

A Clinical profile of Vernal keratoconjunctivitis in Bundelkhand Region: A Hospital-based study

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Abstract: Vernal keratoconjunctivitis (VKC) is an unusually severe sight-threatening allergic eye disease, occurring mainly in children. Conventional therapy for allergic conjunctivitis is generally not adequate for VKC. Pediatricians and allergists are often not familiar with the severe clinical symptoms and signs of VKC. Vernal keratoconjunctivitis (VKC) or Spring Catarrh is recurrent, chronic, allergic conjunctivitis occurring in prepubertal age-group during spring and summer season. Though this is a self-limiting disorder, it often leads to visual impairment due to secondary corneal complications if not treated during active stage of the illness. Apart from this, the illness is known to affect the productivity and quality of life in school going children due to absenteeism and limitations to outdoor activities. Knowing the clinical profile of disease would provide the evidence for developing, treatment protocol in coming years. **MATERIAL AND METHOD:** A hospital based Retrospective study was designed to see a clinical profile of VKC. Total of 150 patients were enrolled in this study in department of ophthalmology of M.L.B. Medical college in BUNDELKHAND Region from may 2018 to april 2019. **RESULT:** Male to female ratio with VKC was found to be 4.3:1. Clinical presentation showed seasonal variation; 79.2% during the spring and summer season. Bilateral involvement was seen in 100% cases, out of which 44.5% were limbal type. Mean age at presentation was 10.95 years +5.98. Majority of patients reported in the month of May. Mixed type of VKC was predominant. Personal or family history of allergy was seen in 6% of patients. Itching (100%) was commonest symptom and palpebral papillae were commonest sign seen in 80% of patients the youngest patient in this study was 2 years and oldest was 21 years. Majority of patients i.e. 105 (67.74%) were in the age group of 6 – 15 years, 5 (3.33%) patients were above 20 years of age (Table 1). Maximum patients were reported in the months of May and June and minimum in December. Out of all reported symptoms, itching (100%) was commonest. Other symptoms were redness (60%), watering (50%), photophobia (43.33%), thick discharge (40%), and foreign body sensation (10%). (Table 2). In our study, majority of patients i.e. 72(48%) had mixed type of VKC. One hundred twenty (80%) patients had palpebral papillae. Limbal thickening was seen in 90 (60%) patients. Twelve patients (8.0%) showed perilimbal conjunctiva pigmentation. In our study, majority of patients i.e. 72 (48%) had mixed type of VKC. Isolated Limbal form was seen in 30 (20%) patients and isolated palpebral form was seen in 48 (32%) patients (Table 3). The grading of severity of VKC is described in Table 4. Majority 82(52.90%) of patients had mild form of VKC. Corneal ulcer was seen in only 2 (1.33%) patient.

Conclusions: Clinical pattern of VKC seen in hot and dry climate of BUNDELKHAND Region is like that seen in other parts of country. The disease is predominantly seen in male child with seasonal variation. Visual impairment is mainly due to involvement of cornea. As untreated VKC can lead to permanent visual loss, pediatric allergists should be aware of the management and therapeutic options for this disease to allow patients to enter clinical remission with the least side effects and sequelae.

Keywords: vernal keratoconjunctivitis, Spring Catarrh, pannus, seasonal variation, limbal, allergy,

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I. Introduction:

Vernal keratoconjunctivitis (VKC) is an unusually severe sight-threatening allergic eye disease, occurring mainly in children. Conventional therapy for allergic conjunctivitis is generally not adequate for VKC. Pediatricians and allergists are often not familiar with the severe clinical symptoms and signs of VKC. Vernal keratoconjunctivitis (VKC) or Spring Catarrh is recurrent, chronic, allergic conjunctivitis occurring in prepubertal age-group during spring and summer season. Though this is a self-limiting disorder, it often leads to visual impairment due to secondary corneal complications if not treated during active stage of the illness. Apart from this, the illness is known to affect the productivity and quality of life in school going children due to absenteeism and limitations to outdoor activities. Knowing the clinical profile of disease would provide the evidence for developing, treatment protocol in coming years. Vernal keratoconjunctivitis (VKC) is a bilateral,

usually seasonally recurrent inflammation of the conjunctiva. Clinically characteristic findings are tarsal giant conjunctival papillae (> 1 mm) and/or limbal gelatinous changes (Trantas dots). The underlying etiology and pathophysiology of VKC remains unclear; however, clinical findings and immunohistochemical studies suggest a complex, both IgE-dependent and IgE-independent immune-mediated etiology. Several predisposing conditions include endocrine, genetic, neurogenic, environmental and socioeconomic risk factors. Mast cell stabilizers, antihistamines and topical corticosteroids are often used during acute flare-ups in VKC; however this approach is unsatisfactory for controlling severe cases and avoiding recurrences. Immunomodulatory agents, such as cyclosporin A and tacrolimus are promising alternative agents for long-term management. In most children the clinical course of VKC is self-limiting and may disappear following puberty; however, some VKC patients will face sight-threatening complications which are mainly due to corneal involvement and iatrogenic damage caused by prolonged corticosteroid treatment.

II. Methods:

The present study is a hospital based, retrospective study carried out on 150 patients, who attended the outpatient department of the Ophthalmology, Maharani Laxmi Bai Medical College , Jhansi. Vernal Keratoconjunctivitis (VKC) is common cause of ocular morbidity in children living in tropical countries. Its diagnosis is based on signs and symptoms of the disease. The study was undertaken to stress upon the demography and clinical presentation of VKC. Methods: Retrospective pre-formed proforma of 150 patients of VKC, who were detected at random in the out - patient department of ophthalmology, M.L.B.MC, Jhansi from may 2018 to April 2019, were analyzed.

III. Results:

Mean age at presentation was 10.95 years \pm 5.98. The Male: Female ratio was 4.3:1. Majority of patients reported in the month of May. Mixed type of VKC was predominant. Personal or family history of allergy was seen in 5.6% of patients. Itching (100%) was commonest symptom and palpebral papillae were commonest sign seen in 80% of patients. Conclusions: Clinical pattern of VKC seen in hot and dry climate of Northern India is like that seen in other parts of country. The study period was May 2018 to April 2019. The study was carried out after obtaining permission from ethical committee of institution and conducted in strict adherence to the tenets of Declaration of Helsinki. Verbal informed consent was taken from patients. Diagnosis of VKC was based on the patient's history and the presence of typical clinical signs and symptoms. All patients with history of itching, photophobia and mucous discharge were included in the study. Patients with history of atopy, contact lens induced conjunctivitis, other ocular diseases and trauma were excluded from the study. The data was retrieved using a pre-formed proforma which included age, gender, history with special attention to characteristic symptoms, duration of symptoms, family or personal history of allergy. Patients underwent a detailed clinical examination including visual acuity, slit lamp examination, fundus examination, details of treatment and complications if any. Papillae of size > 1mm on upper tarsal conjunctiva with limbalinfiltration marked the palpebral form of VKC. Papillae of < 1 mm on the upper tarsal conjunctiva with limbal infiltration marked the limbal form of VKC. Mixed VKC had features of both limbal and palpebral form. The severity of disease was graded according to Bonini.).

Table 1: Age wise distribution of patients.

Age in years	Frequency	Percentage(%)
1-5	25	16
6-10	55	36.67
11-15	50	33.33
16-20	15	10
>20	5	3.33
Total	150	100

A total of 150 patients of VKC attended out- patient department of Ophthalmology with effect from May 2018 to April 2019. The great majority of VKC patients were males (82.50%), with a Male: Female ratio of 4.3:1. The mean age at presentation was 10.95 years \pm 5.98. The youngest patient in this study was 2 years and oldest was 21 years. Majority of patients i.e. 105 (67.74%) were in the age group of 6 – 15 years, 5 (3.33%) patients were above 20 years of age (Table 1).

Table 2: Distribution of patients by symptoms

Variables	Frequency	Percentage
Itching	150	100
Redness	90	60
Watering	75	50
Photophobia	65	43.33
Thick discharge	60	40
FB sensation	15	10

Maximum patients were reported in the months of May and June and minimum in December . Out of all reported symptoms, itching (100%) was commonest. Other symptoms were redness (60%), watering (50%), photophobia (43.33%), thick discharge (40%), and foreign body sensation (10%). (Table 2).. In our study, majority of patients i.e. 72(48%) had mixed type of VKC.

Table 3: Clinical types of VKC.

Clinical type	No of cases	Percentage
Mixed	72	48
Palpebral	48	32
Limbal	30	20
Total	150	100

One hundred twenty (80%) patients had palpaberal papillae. Limbal thickening was seen in 90 (60%) patients. Twelve patients (8.0%) showed perilimbal conjunctiva pigmentation. In our study, majority of patients i.e. 72 (48%) had mixed type of VKC. Isolated Limbal form was seen in 30 (20%) patients and isolated palpaberal form was seen in 48 (32%) patients (Table 3).

Table 4: Severity of vernal keratoconjunctivitis at presentation.

Clinical grade	No of cases	Percentage (%)
(Quiescent) absence of Symptoms	0	0
(Mild): Presence of Symptoms with no corneal involvement	82	52.90
Moderate): Presence of Symptoms + Photophobia with no corneal involvement	60	40
(Severe): Presence of symptoms + photophobia, Mild to moderate superficial punctate keratopathy / corneal involvement	06	4
Very severe): Presence of symptoms + photophobia + diffuse superficial punctate keratopathy/ corneal ulcer	02	1.33

The grading of severity of VKC is described in Table 4. Majority 82(52.90%) of patients had mild form of VKC. Corneal ulcer was seen in only 2 (1.33%) patient.

IV. Discussion:

Vernal keratoconjunctivitis (VKC) is bilateral, chronic, external ocular inflammatory disorder mainly affecting young boys. Male predominance was noted in our study which included 122 males and 28 females with Male: Female ratio of 4.3:1. Saboo US et al. also reported male preponderance (M: F ratio 6.4:1) in their study which is consistent with our finding.⁷ On the contrary Ukponmwan found female predominance (M: F ratio of 1: 1.3) from Nigeria. Male predominance was also found by Leonardi A in his study.² Mean Age of patients was 10.95 years +5.98. Maximum patients i.e. 55/ 150 (36.67%) were in age group of 6-10 years. This is in accordance with the study conducted by Kawuma M, which found the commonest presentation with VKC to be between 5 and 9 years of age.⁸ In this study, only 3.33% patients were above the age of 20 years whereas Saboo US et al. found 12% patients above 20 years and Leonardi et al. found 4% of patients above 20 years.^{2,7} Different environmental and geographical variations may be responsible for such varied demography. VKC showed seasonal variations in our study. Majority of patients reported in the months of May and June which corresponds to the hot, dry weather of the **BUNDELKHAND Region** in northern part of India. This is in agreement with a study conducted by Jivange VS et al., which reported highest incidence in hot and dry season.⁹ Study conducted by Malu KN in Nigeria also reported a perennial presentation of VKC with seasonal variations.¹⁰ In our study, 6% of patients had personal or family history of allergy which correlates with the study of Saboo US et al. where personal or family history of allergy was present in 4.91% of patients.⁷ The Hayilu D et al. also found an association between family history of non-ocular allergic disease such as asthma, atopic rhinitis and VKC.¹¹ In present study, the most common presenting feature of itching (100%) supports the dictum, ‘no itching, no vernal catarrh’. Apart from this, redness was found in 90 (60%) patients, watering in 75 (50%) patients and thick discharge in 60 (40%) patients. Foreign body sensation was reported by 15 (10%) patients. Similar findings were found by Bisht R et al.¹² and Rajappa SA et al.¹³ The predominant type of VKC was of the mixed form (48%) followed by palpaberal (32%) and limbal (20%). Khan FA et al. and Saboo US et

al. also reported mixed form as commonest presentation.^{7,14} On Perilimbal conjunctival pigmentation was present in 12 patients (8%) in our study. This sign was documented in 52/468 (11%) patients by Saboo US et al, whereas Rao et al. found perilimbal conjunctival pigmentation as consistent finding in VKC.^{7,15} In this study, 120 (80%) patients had palpebral papillae and 90 (60%) patients had limbal thickening. Rao Parsad I.S.V.S.P et al. also found palpebral papillae in 89% of patients and limbal thickening in 61% of patients.¹⁶ This study has some important limitations. Much of the data is self-reported and subject to recall bias from the subjects. Another limitation was retrospective nature from a hospital based eye centre, hence the data may not represent the exact characteristic of patient treated in a community centre.

V. Conclusion

In conclusion, VKC is a common form of allergic conjunctivitis in tropical counties like ours, affecting young males below 20 years. It is also summarized that the VKC in this part of India is essentially similar to the typical pattern of VKC seen in rest of country.^{7,12,13,16} Funding: No funding sources Conflict of interest: None declared Ethical approval: The study was approved by the Institutional Ethics Committee

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