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## CASE REPORT

### Scraping Of Ulcer Base Hastens The Healing Of Grade 3 Shield Ulcer In Vernal Keratoconjunctivitis.

**KUMAR S**

#### ABSTRACT

A 10-year-old boy presented with complaints of pain and photophobia in the left eye. Slit lamp examination revealed cobble stone papillae in both tarsal conjunctivae, diffuse punctate epitheliopathy of cornea and a 3.5x1.5 mm epithelial defect in the left eye. He was diagnosed to be suffering from bilateral vernal keratoconjunctivitis, with evolving grade 3 shield ulcer in the left eye. Shield ulcer was refractory to the combined regime of topical corticosteroids, dual acting antihistamine and lubricating eye drops.

After removal of plaque and scrapping of base, the ulcer re-epithelialized completely in two weeks, leaving behind an opacity which stained negatively with fluorescein dye. The patient was followed up for two months and no recurrence of ulcer was noted.

Drug resistant shield ulcer with plaque re-epithelialized rapidly after removal of plaque and scrapping of base of ulcer.

**Key Words:** Shield ulcer, vernal keratoconjunctivitis

Shield ulcer is an uncommon, incapacitating corneal manifestation that occurs in 3 to 11% of patients suffering from vernal keratoconjunctivitis[1]. To prevent the vision threatening complications of shield ulcer, it should be treated aggressively and appropriately. Treatment of shield ulcer may vary from topical medication to surgical intervention, depending on the grade of ulcer. Removal of plaque and scrapping of base hasten the re-epithelialization of drug resistant shield ulcer.

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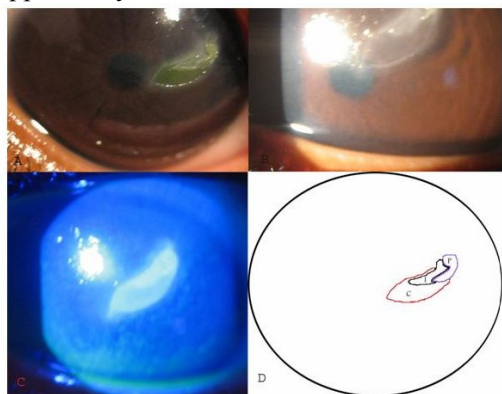
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#### Case Report

A 10-year-old boy from Somalia attended our Out Patient's Department with a history of redness, itching and watering of eyes, which waxed and waned for almost three years. The redness, itching, watering and thick discharge were persistent in both eyes for the past one year, but he was

incapacitated by photophobia and pain in the left eye for the past three months only. During the past six weeks, he was applying Livocabastine and Tobramycin-Dexamethasone eye drops four times daily for the diagnosis of severe vernal keratoconjunctivitis. His best corrected

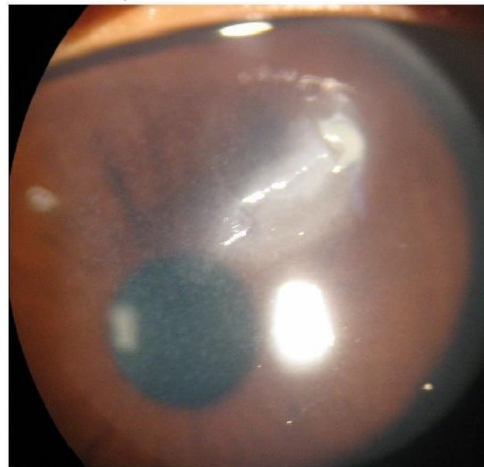
visual acuity was 6/18 OD and 6/36 OS. Biomicroscopy revealed bilateral congested conjunctivae, grade 4 cobblestone papillae and diffuse punctate epitheliopathy of cornea, along with a 3.5x1.5 mm epithelial defect in the left eye which stained positively with fluorescein dye. As the inferior part of the ulcer had a clear base while the superior half exhibited obvious inflammatory debris and thick plaque, he was diagnosed to be suffering from bilateral vernal keratoconjunctivitis with evolving grade 3 shield ulcer in the left eye. His visual acuity was compromised because of bilateral superficial punctate epitheliopathy, along with corneal shield ulcer in left eye. Treatment was commenced with Fluorometholone eye drops, four times per day, Olopatadine eye drops, two times per day and Sodium Hyaluronate eye drops, six times per day. After five days, the symptom-complex improved slightly, but the shield ulcer remained essentially unchanged. [Table/Fig 1] Fluorometholone eye drops were replaced with Prednisolone 1% eye drops which were applied four times daily. The patient was examined one week later, but the shield ulcer did not regress appreciably.



[Table/Figure 1A]. Photograph of drug resistant evolving grade three shield ulcer. [Table/Figure 1B]. Slitlamp photograph of same ulcer. [Table/Figure 1C]. Ulcer in cobalt blue light after fluorescein dye. [Table/Figure 1D]. Diagram of ulcer depicting P-plaque, I-inflammatory debris, C- clear base

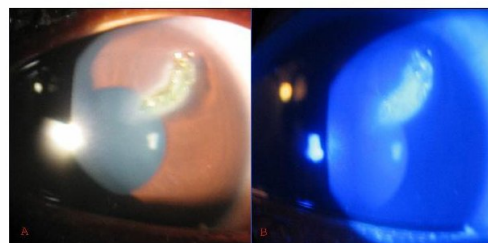
[Table/Fig 2] Removal of plaque was advised. After topical anaesthesia, the plaque was removed with the tip of 26 gauge needle and ulcer base was scrapped with the edge of same needle, under the slit lamp. The eye was patched for twenty four hours.

After twenty four hour, the earlier regime of topical Prednisolone, Olopatadine and Sodium Hyaluronate was reinstated.



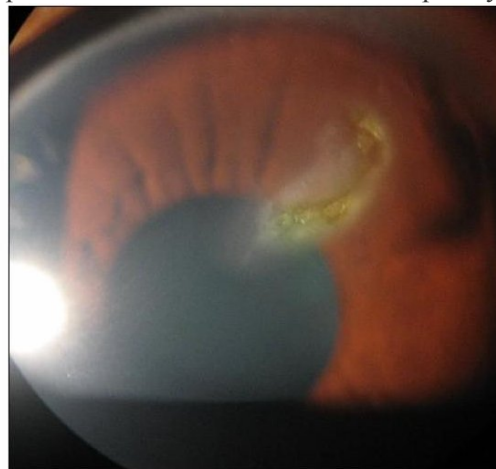
[Table/Figure 2] Shield ulcer refractory to the combined regime of topical corticosteroid, dual acting antihistamines and artificial tears.

[Table/Fig 3] Five days after removal of plaque, remarkable decrease in size of the ulcer was noted.



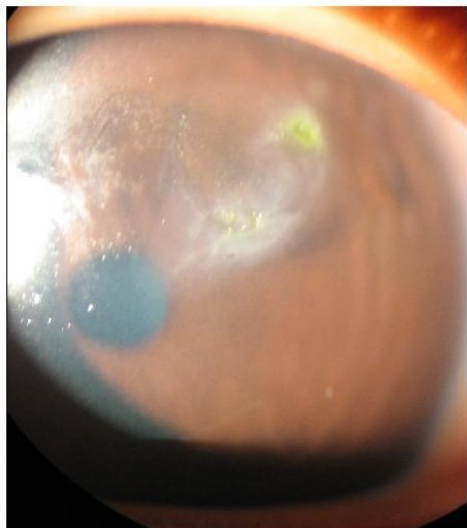
[Table/Figure 3A]. Shield ulcer after removal of plaque. [Table/Figure 3B] Fluorescein dye stained shield ulcer in cobalt blue light after removal of plaque.

[Table/Fig 4] Twelve days later, the ulcer re-epithelialized almost completely.



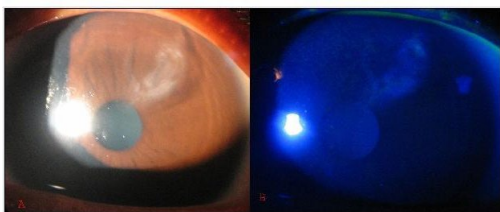
[Table/Figure 4]. Remarkable decrease in the size of ulcer after removal of plaque and scraping.

[Table/Fig 5] Twenty days after removal of plaque, the ulcer healed completely, leaving behind a nebular grade corneal opacity which stained negatively with Fluorescein dye.



[Table/Figure 5]. Shield ulcer healed almost completely

[Table/Fig 6] The best corrected visual acuity improved to 6/9 partial in the left eye. The corticosteroids were tapered gradually, and symptoms of vernal keratoconjunctivitis were controlled satisfactorily by Olopatadine and Sodium Hyaluronate eye drops.



[Table/Figure 6A]. Healed shield ulcer. [Table/Figure 6B]. Shield ulcer in cobalt blue light after fluorescein dye.

The patient was followed up for two months, and the ulcer did not recur.

## Discussion

VKC is a chronic seasonally exacerbated allergic inflammation of the ocular surface involving the tarsal and/or bulbar conjunctiva [2]. VKC is not a blinding

disease, but visual impairment is not uncommon if the cornea is involved. Although punctate epitheliopathy is the commonest, shield ulcer with or without plaque, keratoconus, hydrops, pseudogerontoxon and corneal opacification, are not uncommon manifestations of corneal involvement in VKC [3]. Coalescence of punctate erosion may lead to a large epithelial defect known as shield ulcer. In the event of inappropriate or no treatment, a plaque containing fibrin and mucus deposits on this epithelial defect which hampers the re-epithelialization of shield ulcer [4]. In the treatment of shield ulcer, topical antihistamines, dual action drugs, lubricants and corticosteroids are the first line of defence. Supratarsal corticosteroid injections[5], topical cyclosporine[6], cryotherapy, surgical or laser[7] assisted excision of giant papillae with[8] or without mitomycin, excimer laser phototherapeutic keratectomy[9], amniotic membrane graft[10] and cultivated corneal epithelial cells transplant[11], have been tried for non-healing shield ulcer with varying degrees of success. Recalcitrant shield ulcers may progress to visual threatening complications such as infective keratitis, corneal opacity, perforation, strabismus and amblyopia, and should be treated appropriately and aggressively. Based on their clinical characteristics, response to treatment and complications, shield ulcers can be classified into three grades [12]. Shield ulcers with a clear base [Grade 1] have a favourable outcome and re-epithelialize with mild scarring on medical treatment. Ulcers with visible inflammatory debris in the base [Grade 2] exhibit poor response to medical therapy. Because of delayed re-epithelialization shield ulcers may develop infective keratitis. Grade 2 shield ulcers, unresponsive to combined therapy with topical corticosteroids, Olopatadine and

lubricating eye drops heal rapidly after adding commercially available preparations of topical cyclosporine [13]. Shield ulcers with elevated plaque [Grade3] need surgical intervention [14]. On histopathological examination, plaques are found to have granular and deeply eosinophilic lamellar material attached to the Bowman layer. Immunohistochemistry confirmed this lamellar material to be eosinophil derived major basic protein (MBP), which possesses cytotoxic properties, and is probably responsible for the delayed ulcer healing [15].

The Shield ulcer in this patient exhibited all three stages of evolvement of shield ulcer which re-epithelialized rapidly after removal of plaque and scraping of ulcer base.

## Bibliography

- [1] Bonini S, Bonini S, Lambiase A, Marchi S, Pasqualetti P, Zuccaro O, Rama P, Magrini L, JuhasT, Bucci MG. Vernal keratoconjunctivitis revisited: A case series of 195 patients with long-term follow-up, *Ophthalmology* 2000;107:1157-63
- [2] Barney NP. Vernal and atopic keratoconjunctivitis. In Krachmer JH, Mannis MJ, Holland EJ, Eds. *Cornea and External Disease: Clinical Diagnosis and Management*. Vol.2, St Louis : Mosby-Year Book, Inc, 1997. 811-17.
- [3] Iqbal A, Jan S, Babar TF, Khan MD. Corneal complications of vernal catarrh. *J Coll Physicians Surg Pak* 2003; 13:394-97.
- [4] Rahi AHS, Buckley R, Grierson I. Pathology of corneal plaque in vernal keratoconjunctivitis. In O' Connor GR, Chandler JW, eds. *Advances in immunology and immunopathology of eye*. New York : Masson. 1985.
- [5] Singh S, Pal V, Dhull CS. Supratarsal injection of corticosteroids in the treatment of refractory vernal keratoconjunctivitis. *Indian J Ophthalmol* 2002;50: 160-61.
- [6] Cetinkaya A, Akova YA, Dursun D, Pelit A. Topical cyclosporine in the management of shield ulcers.. *Cornea* 2004; 23:194-200.
- [7] Belfair N, Monos T, Levy J, Mnitentag H, Lifshitz T. Removal of giant papillae by CO2 laser. *Can J Ophthalmol* 2005;40:472
- [8] Tanaka M, Takano Y, Dogru M, Fukagawa K, Asano-Kato N, Tsubota K, Fujishima H. A comparative evaluation of the efficacy of intraoperative mitomycin C use after the excision of cobblestone-like papillae in severe atopic and vernal keratoconjunctivitis. *Cornea* 2004; 23:326-29.
- [9] Cameron JA, Antonios SR, Badr IA. Excimer laser phtotherapeutic keratectomy for shield ulcers and corneal plaques in vernal keratoconjunctivitis.. *J Refract Surg*. 1995; 11:31-35.
- [10] Rouher N, Pilon F, Dalens H, Fauquert JL, Kemeny JL, Rigal D, Chiambaretta F. Implantation of preserved human amniotic membrane for the treatment of shield ulcer and persistent corneal epithelial defects in chronic allergic keratoconjunctivitis. *J Fr Ophthalmol* 2004; 7:1091-97.
- [11] Sangwan VS, Murthy SI, Vemuganti GK, Bansal AK, Gangopadhyay N, Rao GN. Cultivated corneal epithelial transplantation for severe ocular surface disease in vernal keratoconjunctivitis. *Cornea*. 2005; 24:426-30.
- [12] Cameron JA. Shield ulcers and plaques of cornea in vernal keratoconjunctivitis. *Ophthalmology* 1995; 102:985-93.
- [13] Kumar S. Combined therapy for vernal shield ulcer: A case report. *Clin Exp Optom* 2008;91:111-14.
- [14] Ozbek Z, Burakgazi AZ, Rapuano CJ. Rapid healing of vernal shield ulcer after surgical debridement: A case report. *Cornea* 2006;25: 472-73.
- [15] Solomon A, Zamir E, Levartovsky S, Frucht-Pery J. Surgical management of corneal plaques in vernal keratoconjunctivitis: a clinicopathologic study. *Cornea* 2004;23:608-12