



Vernal Keratoconjunctivitis with Atypical Localization of Shield Ulcer

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Authors' contributions

This work was carried out in collaboration among all authors. Author AH designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors LK and AD managed the analyses of the study. Authors AK and ET managed the literature searches. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Aims: To present an atypical case of vernal keratoconjunctivitis associated with unusual inferior location of shield ulcer.

Presentation of Case: We are presenting an unusual case of vernal disease in a 7-year-old male associated with 2 corneal ulcers in the same eye, one of which was located inferiorly. The patient was prescribed topical steroids, antihistamine and lubricating eye drops. Three weeks later the symptoms got resolved and ulcers were healed, leaving mild subepithelial fibrosis. The patient was advised to continue antihistamine eye drops for the whole year with prophylactic dosage regimen.

Discussion: Vernal keratoconjunctivitis is a bilateral, seasonally recurring inflammation of conjunctiva and cornea. It affects mostly children with male preponderance. In several cases vernal disease can be complicated with development of a shield ulcer, which usually has superior location under upper eyelid. Despite the fact that literature review has revealed two atypical cases with inferior localization reported in India, it is a very rare finding. Our case also was unusual with two shield ulcers, one of which was located inferiorly.

Conclusion: This case demonstrates a very rare presentation of an atypical inferiorly located shield ulcer. Literature review revealed only two similar cases in India. Our case demonstrates the

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usage of topical steroids to be successful and advisable in the treatment of shield ulcer, as it controls the inflammation. Topical antihistamine medications should be added and given for a long period for preventing possible recurrences.

Keywords: *Shield ulcer; vernal keratoconjunctivitis.*

ABBREVIATIONS

VKC - vernal keratoconjunctivitis; IgE - immunoglobulin E; Th2 - T helper 2; IL-3,4,5- interleukin 3,4,5; CD4 - cluster of differentiation.

1. INTRODUCTION

Vernal keratoconjunctivitis is a chronic bilateral seasonal allergic inflammatory disorder in which both IgE- and cell-mediated immune mechanisms play important roles. It primarily affects boys and onset is generally from about the age of 5 years onwards. There is remission by the late teens in 95% of cases, although many of the remainder develop atopic keratoconjunctivitis. Vernal disease is rare in temperate regions but relatively common in warm dry climates such as the Mediterranean, Central and West Africa and the Middle East. In temperate regions over 90% of patients have other atopic conditions such as asthma and eczema and two-thirds have a family history of atopy. VKC often occurs on a seasonal basis, with a peak incidence over late spring and summer, although there may be mild perennial symptoms [1,2]. VKC is characterized by infiltration of the conjunctiva by a variety of inflammatory cell types, especially eosinophils. Although VKC has previously been thought of as an IgE-mediated disease several other immunologic pathways have also been implicated. Patients with VKC have been shown to have an increased number of activated CD4+ T-lymphocytes, predominantly Th2, indicating that there is a hypersensitivity reaction to an unknown pathogen. Increased levels of inflammatory cytokines IL-3, IL-4, and IL-5 have also been demonstrated. Conjunctival papillae formation is related to fibroblast activation and production, whereas limbal conjunctival nodules are related to infiltration of inflammatory cells [3,4]. It is also thought that aberrations in the normal ocular surface microbiome may play a role in VKC. In a recent study, *Staphylococcus aureus* was more frequently isolated from the conjunctival specimens from patients with VKC, and may be a significant cause of exacerbations, while *S. epidermidis* was more frequently found in normal control patients [5]. Clinically, there are

3 forms of vernal disease: palpebral, limbal and mixed [1,2]. The palpebral form is characterized by giant cobblestone papillae of the superior tarsal conjunctiva. The limbal form presents with a broad, thickened gelatinous opacification of the superior limbus. Horner-Trantas dots, which are white nodules composed of eosinophils and epithelial debris located at the limbus, are characteristic of limbal vernal disease [1,2]. In several cases vernal disease can be complicated with development of a shield ulcer which usually has a superior location under the upper eyelid [1,2].

2. PRESENTATION OF CASE

In February 2018 a 7-year-old male was admitted to Cornea-Uveitis department at Malayan Eye Center, Yerevan, Armenia. Patient was complaining of severe itchiness, redness, photophobia, excessive tearing of both eyes. Past ocular history was remarkable for vernal keratoconjunctivitis for the past 3 years. He had 2 recurrences of superiorly located shield ulcers in the past which were healed with antiallergic medications. On examination the patient had conjunctival hyperemia, giant papillae on tarsal conjunctiva in both eyes, 2 corneal ulcers in the same eye, one of which was located inferiorly. The patient was prescribed topical steroids, antihistamine and lubricating eye drops. Three weeks later the symptoms got resolved and the ulcers were healed, leaving mild subepithelial fibrosis. The patient was advised to continue antihistamine eye drops for the whole year with prophylactic dosage regimen.

3. DISCUSSIONS

Shield ulcer is an oval or shield shaped noninfectious epithelial ulcer with underlying stromal opacification. Shield ulcer may develop in the superior or central cornea in palpebral or mixed disease when the exposed Bowman membrane becomes coated with mucus and calcium phosphate, leading to inadequate wetting and delayed re-epithelialization. This development is serious and warrants urgent attention to prevent secondary bacterial infection. Shield ulcer is an uncommon, incapacitating

corneal manifestation of vernal disease [1,2]. Shield ulcer, as a rare complication of vernal disease, should always be kept in mind for patients suffering from vernal conjunctivitis. The literature review has revealed two atypical cases with inferior localization reported in India, [6,7] it is a very rare finding. Our case also was unusual with two shield ulcers one of which located inferiorly. Shield ulcer usually responds to topical steroids, antihistamine eye drops and mast cell stabilizers [8,9]. Often steroids are given for short

a period (4-6 weeks) with tapering regimen. The disease is then mainly controlled with antihistamine topical medications. Our case responded to Dexamethasone 0.1% eye drops qid, which was tapered in 6 weeks. The patient was also given hydrocortisone eye ointment before sleep for 1 month. The ulcer got healed in 4 weeks. The patient was also prescribed Allergodil 0.05% eye drops bid for the whole year.

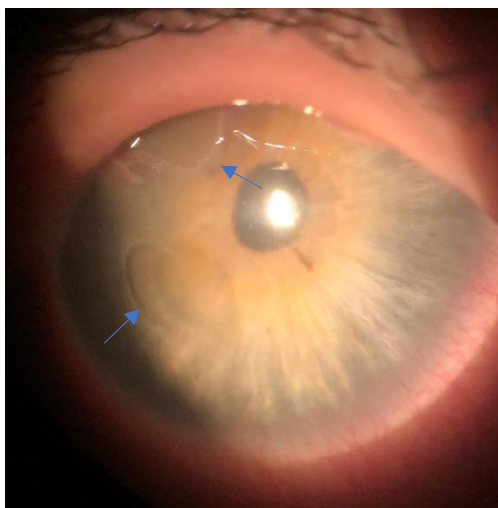


Fig. 1. Before treatment
1 - 2 shield ulcers are shown by arrow

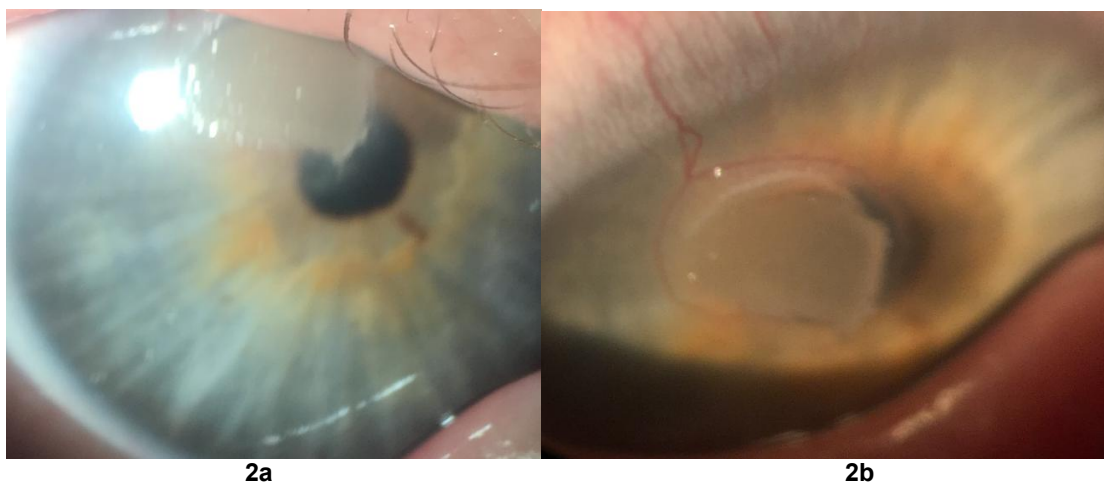


Fig. 2. After treatment, 2a,b – The same eye after 3 weeks of treatment, total epithelization is seen with underlying subepithelial fibrosis

4. CONCLUSION

Our case demonstrates a very rare presentation of an atypical inferiorly located shield ulcer. We have found only two similar cases that were described in India. Our case responded to topical steroids, topical steroid ointment before sleep and antihistamine eye drops. The latter was continued for the whole year to keep the inflammation under control.

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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