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Periocular Dermatitis and Cicatricial Ectropion Secondary to Cosopt (Dorzolamide-Timolol)

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INITIAL PRESENTATION

Chief Complaint

Right eye redness and tearing

History of Present Illness

A 67-year-old woman presented for evaluation of right-sided tearing and inferior displacement of the lower eyelid. Associated with this was increased redness and itching of the right upper and lower eyelids. She reported that she constantly needed to rub her eye to alleviate the itchy feeling and wipe away tears. The patient denied pain, had no recent trauma to her periocular skin, denied any nasal congestion or rhinorrhea, and was without fevers, chills, or night sweats. She endorsed regular use of timolol-dorzolamide (Cosopt) eye drops (1 drop to the right eye, twice daily) for glaucoma and denied any new skin moisturizers, sunscreen, or makeup. The patient had been diagnosed with right lower eyelid preseptal cellulitis several months prior to presentation in the setting of a hordeolum that had subsequently resolved but she continued to have right lower eyelid ectropion. The patient was still using maxitrol (neomycin/polymyxin B/dexamethasone) ophthalmic ointment in the right eye (OD).

Past Ocular History

- Preseptal cellulitis in the setting of hordeolum, OD

- Lower eyelid ectropion OD
- Ocular rosacea, both eyes (OU)
- Borderline glaucoma with ocular hypertension, OU
- Cataract status post cataract surgery, OU
- Lattice degeneration of retina, OU
- Rhegmatogenous retinal detachment status post scleral buckle, OD

Past Medical History

- No pertinent past medical history

Medications

- Cosopt (dorzolamide-timolol) ophthalmic solution, twice daily, OD
- Timolol ophthalmic solution, twice daily, left eye (OS)
- Maxitrol (neomycin/polymyxin B/dexamethasone) ophthalmic ointment twice daily, OD
- Doxycycline 100 mg, 1 capsule by mouth twice daily

Allergies

- Erythromycin – pruritic skin rash

Family History

- Glaucoma - mother and maternal grandmother

Social History

- Retired, non-smoker who denies current or previous alcohol use

Review of Systems

- Negative except for what is detailed in the history of present illness

OCULAR EXAMINATION

Visual Acuity with Correction

- OD: 20/20 with Snellen visual acuity chart
- OS: 20/20 with Snellen visual acuity chart

Ocular Motility/Alignment

- OU: Normal

Intraocular Pressure (IOP)

- OU: Mid-teens

Pupils

- OU: 4 mm in dark, 2 mm in light, no relative afferent pupillary defect (RAPD)

Confrontation visual fields

- OU: Full with count fingers

External

- OU: Normal

Slit lamp examination

- External:
 - OD: Normal
 - OS: Normal
- Lids/lashes:
 - OD: Periocular erythema involving the upper and lower eyelid margins, medial canthus, and lateral canthus skin with small pustules and scale with an edematous base without calor or induration, upper eyelid dermatochalasis, lower eyelid cicatricial retraction and ectropion
 - OS: Upper eyelid dermatochalasis
- Conjunctiva/sclera:
 - OD: Buckle visible superotemporally without erosion, 2+ injection of the palpebral conjunctiva, trace injection of the bulbar conjunctiva, trace chemosis
 - OS: Clear and quiet
- Cornea: Clear bilaterally, OU
- Anterior Chamber: Deep and quiet, OU
- Iris: Normal architecture, OU
- Lens: Posterior chamber intraocular lens, OU

Dilated fundus examination (DFE)

- Vitreous: Normal, OU
- Disc: Tilted, inferior and superior thinning, and peripapillary atrophy, OU
- Cup: 0.6, OU
- Macula: Normal, OU
- Vessels: Normal, OU
- Periphery:
 - OD: Lattice degeneration, retina attached to buckle
 - OS: Lattice degeneration

Physical Examination

Right index finger: erythematous rash involving the skin of the right proximal index finger with small papules on an erythematous base, corresponding to the finger that the patient uses to rub the eye



(../cases-i/case289/periocular-dermatitis-eyelid-LRG.jpg)

Figure 1: External photograph demonstrating rash of the right eyelid and periocular region (A and B) as well as the right proximal index finger (C).

Differential Diagnosis

- Periorcular rosacea ([77-Ocular-Rosacea-Blurry-Red-Itchy.htm](#))
- Preseptal and orbital cellulitis ([103-Pediatric-Orbital-Cellulitis.htm](#))
- Thyroid eye disease ([../tutorials/thyroid-eye-disease/index.htm](#))

CLINICAL COURSE

The patient was diagnosed with periocular dermatitis presumably secondary to Cosopt (dorzolamide-timolol) drops, resulting in right lower eyelid cicatricial retraction and ectropion causing epiphora. It was recommended that the patient use petroleum jelly to provide a physical protective barrier to the skin before using Cosopt (dorzolamide-timolol) drops and she was directed to wash her face if the drops made direct contact with her skin. At nighttime she used a moisture chamber consisting of Saran wrap with tape over the affected area with lubricating drops. This improved but did not resolve her symptoms.

The patient was also referred to dermatology for additional evaluation. She underwent allergy testing, which returned positive for an allergy to phenyl mercuric acetate, which is a compound in Cosopt (dorzolamide-timolol) drops. Her dermatologist recommended cessation of Maxitrol ophthalmic ointment and started hydrocortisone ointment for the periocular skin.

The patient followed up with her glaucoma specialist and her Cosopt (dorzolamide-timolol) drops were stopped. She was started on latanoprost for management of her intraocular pressure. Her periocular dermatitis resolved completely shortly after discontinuation of her Cosopt (dorzolamide-timolol) drops as shown in Figure 2.



(../cases-i/case289/periocular-dermatitis-resolution-LRG.jpg)

Figure 2: External photograph demonstrating resolution of periocular rash.

DIAGNOSIS

Periocular dermatitis due to Cosopt (dorzolamide-timolol)

DISCUSSION

Periocular dermatitis is an inflammatory skin disorder producing an erythematous and pruritic rash involving the skin that surrounds the eye. It is important for clinicians to understand the etiology, broad differential diagnosis, and treatment strategy for this disease process. This dermatologic condition can be challenging for physicians to treat and emotionally stressful to experience as a patient.

Epidemiology/Etiology

Periocular dermatitis predominantly occurs in women over the age of 40 [1,2]. The increased prevalence of women with this disease may be associated with the use of various facial cosmetic products such as makeup, moisturizers, and perfumes [1,2]. The increased prevalence with age may be associated with the use of ocular medications (i.e. glaucoma drops), which are more common in older populations [3].

The exact etiology in each instance of this dermatologic condition is not always well understood but is likely the result of a complex interaction between genetic and environmental risk factors. The most common known causes of periocular dermatitis include allergic contact dermatitis, atopic dermatitis, airborne dermatitis, irritant contact dermatitis, rosacea, and psoriasis [1,2].

Signs/Symptoms

Patients with this condition typically present with a periocular rash that is pruritic or has a burning sensation. Clinical features of the rash include small erythematous papules or pustules overlying an erythematous and scaly patch of skin surrounding the eye, which may involve the upper and or lower eyelids. Surrounding skin edema is also common. The rash is usually localized but may also be associated with perioral dermatitis, or a rash surrounding the mouth and nose. It is often a clinical diagnosis and additional workup is usually not undertaken. If indicated, allergen testing with dermatology may be pursued. If a skin biopsy is performed, histological examination reveals non-specific inflammation with lymphohistiocytic inflammation in a perifollicular or perivascular pattern [4]

Treatment

The cornerstone of treatment is stopping the offending agent, which may include topical eye drops such as glaucoma medications, topical corticosteroids, skin moisturizers, sunscreen, and makeup. It is prudent to taper topical corticosteroids as immediate cessation may result in a more severe inflammatory response. Topical corticosteroids bind intracellular receptors to affect the nuclear factor kappa B pathway, which blocks the synthesis of inflammatory cytokines [for review, see 5]. For mild disease, topical calcineurin inhibitors such as tacrolimus are beneficial. Calcineurin inhibitors have been shown to be helpful and safe for inflammatory skin diseases involving the face and reduce inflammation by blocking T-cells from releasing pro-inflammatory cytokines [6]. For severe disease, oral antibiotics such as tetracyclines and macrolides as well as isotretinoin may be beneficial and oral therapy may be needed for several months.

In addition to medical therapy, providing emotional support for patients is also important. Periocular dermatitis can be stressful for patients as the rash is highly visible, involves the face, and may sometimes be persistent despite multiple therapies. Steroid-induced skin changes such as skin atrophy and telangiectasias contribute to distress.

Summary

<p>EPIDEMIOLOGY OR ETIOLOGY</p> <ul style="list-style-type: none"> • More common in women over age 40 and associated with atopic dermatitis, topical corticosteroids, glaucoma drops, various moisturizers, and makeup • Multiple underlying etiologies including allergic contact dermatitis, atopic dermatitis, and irritant contact dermatitis 	<p>SIGNS</p> <ul style="list-style-type: none"> • Periocular rash that may involve the eyelids characterized by small red papules and/or pustules on an erythematous and scaly area of skin • Skin biopsy rarely undertaken but will reveal non-specific lymphocytic inflammation in a perifollicular or perivascular pattern
<p>SYMPTOMS</p> <ul style="list-style-type: none"> • Skin irritation and pruritis • No overt pain, calor, fevers, chills, or nightsweats 	<p>TREATMENT/MANAGEMENT</p> <ul style="list-style-type: none"> • Stop offending agent • Physical protective barriers to the skin such as petroleum jelly and moisture chamber • Topical steroid • Topical calcineurin inhibitors (such as tacrolimus) • Oral tetracyclines and macrolides (such as doxycycline and erythromycin) • Oral isotretinoin

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