Case Report

Cryotherapy in Giant Papillary Conjunctivitis with Shield's Ulcer

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Abstract

A 23 yr old male presented with itching, watering, redness, discharge and photophobia in right eye since 5 yrs, with exaggerated symptoms since 2 months. Slit lamp examination revealed shield's ulcer in right eye. Topical and oral medications were started. Patient had recurrent giant papillary conjunctivitis and shield's ulcer in spite of intense topical and oral medications. In December 2018, he underwent liquid nitrogen cryotherapy, performed in right eye first using double freeze thaw technique followed by left eye 2 months later. His symptoms resolved, giant papillae attenuated and corneal luster improved and he is doing well after 6 months follow up.

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Introduction

Giant papillary conjunctivitis (GPC) occurs in primary and secondary forms. All forms of GPC are at least partially caused by chronic ocular allergy. Primary forms of GPC include vernal keratocunjunctivits and atopic keratoconjunctivits. Secondary GPC is caused by contact lens, ocular prostheses, or exposed sutures.

GPC, a frequent manifestation of VKC, leads to pseudoptosis and corneal complications, including superficial punctate keratitis, and shield's ulcer, thus affecting vision.

The prevalence of shield's ulcer ranges from 3%-11% in patients of VKC.[1] Though rare, superinfection of shield's ulcer may also be observed. Prompt diagnosis and treatment may prevent permanent complications and visual impairment.

The pharmacologic management of giant papillary conjunctivitis focuses on the reduction of histamine release from mast cells and inhibition of local inflammation. Topical corticosteroids, mast cell stabilizers, histamine receptor blockers, and vasoconstrictors have all been used alone or in combination. Alternatively, supratarsal injection of short or intermediate acting steroid for acute flare ups can be given. Surgical options can be considered in cases non responsive to maximal medical management.

Surgical management includes cryotherapy and/or excision of giant papillae with or without amniotic membrane transplantation (AMT). Other more invasive method includes surgical excision with oral mucous membrane grafting (MMG). Cryotherapy without excision of giant papillae is a relatively simpler ,non invasive, day care procedure which can be performed under topical anaesthesia .

There is paucity of literature available for management of refractory primary GPC. Hereby we discuss a case of bilateral GPC refractory to conservative treatment that was eventually managed surgically with cryotherapy with and without AMT. As per medline and literature search, no case has been reported to use cryotherapy with AMT till date.

Case Report

A 23 years old male presented in May 2015, with complaints of intermittent watering, redness, discharge, and photophobia in both eyes for 5 years and with diminution of vision in right eye for 2 months. Patient was receiving treatment on and off elsewhere for 5 years, details of which were not available. There was no history of contact lens use, any surgery or prosthetic shell use. His best corrected visual acuity in right eye was 6/9 and left eye was 6/6. On slit lamp examination, Right eye had shield's ulcer with superadded infection. Patient also had giant papillae in upper tarsal conjunctiva in both eyes. Topical antibiotic, lubricant and oral steroid was started in tapering dose.

After healing of shield's ulcer, patient was advised to continue topical tacrolimus 0.03% and lubricants for both eyes and regular follow up. Patient was non compliant for follow up and treatment and presented intermittently with recurrent shield's ulcer in either eye.

In December 2018, cryotherapy with AMT was advised for right eye in view of refractory GPC with recurrent shield's ulcer and non compliant patient. Direct cryotherapy of giant papillae of upper tarsal conjunctiva was done using double freeze thaw technique under topical anesthesia. Amniotic membrane was applied over the area with fibrin glue with epithelial side up. Low strength topical steroid and topical tacrolimus 0.03% and lubricant was started for both eyes.

Attenuation of giant papillae along with improved corneal luster noted at post operative 1 week visit .On subsequent visits corneal superficial punctuate lesions resolved completely. There was significant improvement in symptoms of patients.

Figure 1 and 2 showing preoperative and postoperative slit lamp photos of right eye.

After 2 months, left eye presented with shield's ulcer. Direct double freeze thaw cryotherapy of giant papillae was done under topical anaesthesia. AMT could not be done due to unavailability. Topical medications were continued.

Left eye papillae attenuation was noted at 2nd week post operatively. Healing of shields ulcer noted on subsequent visit.

Figure 3 showing postoperative slit lamp photos of left eye.

Patient was asked to continue tacrolimus 0.03% eye ointment and lubricants. Patient had no recurrence of GPC on 1, 2, 3 and 6 monthly follow ups.

We also noted that, though early start of response was noted in the eye with AMT, but the outcome was same in both eyes in long term follow up.

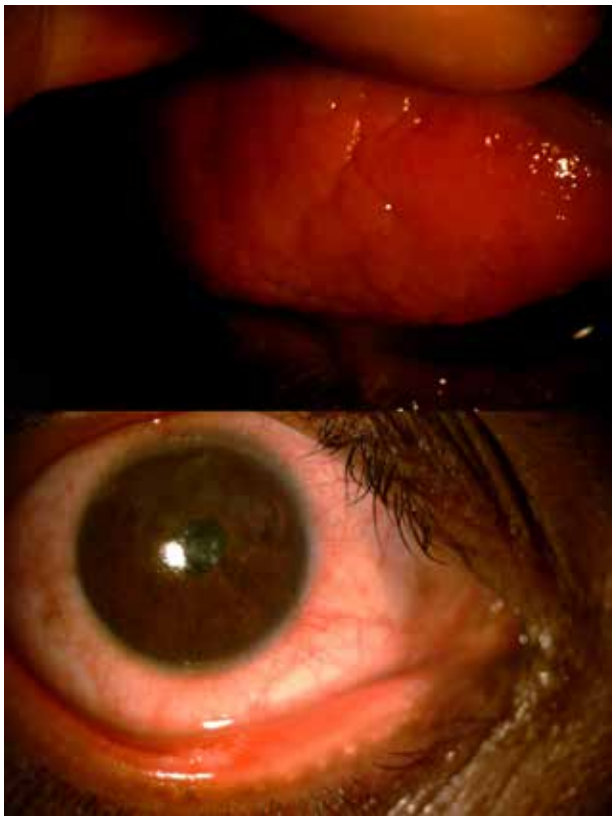

Figure 1: *Preoperative picture of right eye showing giant papillae in upper lid tarsal and cornea showing dull lustre, superficial punctate keratitis and nebular opacity in superior 1/3 of cornea.*

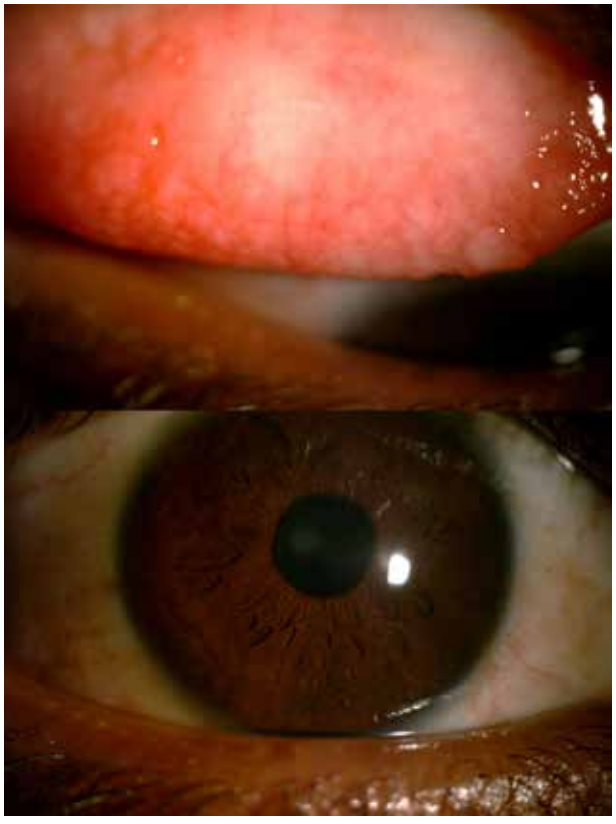

Figure 2: *1 week postoperative picture of right eye showing attenuated papillae and improved corneal lustre.*

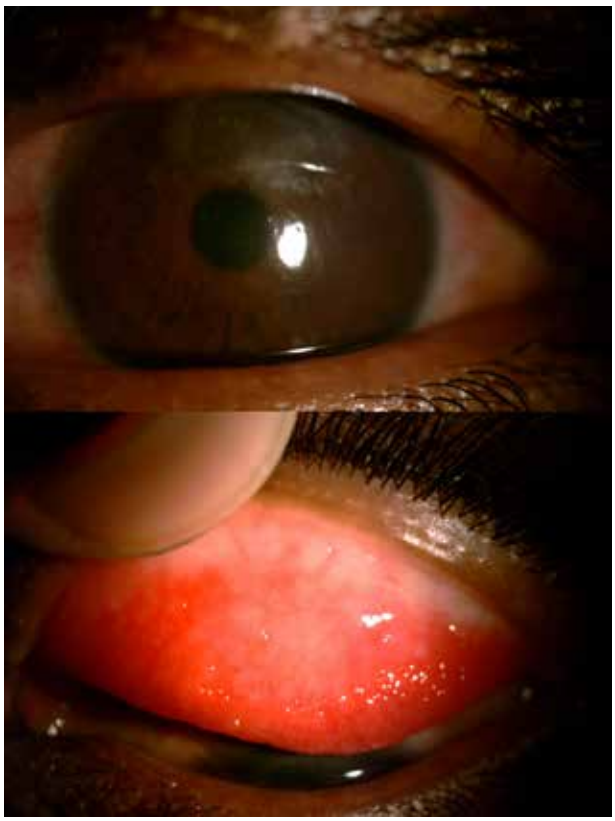

Figure 3: *1 week postoperative picture of left eye showing healed shield's ulcer and attenuated giant papillae.*

Discussion

In GPC, the number of inflammatory cells are significantly higher and mast cells, eosinophils and basophils are found in the epithelium and substantia propria.[2] Although the exact pathogenesis of GPC has not been identified, presence of locally produced immunoglobulins in the tears and elevated neutrophil chemotactic factor in patients with GPC suggests dual pathology of immune mediation and mechanical injury. In general, the papillae in GPC are more than 0.3 mm in diameter on the upper palpebral conjunctiva. Treatment options of primary GPC include medical and surgical interventions.

GPC respond well to topical medications. Topical mast cell stabilizers are the mainstay of treatment. Topical and oral steroids are highly effective but should be used cautiously due to its side effects with chronic use. Histamine antagonists and receptor blocking agents have, to date, been of limited benefit. Topical immuno-modulators like tacrolimus and cyclosporine also represent option for long term treatment of these patients, showing side effects that are generally transient and with no rebound effect following discontinuation of the drug.

However, there are some patients who do not respond well to conservative therapy. Surgical intervention is needed in these patients. Supratarsal injection of steroid is effective in acute flare ups of disease but is inefficient for complete remission. The rapid, initial symptomatic relief from supratarsal steroid is the result of local reduction of inflammation.[3] Complications includes IOP elevation,

blepharoptosis, skin pigmentation, infection, motility disturbance, and conjunctival scaring.

Surgical resection of giant papillae with or with AMT has also been performed with good results.

In our case,we used cryotherapy without excision of papillae with AMT in one of the eye which showed early start of attenuation of papillae. This is well explained due to anti-inflammatory action of AMT. Though, eventually both eyes showed same outcome.

Yien Lai et al in their case report when compared the excision of papillae with and without AMT showed the same outcome in both eyes at the end of 2 years .This is similar observation for long term effect of AMT as that of our case report.

Guo et al[4] retrospectively studied 13 eyes of 9 patients with refractory giant papillae associated with corneal shield's ulcer and/or punctate epithelial erosions who underwent surgical resection of the papillae combined with AMT to cover the tarsal defect. They found that smooth tarsal surface was achieved in all cases, with no recurrence of the giant papillae in any eye.

Cryotherapy of giant papillae can be a less invasive approach for treating refractory cases. It was hypothesized that the giant papillae were susceptible to cryotherapy, as the vascular endothelium of the central vascular core is destroyed with liquid nitrogen freezing.[5] However; cryoablation of upper tarsal cobblestones is reported to render short-term improvement. Various studies were carried out to evaluate the efficacy of cryotherapy in giant papillary conjunctivitis.

Mtanda and Sangawe[6] studied 34 cases and recommended cryosurgery as a first line treatment for vernal keratoconjunctivitis. In their study, there was complete relief of symptoms and flattening of papillae in 94% of cases.

Study by Singh[7] showed dramatic and encouraging symptomatic improvement in eight out of 9 patients by cryosurgery.

Abiose and Me[8] studied 48 eyes of patients with bulbar vernal keratoconjunctivitis and 8 eyes of patients with severe giant papillary conjunctivitis were treated with cryopexy. Patients showed long term relief and very marked reduction in frequency of exacerbations.

More invasive procedure includes surgical excision with MMG.

Iyer G et al[9] studied 11 eyes of 6 patients having giant papillae and recurrent shield's ulcer refractory to topical medications, cryotherapy, and supratarsal steroid injections. Surgical resection of the giant papillae was done with MMG. There was no recurrence of shield's ulcer in any of the eye. They concluded that, surgical excision of refractory giant papillae followed by MMG does have its advantages in reducing their corneal complications.

Conclusion

Cryotherapy with or without amniotic membrane transplant can be simple, effective and safe therapy for refractory giant papillary conjunctivitis cases.

Referrence

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