

# Chronic Blepharitis From a Preservative in Shampoo

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A 49-year-old man was referred to the ophthalmology clinic by his primary care physician, presenting with bilateral eyelid erythema that had been refractory to topical antifungal treatment.

The initial examination in the ophthalmology clinic showed bilateral eyelid margin edema with surrounding erythema, conjunctival injection, and misdirected and broken eyelashes (**Figures**).



**Figures.** Photos of the patient's eyes showing the skin changes consistent with extensive periorbital dermatitis.

He had been given topical fluorometholone and erythromycin ointment to treat presumed chronic, severe blepharitis with meibomian gland dysfunction, a condition assumed to have been worsened by the patient's vigorous lid scrubbing, which had denuded the lower eyelid lashes. Despite this treatment and the cessation of lid scrubbing, there had been no significant improvement. After multiple visits to the ophthalmology clinic and outside referrals to ophthalmologic specialists, his symptoms had remained refractory to treatment, and examinations continued to reveal persistent cutaneous periorbital and eyelid inflammation with meibomian gland dysfunction.

Over the course of 1 year, his care had included visits to multiple ophthalmologic specialists, dermatologists, and an allergist. Treatment during these various encounters had included combinations of fluorometholone and erythromycin, preservative-free artificial tears, cold compresses, oral doxycycline with topical neomycin/polymyxin B/dexamethasone, methylprednisolone, topical tobramycin/dexamethasone, and oral prednisone. Presumed etiologies for his condition had included allergic conjunctivitis, chronic fungal blepharitis, aggressive cleansing, and chronic bilateral eyelid atopic dermatitis.

After 8 months from the initial presentation and failure to improve with various treatments, a biopsy was performed by the patient's ophthalmologist, the results of which revealed spongiform dermatitis, consistent with findings of contact dermatitis.

After improvement on oral prednisone, the patient was referred to a dermatologist by the assisting allergist. The dermatologist discovered that the patient also had mild contact dermatitis on his shoulders and neck in addition to the surrounding periorbital skin. Patch

testing was performed, the results of which returned positive for the preservative methylchloroisothiazolinone/methylisothiazolinone (MCI/MI). The patient brought all routinely used topical products to the dermatology clinic, at which time his shampoo was found to contain MCI/MI.

The patient discontinued use of the shampoo and used bar soap as an alternative. This resulted in full resolution of his symptoms and findings. His prolonged condition was attributed to an allergic reaction to the MCI/MI in the shampoo.

## Discussion

Chronic blepharitis is chronic inflammation of the eyelid margins that presents with persistent eyelid erythema and edema.<sup>1</sup> There is an extensive list of known etiologies for chronic eyelid inflammation, including seborrheic dermatitis, periorbital cellulitis, meibomian gland dysfunction, herpes simplex virus, ocular  $\alpha_2$ -adrenergic agonist medications, allergic contact dermatitis, eyelid mites, fungal infection, and cancer.<sup>2</sup> The treatments for each etiology vary greatly.

Traditionally, warm compresses and gentle eyelid scrubs with baby shampoo have been a first-line treatment for eyelid edema and inflammation. This conservative treatment plan may not be effective for many etiologies of chronic eyelid inflammation.<sup>3</sup> It is important to be thorough in the evaluation for chronic and refractory blepharitis despite trials of specific treatments, since the condition may require a multispecialty approach to reach the diagnosis given the diversity of etiologies.

Contact dermatitis is the leading cause of periorbital eyelid inflammation.<sup>2</sup> The process by which this inflammation occurs is classified as either allergic or irritant.<sup>2</sup>

In this patient's case, the inflammation was a result of an allergy to the chemical agents MCI and MI in the patient's shampoo. MCI and MI are common preservatives in cosmetics, lotions, and hygiene products such as shampoo.<sup>4</sup> MCI/MI allergy is becoming increasingly prevalent among the population of developed countries.<sup>5</sup> Within the past decade, there has been a documented increase in patients with primary sensitization to MCI/MI. This increase coincides with continuing widespread exposure to products containing these chemicals. Patients with this primary sensitization commonly present with allergic contact dermatitis of the face, hands, and other areas of the body that have contacted these agents.<sup>4</sup>

In summary, when approaching a patient with severe, chronic periorbital blepharitis, it is important to include contact dermatitis from exposure to chemicals such as MCI and MI in the differential diagnosis. Given the increasing prevalence of this primary sensitization due to continued widespread use of this chemical in commonly used products, it is likely that this clinical presentation will continue to be seen. It is important to identify the chemical agent

through patch testing to eliminate the exposure to achieve resolution of the symptoms.

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