Management of acute and chronic ocular allergy

Abstract
Pressure to practice evidence-based medicine is increasing and has the potential to reduce malpractice claims. Sometimes the evidence may prove a specific therapy to be ineffective, but practice says it is effective. In Medicine, however, if you do not trust the evidence, you may expose yourself and your patients to untoward consequences. When we face a complex problem, most of the time it is better to rely on scientific evidence rather than on expert personal opinion.

Key words: ocular allergy; clinical treatment; surgery.

Relevant evidence-based information
Considering ocular allergy, some points can be interestingly discussed:

Is tacrolimus good for all allergic patients? Does tacrolimus work for severe VKC (keratitis, shield ulcer)? Can it replace steroids?

Opinion: Tacrolimus works for all allergic patients easily replacing topical steroids, especially for shield ulcers.

Evidence
Tacrolimus (FK 506) is an immunosuppressive drug produced by Streptomyces tsukubaensis. Its mechanism of action includes inhibiting the activation of T lymphocytes and the release of interleukins (IL-2, 3, 4, 5 and interferon γ). In regards to potency, tacrolimus is ten times stronger than cyclosporine.

Tacrolimus is indicated for severe dermatitis. In Ophthalmology, it has been used for severe atopic dermatoconjunctivitis and severe vernal keratoconjunctivitis with corneal involvement and also in non-responsive cases to routine anti-allergy drugs and steroids.

Tacrolimus (ophthalmic formulation) is available via compounding pharmacies as 0.03% - 0.1% ointment and eyedrops. It has been used long-term 2-4 times a day in children (over the age of 2 years), adolescents and adults for between 6 weeks and 14 months.

Studies have shown improvement of signs and symptoms, especially when combined with topical antiallergic drugs or topical steroids. It does not replace steroids for severe shield ulcers or keratitis, but often improves the signs and symptoms of severe keratitis. Topical tacrolimus is not associated with severe side effects, but local burning, headache and increasing skin sensitivity to cold have been reported. Studies have shown that tacrolimus is not detectable in the patient’s blood after topical application.

Does topical cyclosporine replace topical steroids for patients with shield ulcers?

Is cyclosporine better for shield ulcers when combined with topical steroids?

Opinion: topical cyclosporine replaces topical steroids for shield ulcers and may be considered a better option, because it does not have the same serious side effects.

Evidence
Cyclosporine inactivates T-cell lymphocyte and inhibits pro-inflammatory cytokines (IL-
After debridement, complete epithelialization usually occurs within 1-4 weeks. Shield ulcers grade I (without deposit or plaque) do not require debridement.

Does amniotic membrane play an important role in the management of shield ulcer healing?
• Opinion: Shield ulcer healing is always a challenge and additional therapy, like amniotic membrane transplantation, is usually necessary.
• Evidence23,25

Shield ulcers (without deposit/plaque) heal easily with high doses of potent topical corticosteroids. When there is deposit / plaques, debridement is recommended. The patient should also be simultaneously treated with topical corticosteroids. However, in persistent shield ulcers that do not respond to conventional treatment, amniotic membrane used as a therapeutic patch, may promote epithelial healing and reduction of inflammation.

Is prophylactic topical antibiotic therapy necessary to prevent secondary shield ulcer infection?
• Opinion: All shield ulcers need prophylactic antibiotics in order to prevent secondary infection that is very common in allergic patients.
• Evidence2,10,13,14,15,26

It is very important to remember that the characteristic shield ulcer in vernal keratoconjunctivitis is usually superficial and frequently has a whitish and elevated plaque that might be similar to an infectious infiltrate, but it is not infectious in nature. Secondary infection of shield ulcers has been reported occasionally. There are no more than 10 case reports in the literature, although Reddy21 reported an incidence of 10% of secondary bacterial infections. Therefore, prophylactic antibiotics are usually not indicated to prevent these rare secondary corneal infections unless the patient has other co-morbidities.

Should giant papillae always be surgically removed?
• Opinion 1: If surgery is available, all giant papillae should be removed because they never disappear.
• Opinion 2: Surgical removal of giant papillae is not an option because the underlying allergy will not get better with surgery.
- **Opinion 3:** Giant papillae always recur after removal.

- **Evidence**

Inflammatory mediators play an important role in the immune-mediated pathogenesis of shield ulcers. Giant papillae also play an important role as a mechanical causative agent. The main course of treatment consists of using frequent application of potent topical steroids. However, if the patient becomes dependent on topical steroids, or if the ulcer is not resolving, other associated treatments should be considered, such as surgical excision of giant papillae.

Not all giant papillae have to be removed. However if they are associated with frequent corneal erosions, especially when the patient is highly dependent on topical corticosteroids, it should be considered.

After removal of the giant papillae, scar tissue similar to trachoma’s Arlt line can be produced and friction of this scar with the corneal surface can cause as much corneal pathology as did the giant papillae. Consequently the excision of the giant papillae should be combined with resurfacing the bare area with some soft tissue, such as lower bulbar conjunctiva (to avoid producing symblepharon) or amniotic membrane.

Surgical technique consists of evertting the upper eyelid and maintaining this area with a chalazion forceps. The giant papillae are removed with a 15 Beaver blade.

Moving the eyeball upward, lower bulbar conjunctiva is harvested and this tissue is sutured to the bare tarsal area, preferably with interrupted absorbable sutures. One of the drawbacks of surgical removal is that typically the patients are children and the surgery must be done under general anesthesia. In one of our published studies, there was no recurrence in 6 eyes of 5 patients followed from 9-27 months. (Figures 1, 2, 3).

Amniotic membrane is another option that may be used to cover the tarsal conjunctival defect, with a study reporting no recurrence in 13 eyes of 9 patients followed for 14.2 ± 4.2 months.12 Patients should be maintained on their clinical treatment for vernal keratoconjunctivitis.

**Is keratoconus related to ocular allergy?**

- **Opinion:** Patients with ocular allergy have higher incidence of keratoconus.

- **Evidence**

The opinion is correct. Dantas et al1 showed in their study that from 142 eyes of 71 vernal keratoconjunctivitis patients, 9.85% had clinical signs of keratoconus and 22.53% had a topographical diagnosis of keratoconus. This is compared to a control group of 200 eyes of 100 patients without ocular allergy, none of who presented clinical signs or topographical characteristics compatible with keratoconus.

**REFERENCES**


