thickened, and variably erythematous plaques due to chronic mechanical rubbing or irritation.[1,7] The disease most commonly revealed on skin surfaces convenient for scratching such as the neck, scalp, ankles, wrists, extensor forearms, vulva, pubis, and scrotum.[8] It is more prevalent in women than men (estimates of 1.2:1 to 2:1), with a peak incidence between the ages of 35 and 50.[8–10] Though the incidence of LSC is not well established an upper estimate claims that as much as 12% of the population are affected.[9] Increased occurrence of LSC has been described in dark-pigmented populations. It was first noted in 1936 that LSC occurs over twice as frequently in Asians than in whites, with similar observations being made by many dermatologists in the 1930s through 1960s.[5,10–15] More recently a study found that, amongst patients seen for itch, blacks were more likely to be diagnosed with LSC (OR 1.44) than whites.[16]

Though the complete underlying pathophysiology of LSC is not yet deciphered, the presumption is that chronic rubbing and itching of the skin provoke a reactive protective mechanism in which the epidermis becomes acanthotic and hyperkeratotic.[2,7,8] We postulate that our patient's clinical history of chronic and recurrent chalazion and findings of an excoriated lesion on the nose bridge, both suggestive of frequent rubbing in the vicinity of the eyelid, contributed to the development of LSC. It is further possible that it was the patient's distant history of a left eye stabbing injury which caused his meibomian gland disorder,

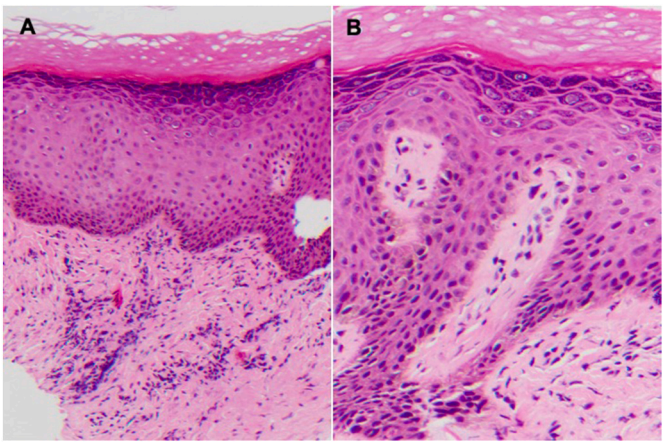

Fig. 2. Microscopic images of the right upper eyelid.
A: Hypergranulosis, acanthosis, and perivascular and interstitial lymphocytic infiltrate. The pale band of pink keratin above the stratum granulosum represents a stratum lucidum, a layer normally only present in thick acral skin. (H&E, original magnification × 10). B: Hyperkeratosis, hypergranulosis, and a stratum lucidum are present. Collagen in dermal papillae is arranged in vertical orientation (H&E, original magnification × 20). (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

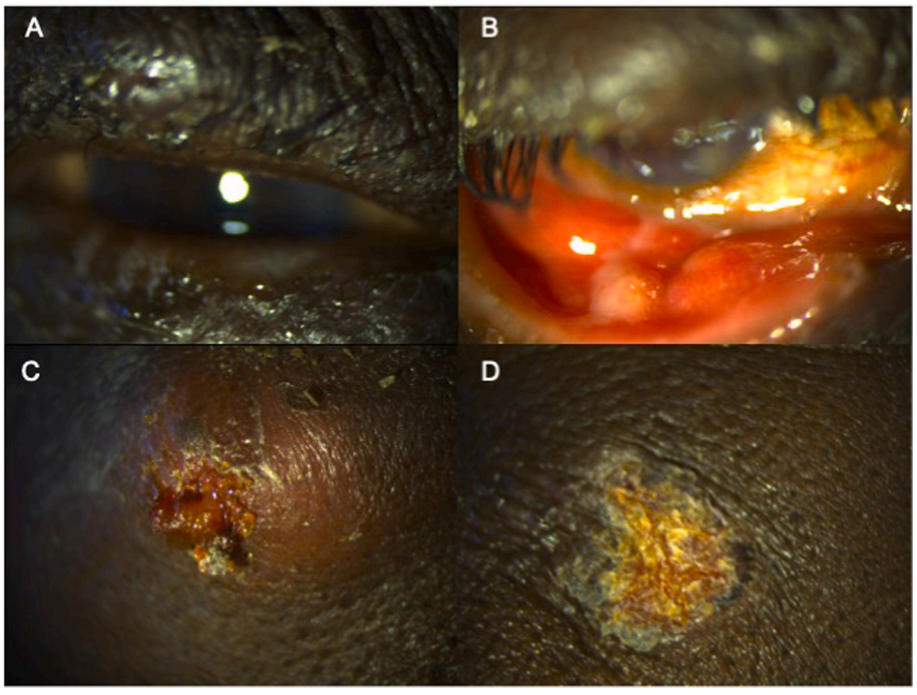

Fig. 1. External photographs of both eyes. A: An eyelid mass of the medial right upper eyelid with associated purulent discharge and focal blunt and shortened eyelashes, a sign that the patient has been plucking the eyelashes. B: Two erythematous nodules of the right inferior palpebral conjunctiva, consistent with hordeolum internum. C: Erythematous, edematous ruptured hordeolum externum with overlying excoriation and erosion of the skin of the left upper eyelid. D: Excoriation of the periorbital skin, likely secondary to skin rubbing.

resulting in lack of lubrication, thereby producing his pruritic chalazion which initiated the itch-scratch cycle culminating in LSC. The histopathological features in LSC are hyperkeratosis with focal parakeratosis, hypergranulosis, irregular acanthosis, mild spongiosis, and perivascular lymphocytic infiltrate. Also present are elongation of epidermal rete, and vertical orientation of collagen in dermal papillae.[2,3] A stratum lucidum, normally only seen in acral skin, is often present.[2] It is remarkable that, while the eyelid normally has the thinnest epidermis of all the body's skin, our eyelid specimen showed a stratum lucidum, an extra layer (Fig. 2a–b). The elongation of epidermal rete and vertical orientation of collagen in dermal papillae are likely signs of repeated pulling and stretching of the dermis and epidermis in the course of chronic clinical scratching.

A thorough literature review retrieved only a single biopsy-confirmed case of LSC of the eyelid, reported by Ferry and Kaltreider in 1999. That report describes a 46-year-old white male with a suspected clinical diagnosis of basal cell carcinoma of the bilateral lower eyelids, whose excisional biopsies revealed bilateral lower eyelid LSC.[4] Similarly, LSC of the palpebral conjunctiva has only been described once in the literature in a 58-year-old woman who would shave her eyelashes and rub the inside of her upper eyelid with a cotton tip applicator to alleviate itchiness. The patient was treated with lesion resection and psychiatric treatment.[17]

Much of the treatment for LSC is based upon interrupting the itch–scratch cycle. Guidelines have included topical emollients, antipruritics, immunomodulators, and corticosteroids, as well as oral antihistamines and antidepressants, with the aim of limiting the urge to itch. A recent meta-analysis found that the use of topical corticosteroids has the most robust evidence for effective first line treatment of LSC.[18] Our patient was treated with neomycin, polymyxin b and dexamethasone ophthalmic ointment for months both before and after his LSC confirming surgical biopsy without relief to his ongoing eyelid tenderness. Long-term use of topical steroids is linked to local side effects of cataract and glaucoma. Surgical excision may be considered for small, localized lesions; this method was effective for LSC involving the eyelid.[4]

In conclusion, LSC of the eyelid is a rare clinical entity. Our patient is the second biopsy-confirmed case and the first case occurring in the setting of chronic pruritic chalazion.

Declarations and disclosures

Ethics approval and consent to participate: Our case report does not meet criteria for required review by State University of New York Upstate IRB board. (https://www.upstateresearch.org/compliance/committees/institutional-review-board-irb/case-reports/).

Research ethics

We further confirm that any aspect of the work covered in this manuscript that has involved human patients has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

Intellectual Property

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of our institutions concerning intellectual property.

Consent for publication

Consent to publish the case report was not obtained. This report does not contain any personal information that could lead to the identification of the patient.

The study is in accordance with HIPAA regulations.

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Author contributions

Steven H Adams: Investigation, Writing- Original draft preparation. Natalie T Huang: Writing- Original draft preparation, Writing- Reviewing and Editing. Thomas Bersani: Supervision, Writing- Reviewing and Editing. Samuel Alpert: Supervision, Writing- Reviewing and Editing.

All authors attest that they meet the current ICMJE criteria for Authorship.

Declaration of competing interest

None.

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