

AN EYE CENTRAL CASE REPORT

Giant Papillary Conjunctivitis Secondary to Chronic Atopic Dermatitis

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Abstract

Giant papillary conjunctivitis (GPC) is a form of allergic conjunctivitis presenting with characteristic giant papillae (>0.5 mm) on the tarsal conjunctiva. This condition is typically triggered by extended contact lens wear, contact lens deposits and solutions, nylon sutures, ocular prostheses, or protruding scleral buckles. However, GPC can also occur in patients with chronic allergies and dermatitis around the eyelid area, with symptoms including itching, copious ropy discharge, eye irritation, and hyperemia. This report focuses on the diagnosis and treatment of giant papillary conjunctivitis secondary to chronic eyelid atopy at Eye Central.

Keywords: Giant Papillary Conjunctivitis, GPC, Allergic Conjunctivitis, Atopic Dermatitis, Papillae

Introduction

Atopic dermatitis is a form of eczema that can affect the eyelids. The eyelids appear red, swollen, and scaly, and in some cases this condition can extend to include inflammation of the tarsal conjunctiva, presenting as giant papillary conjunctivitis. GPC is a delayed-response reaction to localized allergens, with contact lens wear being the most common trigger. It can also occur in patients with chronic atopy around the eyelids. On slit-lamp examination, the palpebral (tarsal) conjunctiva typically shows large papillae on the upper and, occasionally, lower eyelid surface. These papillae are flat conjunctival bumps with a vascular core, which distinguishes them from conjunctival follicles, which are dome-shaped and pale in the center. Papillae in GPC are typically larger than 0.5 mm in diameter, hence the term "giant."

Case Report

Initial Visit: January 20, 2025

A 24-year-old African American male presented to Eye Central with complaints of chronic itching, irritation, redness, and copious discharge in both eyes. The patient described intermittently blurry vision. He had a positive history of atopic dermatitis and had been previously treated for ocular

allergies with Pataday (olopatadine hydrochloride 0.1%) twice daily, which provided no significant relief. He described symptoms as typically worse after napping. No matted eyelids on awakening were reported, and there was no photophobia or pain. Symptoms had begun two years prior, prompting an eye examination at which glasses were prescribed for myopia along with Pataday for ocular allergies. No specific allergens had been identified, and no known medication allergies were reported. Systemic history was satisfactory. There was no history of ocular surgery or trauma, and the patient denied contact lens wear. Family medical and ocular history were satisfactory. The patient was a non-smoker with no history of recreational drug use.

Clinical Findings

Corrected entry visual acuity was **20/25 in both eyes**. Pupils were equal in size (4 mm in bright light, 6 mm in dim light) with normal response to light and no relative afferent pupillary defect. Ocular motilities were full and unrestricted with no pain or diplopia. Confrontation visual field testing was full to finger count in both eyes.

External examination using slit-lamp biomicroscopy showed scaly eyelids with thickened margins and Dennie's lines bilaterally. Conjunctival assessment revealed 2+ injection with ropy mucus discharge in the lower fornices of both eyes. Upper eyelid eversion using a Q-tip revealed 4+ giant papillae in both eyes; no foreign body was identified. The cornea was clear in both eyes. The anterior chamber was deep and quiet bilaterally. Van Herick testing graded the anterior chamber angle as open at Grade 4 in both eyes.

Ocular surface staining with 0.3%/0.4% Fluress (fluorescein sodium and benoxinate ophthalmic solution) revealed an intact tear film with no corneal abnormalities. Intraocular pressure by non-contact tonometry was 13 mmHg OD and 11 mmHg OS.

The patient declined a dilated fundus examination at this visit; however, fundus photography showed a normal-appearing optic nerve head with a cup-to-disc ratio of 0.3 in both eyes. The foveal reflex was healthy bilaterally.

Differential Diagnoses Considered

Contact Dermatitis: A type IV delayed hypersensitivity reaction caused by direct contact with a foreign substance, resulting in eyelid swelling, hyperemia, and itching. Ruled out after careful review of history and associated signs, including the presence of chronic eyelid atopy without a clearly identifiable contact allergen.

Viral Conjunctivitis: Typically manifests with conjunctival follicles, pre-auricular lymphadenopathy, watery discharge, and diffuse redness, and is commonly associated with upper respiratory tract infection. Ruled out due to the chronicity of symptoms, absence of lymphadenopathy, mucous consistency of discharge, and satisfactory medical history.

Bacterial Conjunctivitis: A bacterial infection of the conjunctival mucosa characterized by mucopurulent discharge, redness, and lid crustiness, usually affecting one eye. Ruled out given the bilateral presentation, ropy mucous discharge without lid matting, chronic course, and presence of giant papillae, all of which are atypical for bacterial conjunctivitis.

Diagnosis and Management

A diagnosis of giant papillary conjunctivitis secondary to chronic atopic dermatitis was established based on the clinical findings and by ruling out the above differentials. The patient was counseled on the diagnosis and ocular findings. The following management plan was implemented:

- Loteprednol etabonate 0.5% ophthalmic suspension: 4 times daily for 2 weeks, tapered to twice daily for an additional 2 weeks.
- Neomycin-Polymyxin B-Dexamethasone (Maxitrol) ointment: 1/2" strip in the lower eyelid of each eye at bedtime for one week.
- Skin care counseling: use of fragrance-free, hypoallergenic products for sensitive skin.
- Allergy testing: recommended to rule out food or environmental allergens.
- Dermatology referral: the patient was referred to a dermatologist for management of his underlying atopic dermatitis.

A follow-up appointment was scheduled for two weeks.

Second Visit: February 4, 2025

The patient reported significant improvement in symptoms but noted some mild residual itching, particularly at bedtime. He reported compliance with all prescribed drops and had completed the Maxitrol ointment regimen. At this visit, he was in the twice-daily dosing phase of loteprednol and was instructed to complete the remaining two-week course before discontinuing.

Visual acuity was unchanged at 20/25 in both eyes. IOP by non-contact tonometry was 14/14 mmHg. Slit-lamp examination showed reduced eyelid scaling with trace conjunctival injection and 2+ papillae on the superior tarsal conjunctiva on upper lid eversion (Fig. 1). Fluorescein instillation revealed no corneal defects. The anterior chamber was deep and quiet in both eyes.



Fig. 1. External photograph showing everted upper eyelid with 2+ GPC. Photograph reproduced with patient's permission.

The patient was also counseled on environmental modifications, including replacing bedroom bedding, carpet, and curtains to reduce dust mite exposure. A follow-up appointment was scheduled for two weeks, with instructions to present earlier if symptoms worsened.

Third Visit: February 20, 2025

The patient returned with complete resolution of symptoms. Discharge, itching, and redness had all subsided. He reported adherence to the drop regimen and had completed the course of topical loteprednol two days prior.

Uncorrected entrance acuity was 20/25 OD and 20/25+2 OS. Both objective and subjective refraction were performed, yielding a manifest refraction of +0.75 -0.50 x 180 OD and +0.50 -0.25 x 165 OS. Corneal topography using Pentacam revealed normal corneas with regular astigmatism and no ectasia in either eye. Intraocular pressure was 10 mmHg OD and 13 mmHg OS.

Slit-lamp biomicroscopy showed a clear and transparent conjunctiva with no papillary reaction on eyelid eversion. The cornea was clear bilaterally. The patient was dilated with phenylephrine 2.5% and tropicamide 1% at 2:00 pm. Dilated fundus examination showed clear crystalline lenses and vitreous bilaterally. Optic discs were well perfused with a cup-to-disc ratio of 0.25 in both eyes. Maculae were clear with good foveal reflexes, and no holes, tears, or hemorrhages were identified in the peripheral retina.

The patient was advised to use over-the-counter Pataday (olopatadine hydrochloride 0.1%) as needed for any recurrent symptoms and to return to the clinic if symptoms resurfaced.

Discussion

Eyelid dermatitis is a common condition affecting an estimated 15 to 20% of people at some point in their lives. Risk factors include a history of atopic eczema, asthma, and sensitive skin. Signs of eyelid dermatitis include chronic staphylococcal blepharitis, madarosis, keratinization of the lid margin, Hertoghe sign (absence of the lateral eyebrow), Dennie-Morgan folds (infraorbital skin folds caused by chronic itching), and giant papillary conjunctivitis. Ocular atopic dermatitis involves a combination of delayed (type IV) and immediate (type I) hypersensitivity reactions to ocular allergen exposure.

GPC is a fairly common form of allergic conjunctivitis, most often seen in contact lens wearers using extended wear modalities. The most characteristic finding is giant papillae on the upper tarsal conjunctiva. Buckley (1985) proposed, based on histologic evidence, that two distinct types of GPC may exist: one closely resembling vernal keratoconjunctivitis in atopic patients, and another characterized by epithelial hyperplasia, nonspecific cellular infiltrates, and the absence of eosinophils. GPC can coexist with atopic keratoconjunctivitis (AKC) and vernal keratoconjunctivitis (VKC), both of which are allergy-related anterior segment conditions with distinct patient demographics and seasonal patterns.

Topical corticosteroids are the primary treatment for moderate to severe GPC associated with chronic atopy. Commonly used agents include fluorometholone 0.1%, loteprednol 0.2% or 0.5%, rimexolone 1%, and prednisolone acetate 1%. A steroidal ointment such as dexamethasone 1.0% or Maxitrol may also be prescribed for a short course. Calcineurin inhibitors such as tacrolimus 0.03% ointment can be effective for conjunctival and eyelid inflammation when used at bedtime. Oral antihistamines (e.g., loratadine) and low-dose oral steroids may also be considered as adjunct systemic therapy. Steroid duration should not exceed 2 to 6 weeks without careful monitoring, as adverse effects such as IOP elevation are possible. Patients on prolonged steroid therapy should have IOP monitored at follow-up visits.

Antihistamines and mast cell stabilizers are useful for managing itching and redness in milder cases. Mast cell stabilizers such as lodoxamide 0.1% and cromolyn sodium 4% help prevent the release of inflammatory mediators, while topical antihistamines such as olopatadine 1% block H1 receptors responsible for allergic symptoms. Combination drops such as ketotifen fumarate 0.035%, dosed twice daily, offer dual antihistamine and mast cell stabilizing activity. These agents may be insufficient for chronic or severe disease, necessitating steroid therapy. It is also important to screen patients with chronic allergic eye disease for keratoconus, as atopic conditions are associated with corneal stromal weakening and ectasia from chronic eye rubbing.

Conclusion

Giant papillary conjunctivitis can be associated with chronic eyelid atopy in the absence of contact lens wear. Symptoms may include ropy mucous discharge, intermittent blurring of vision, and

persistent ocular itching. Treatment in patients with chronic allergic disease is best achieved through topical steroid therapy in the form of drops and ointment, depending on severity, particularly when antihistamines and mast cell stabilizers have proven insufficient. Environmental modifications and referral to allergy and dermatology specialists are important adjuncts to ocular management.

What This Means for You

Giant papillary conjunctivitis can cause significant discomfort, including persistent itching, redness, and a sticky discharge that may blur your vision. While it is most commonly associated with contact lens wear, it can also develop in people with skin conditions such as eczema or chronic allergies around the eyelids.

The good news is that GPC responds well to treatment when caught and managed appropriately. With the right combination of anti-inflammatory drops, allergy management, and environmental changes, most patients achieve full resolution of symptoms. At Eye Central, we take a comprehensive approach to allergic eye disease, from accurate diagnosis to individualized treatment. If you suffer from chronic eye irritation, itching, or discharge, we encourage you to book an appointment so we can help restore your comfort.

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