

## Vernal keratoconjunctivitis: Modes of presentation in Nepalese population

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### Abstract

**Objective:** To determine pattern of clinical presentation in Vernal Keratoconjunctivitis (VKC) in our context.

**Methods:** Thirty-four VKC patients were included in this study.

**Results:** The study revealed prepubertal onset with male preponderance and most frequently encountered symptom in the study among VKC cases was itching (100%) followed by redness of eyes and discharge (76.5% each) and the commonest sign was tarsal papillae (100%) followed by conjunctival hyperemia (91%) in 68 eyes of 34 cases of VKC.

**Conclusion:** The clinical presentation of VKC cases in our country is very much similar to the findings of other parts of the world.

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VKC is a bilateral recurrent form of allergic disease<sup>1</sup> characterized by interstitial inflammation of the conjunctiva with secondary involvement of the cornea with periodic incidence of self-limited character.

It is the disease of the youth occurring in the prepubertal age group. The peak age of onset is 8 to 12 years, although 10% of VKC patients are older than 20 at age of onset. There is male preponderance (3:1)<sup>2</sup>. The disease is worldwide in distribution but it shows predominance in the areas with dry and warm climate including the Indian subcontinent.

The incidence of VKC increases during summer and spring. In tropical countries, this seasonal variation is not observed and the disease persists all year round. It accounts for 0.5% - 1% of ocular disease in most parts of the world. VKC represents about 3% of the serious ophthalmic disease in some parts of the world where it is prevalent.

Type I hypersensitivity reaction which is IgE-dependent and type IV hypersensitivity reaction have been implicated for the pathogenesis VKC. However, IgE-dependent hypersensitivity reaction has been observed as the important factor for the pathogenesis. IgE sensitizes cells like mast cells and basophils, resulting in degranulation with a release of vasoactive amines. These amines are responsible for clinical manifestations of VKC<sup>3,4,5</sup>.

To the best of our knowledge, no studies have been carried out in our country to determine incidence and prevalence of the disease. But high frequency of

VKC presenting in outpatient department of ophthalmology definitely reflects its significant prevalence.

### Materials and methods

Cases of VKC, diagnosed on the basis of history and clinical findings from the outpatient department of BPKLCOS (BP Koirala Lions Centre for Ophthalmic Studies), Maharajgunj between 1st March 2003- 15th August 2004 for this hospital based descriptive study.

Informed verbal consent was taken from all cases in adults and from parents in cases of children before enlisting them in the study. Detailed history of all cases was taken.

All selected cases were subjected to general systemic examination and detailed ocular examination to rule out other allergic diseases and ocular diseases. Cases that did not fit the diagnostic criteria of VKC were excluded. Other forms of allergic conjunctivitis except VKC and other external eye diseases were excluded.

Diagnostic criteria of VKC included in this study were: involvement of both eyes, itching, scanty yellowish-white tenacious discharge, tarsal papillae, limbal elevation and Trantas' dots.

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### Correspondence

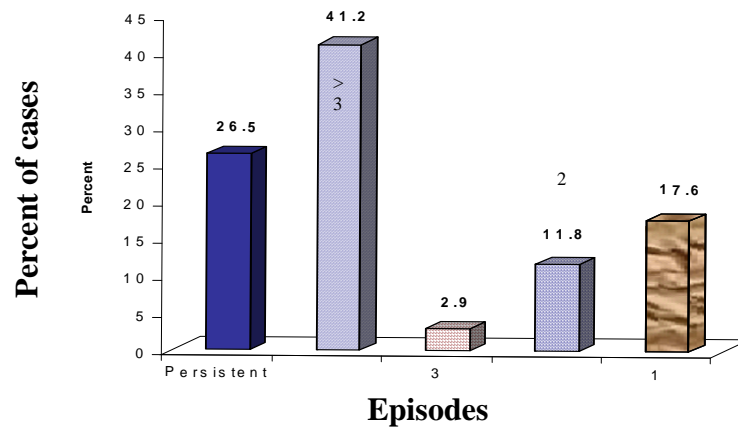
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## Results

The total number of cases included in the study was 34 and the total number of eyes was 68. Age of patients ranged from 2yrs to 26 yrs old. Maximum numbers of patients were in age group 6-10yrs old (35.3%). 26 cases were males and 8 cases were female out of the 34 included cases. 88.2% were students. One patient was policeman and one serviceman. Out of the remaining two: one was a 2 yrs old child and another 4 yrs old girl.

Episodes that had occurred in VKC in the study were classified as: first episode, second episode, third episode, > 3 episodes and persistent group when it was present throughout even with the treatment for duration of 3 months or more. Maximum number of cases were with > than three episodes (41.2%, 14 cases). Second common group was persistent group with 26.5%.

**Fig1:** Episode of disease at the time of presentation (n=34)



The shortest period of the disease observed in this group was 3 months without remission and longest period was 3 years. The highest number of cases had duration for > 24mths period (11 cases, 32.4%).

***Signs and symptoms at the time of presentation in VKC***

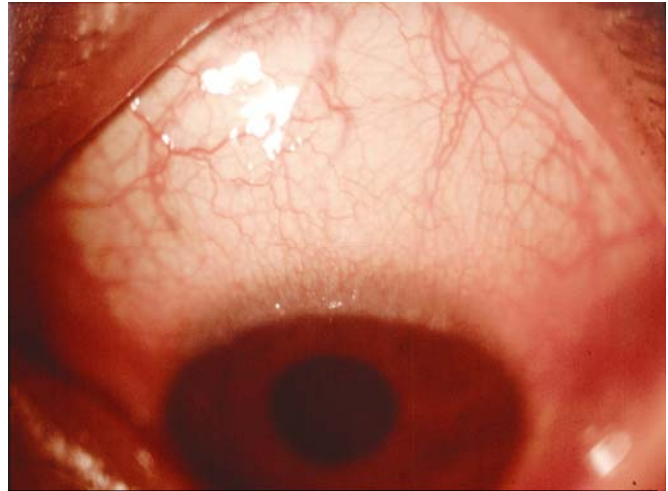
The signs and symptoms of VKC cases that were included in the study are shown in Table 1.

**Table 1:** Signs and symptoms at the time of presentation in VKC

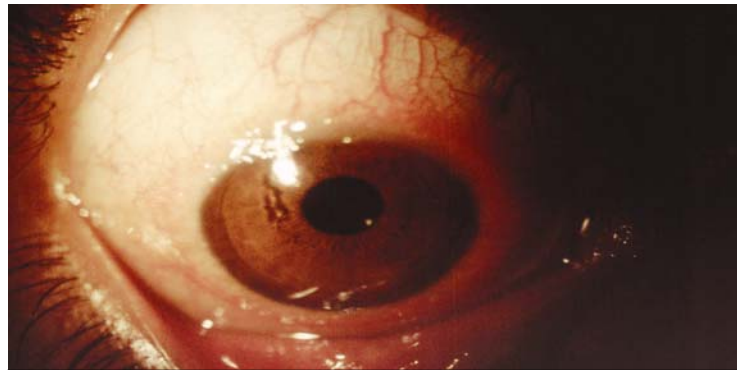
<b>Presenting Symptoms</b>	<b>No of eyes (%)</b>	<b>No of eyes (%)</b>
Itching	68(100)	
Redness	52(76.5)	
Discharge	52(76.5)	
Watering	4(5.9)	
Foreign body sensation	1(1.5)	
<b>Clinical findings</b>		
Hyperemia	64(94.1)	68(100)
Grade I tarsal papillae	24(35.3)	
Grade II tarsal papillae	38(55.9)	
Grade III tarsal papillae	4(5.9)	
Grade IV tarsal papillae	2(2.9)	35(51.5)
Grade I limbal	14(20.6)	
Grade II limbal	15(22.1)	
Grade III limbal	6(8.8)	
Pigmentation	10(14.7)	
Shield Ulcer	1(1.5)	
Pannus	10(14.7)	
Trantas' dots	17(25)	
Superficial punctate keratopathy	1(1.5)	
Filamentary keratitis	1(1.5)	
Conjunctival scar	1(1.5)	
Pterygium	1(1.5)	
Ptosis	2(2.9)	
Cataract	1(1.5)	
Pseudogerontoxon	4(5.9)	



**Fig 2:** Conjunctival hyperaemia with giant 'cobblestone' papillae (> 1mm in size) of the superior tarsal conjunctiva in palpebral VKC.



**Fig 3:** Gelatinous superior limbal elevation with grade 1 papillae and Horner-Trantas dots in limbal VKC.



**Fig 4:** Gelatinous superior limbal elevation with filamentary keratitis in limbal VKC.

The commonest symptom among VKC cases was itching (100%) followed by redness of eyes and discharge (76.5% each) and the commonest sign was tarsal papillae (100%) followed by conjunctival hyperemia (94.1%) in 68 eyes of 34 cases of VKC. There was not a single case with grade IV limbal papillae (gelatinous elevation covering peripheral limbus) detected in this study.

14.7% had conjunctival pigmentation. One eye (1.5%) had shield ulcer. Ten eyes (14.7%) had pannus. Four eyes had pseudogerontoxon (5.9%). Two eyes (2.9%) had mechanical ptosis. One eye had superficial punctate keratitis; one eye had filamentary keratitis, one had steroid induced cataract and one eye had upper tarsal conjunctival scarring.

Majority of the cases were in mixed clinical type of VKC (28 cases, 82.3%) followed by palpebral VKC

(6 cases, 17.6%). There was no case with only limbal clinical type of VKC. Among mixed type, (21.43%), 6 cases were unilateral and (78.57%), 22 cases were bilateral.

### Discussion

Vernal keratoconjunctivitis is a chronic seasonally exacerbated bilateral allergic ocular inflammation, affecting children and young adults with male predominance. In this study the peak age of onset of disease (8-12 years); male preponderance (3:1); seasonal exacerbation pattern are very much similar to other parts of the world reports with peak incidence at 6-10 years of age; male to female ratio 3.2:1 and seasonal exacerbation in between April and August<sup>3</sup>.

It has been established by several studies carried out in different parts of the world that itching is the

commonest symptom followed by tenacious discharge. The commonest sign found is tarsal papillae followed by conjunctival injection. In a study done by Zuhair Ballas & et al in out of 122 patients (244 eyes) 100% had marked itching, 91% had swollen lids, 86% had discharge and tearing, 85% had burning and stinging; in 77%, foreign body sensation was present <sup>6</sup>.

Similarly, in the same study, 63% had conjunctival injection, 49% had conjunctival chemosis, 16% had lid oedema, 9% had conjunctival mucus and 1% had keratitis <sup>6</sup>.

The results are very similar to our study. The commonest symptom among VKC cases in our study was itching (100%) followed by redness of eyes and discharge (76.5% each) and the commonest sign was tarsal papillae (100%) followed by conjunctival hyperemia (94.1%) in 68 eyes of 34 cases of VKC.

Majority of the cases in our study were in mixed clinical type of VKC (28 cases, 82.3%) while 6 cases (17.6%) were palpebral VKC. There was no case with only limbal clinical type of VKC. Among mixed type, (21.43%), 6 cases were unilateral and (78.57%), 22 cases were bilateral.

The clinical type reported by other study from Mediterranean country Egypt was 17.4% palpebral, 11.2% bulbar (limbal) and 71.4% mixed. Studies have shown that in Mediterranean countries bulbar type is common. In United States, palpebral type is common (60%) than bulbar (55%) <sup>7</sup>.

### **Conclusion**

The study unveils that VKC is a chronic prepubertal disease with male preponderance which in majority frequently exacerbates in the summer. The most frequently encountered symptom in the study among VKC cases was itching (100%) followed by redness of eyes and discharge (76.5% each) and the commonest sign was tarsal papillae (100%) followed by conjunctival hyperemia (91%) in 68 eyes of 34 cases of VKC. Our report matches the report from other countries in respect to signs and symptoms of the patients of VKC. Though a small study, it would help to have some basic data of the VKC cases in Nepal which in turn can contribute in diagnosis and management of these cases in our context.

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