



A CLINICAL STUDY ON DEMOGRAPHY AND CLINICAL CHARACTERISTICS OF VERNAL KERATOCONJUNCTIVITIS IN A TERTIARY CARE CENTER IN WESTERN REGION OF UTTAR PRADESH.

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ABSTRACT

Aims & Objectives: To study the demographic profile of pediatric and adult onset VKC in a tertiary care centre in western region of Uttar Pradesh. To determine the impact of exposure of digital screen on VKC severity & it's association. **Material & Methods:** A Hospital based cross sectional study was conducted in the department of ophthalmology, from 1st May 2023 to 30th July 2024. A Total of 100 patients were included with maximum age limit of 25 years. All these patients with signs & symptoms of VKC were subjected to detailed history and examination. **Results:** The disease was found to be more common in males, with male to female ratio of 3:1. Adult onset VKC was found in 11% of the cases only. Most common cases of VKC was seen in the school going children of age group 5-13yrs. Palpebral form of VKC was the common presentation seen in 58% cases. On a severity score, moderate intermittent/persistent severity most commonly seen in 65% cases. Patients with long time screen exposure had more severity of disease as compared to less screen exposure. Acute on chronic exacerbation of the disease was seen in individuals with long time digital screen exposure. **Conclusion:** The present study highlights the importance of timely diagnosis and management of VKC. There has been a significant association of ocular surface alteration due to long term screen exposure on a VKC patient.

KEYWORDS : VKC, Digital screen exposure, palpebral, ocular surface alteration.

INTRODUCTION:

VKC is a recurrent, bilateral, acute on chronic allergic inflammation of conjunctiva. It is an IgE & Mast cell degranulation mediated pathway induced hypersensitivity reaction of conjunctiva to dust allergens. VKC is also known as spring catarrh that primarily affects children, teenagers and young adults who have a history of seasonal allergy, asthma and eczema. Age of onset is usually before puberty, with boys being affected twice as often as girls. After puberty it becomes equally distributed and burns out by third decade of life. It follows seasonal pattern in most of individuals with typical onset in spring, exacerbation in summer and remission in autumn and winters.

Diagnosis of VKC is clinical and is based on typical signs and symptoms. Classic signs include conjunctival hyperemia, papillae, papillary hypertrophy cobblestone appearance reaching 7 to 8 mm in diameter, limbal 'yellowish-white points' Horner's Trantas' spots, pseudomembrane formation of the upper lid when everted -Maxwell-Lyon's sign andropy mucous discharge.^(1,2) Symptoms of VKC include intense pruritus exacerbated on exposure to wind, dust, bright light, exertion associated with sweating. Associated symptoms involving cornea include photophobia, foreign body sensation and lacrimation.⁽³⁾



Fig-1 bilateral muddy conjunctiva



Fig-2 Horner Trantas spots

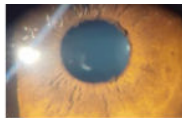


Fig-3 Corneal scar

VKC has been classified into three types: palpebral, limbal, mixed. Palpebral form is characterized by large, cobblestone like papillae on upper tarsal conjunctiva.^(4,5) Limbal form typically involves Horner Trantas dots, indicating lymphocytic, eosinophilic infiltration of limbal conjunctiva^(4,5) Mixed form is characterized by presence of both tarsal and limbal sub types.

MATERIAL & METHODS:

A hospital based cross sectional study was conducted in the department of ophthalmology, Venkateshwara institute of medical science hospital, tertiary care centre from 1st may 2023 to 30th July 2024. A Total of 100 patients were included in this study with maximum age limit was 25 years. Informed consent was obtained from all patients after nature of study

was explained to them. Patients who were presented to opd with signs and symptoms of VKC were included in study.

Diagnosis of VKC, was made based on clinical finding, history typical for VKC. Patients presented with itching, photophobia, watering, redness, ropy discharge in eyes and on examination had small and large papillae with petechial hemorrhage, cobblestone appearance of papillae, gelatinous limbal thickening, horner tranta's spots, conjunctival pigmentation were included in the study.

Patients were categorized according to the type as: Limbal, Palpebral, mixed. According to symptomatic presentation and it's persistence, patients were graded according to severity.

Demographic details were then evaluated based on the age of presentation, commonly involved age groups, gender preponderance, presenting complain, duration and age of presentation, personal history of allergy.

Adult onset VKC was also included, in the age group 18 – 25 years. Minimum criteria is taken as 18, because by this age patients are assumed to already have passed puberty.

RESULTS:

The cross sectional study involved 100 patients, 78 (78%) were males and 22 (22%) were females. According to the age distribution of VKC, highest frequency of VKC (54%) was seen in school children that from 5-13years age, amongst them 30% of cases were the follow up cases, and remaining 70% cases were newly diagnosed cases of VKC.

In our study there were 7 cases of VKC who were presented in adult age group of 20-25years, amongst them 4 cases were follow up cases and remaining 3 cases were newly diagnosed cases.

Table-1: showing number of cases according to the age of presentation.

Age of presentation	Number	Recurrent cases	Fresh/ newly diagnosed
>4years	11	4	7
5-13 years	54	18	36
14 – 19 years	28	24	4

20-25years	7	0
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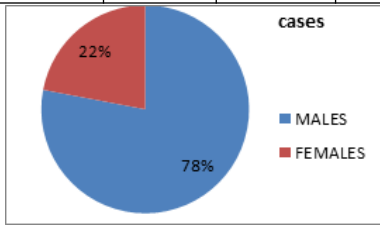


Chart -1 Chart showing % of cases according to gender

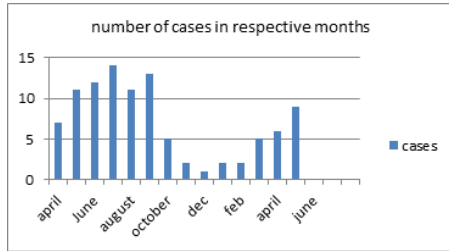


Chart -2, Showing number of cases in respective months throughout the year.

Disease pattern of VKC showed palpebral form in 58% cases, Bulbar form (including limbal) in 18% cases, Mixed form in 24% cases. It has been observed that cases presented with bulbar VKC were mostly in their resolving period, by the time these cases presented to us, their palpebral form had resolved and they were presented with mild bulbar congestion and resolving horner tranta's spots.

Presentation of VKC in adult form was mostly palpebral form, with mild to moderate symptoms. Association with occasional allergy and atopic condition was observed in all cases presented in adult age criteria and approximately in 50 % cases in teenage age group. Moderate intermittent/persistent type was found to be the most common type seen in 65% cases, followed by Mild intermittent type seen in 22 % cases. Severe form of VKC was seen only in 11 % cases and very severe form in 2 % cases.

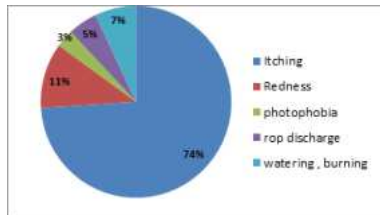


Chart-3 showing % of symptoms in our study population

Table-2 : Clinical characteristics of patients enrolled in our study:

Type on presentation	Percentage%
Limbal	18%
Palpebral	58%
Mixed	24%
Severity of VKC	Percentage%
Mild, intermittent	22%
Moderate intermittent.	35%
Moderate Persistent	30%
Severe Persistent	11%
Very Severe	2%

Severe form of VKC was seen in school children and teenage group (5-13 years). After elucidating history there were multiple reasons for severity in this age group:

- Non compliant with medication during school hours.
- Long time sun exposure during outdoor activities
- Exposure to dust/ pollens frequently during daily outdoor activities.
- Long time constant digital screen exposure.

(entertainment/studies-lecture/school projects)

Table- 3: Average screen exposure in respective age group:

Age Group	Screen time exposure
5-13 years	5 hours/day
14- 19 years	8 hours/day
20-25 years	8 hours/day

It has been observed that severity of VKC was mostly seen in children having more amount of screen time exposure. Teenage group were commonly affected. Long Time constant screen exposure decreases blinking frequency followed by alteration of ocular surface and worsening of VKC symptoms. Chronic and frequent persistence of symptoms lead to the severity of VKC.

DISCUSSIONS

In our study all patients were analyzed based on demographic data and detailed evaluation was done. We found the preponderance of male gender in our study with male to female ratio of 3: 1. Also males are highly prone to exposure of pollen, wind, sunlight, grasses, because of their work demands⁽⁶⁾

In our study period, we observed the peak of cases in the months from april to september during warm and humid condition, This may be because of dust particles, especially in the dry and hot season. Dust particles have a greater capability of harbouring inflammatory particles, which have higher chance to reach our eyes and develop conjunctival inflammation. In addition, children in this age groups had a high chance to spend their time in dusty areas which are sources of different allergens.⁽⁷⁾

In our study, majority of patients were school going in the age group of 5-16 years. Youngest case that presented in our opd was of 18 months. Also a veryimportant common association is related to the probability of exposure to allergens mostly in school children. After evaluating proper history it was found that individuals previously diagnosed were non compliant during school and playing hours, which could be a contributing factor for it's persistence.

Another very important factor that increases severity of vkc is the long time digital/ screen exposure. In our study we observed that individuals with long time constant screen exposure, had more severe disease with persistence of symptoms as compared to individuals with low screen time exposure.

Severity scoring was according to bonini.et al^(8,9)

Grade- 0 (quiescent)- free of symptoms, papillae present without any local signs of disease activity.

Grade 1(mild , intermitent)- intermitent foreign body sensation, occasional burning sensation. On examination few mosaic flat papillae+ minimal palpebral and bulbar congestion.

Grade 2 Moderate

intermitent- patients with occasional symptoms without corneal involvement.

Persistent- patients with frequent symptoms, disturbing during day and night with occasional involvement of cornea.

On examination obvious bulbar, palpebral congestion, foreign body sensation in 2 quadrants, elevated papillae with ropy discharge.

Grade 3 Severe

Patient rubs eyes –regularly, constant foreign body sensation, burning sensation, extreme photophobia. On examination diffuse redness (palpebral+ bulbar), horner tranta's spots, foreign body sensation and chemosis in 3 quadrants, elevated papillae and thick ropy discharge.

Grade 4 very severe

Daily symptoms of vigorous itching, photophobia, ropy discharge on ocular surface and between papillae. On examination-diffuse palpebral, and bulbar congestion. Foreign body and horner tranas dots >3 quadrants. Marked conjunctival chemosis, cobblestone appearance.

CONCLUSION:

Allergic conjunctivitis is a disease of school going children, affecting male population mostly. VKC is still unrecognized condition in most parts of the country, as it's clinical form is generally mild and self resolving, but due to it's recurrent nature and individual hypersensitivity it can have damaging effect on the ocular tissues. We also concluded that there is a significant association of digital screen exposure with severity of VKC.

Therefore, knowledge about this condition in the community will aid in early diagnosis, also starting timely medication with proper compliance and regular follow-ups will stop the severity progression.

REFERENCES:

1. Singhal D, Sahay P, Maharana PK, Raj N, Sharma N, Titiyal JS. Vernal Keratoconjunctivitis. *Surv Ophthalmol.* 2019;64(3):289-311
2. Addis H, Jeng BH. Vernal keratoconjunctivitis. *Clin Ophthalmol.* 2018;12:119-23
3. Leonardi A. Management of vernal keratoconjunctivitis. *Ophthalmol Ther.* 2013;2(2):73-88.
4. Bonini S, Bonini S, Lambiase A, Marchi S, Pasqualetti P, Zuccaro O, Rama P, Magrini L, Juhás T, Bucci MG. Vernal keratoconjunctivitis revisited: a case series of 195 patients with long-term followup. *Ophthalmology.* 2000 Jun;107(6):1157-63
5. Brindisi G, Cinicola B, Anania C, De Castro G, Nebbioso M, Miraglia Del Giudice M, Licari A, Caffarelli C, De Filippo M, Cardinale F, Duse M, Zicari AM. Vernal keratoconjunctivitis: state of art and update on treatment. *Acta Biomed.* 2021 Nov 29;92(S7):e2021517.
6. Tabbara KF. Ocular complications of vernal keratoconjunctivitis. *Can J Ophthalmol* 1999;34(2):88-92. 7
7. K Ashwini K Dhatri K Rajeev Vernal keratoconjunctivitis in school children in north Bangalore: an epidemiological and clinical evaluation] *Evol Med Dent sci* 201548615070610.14260/jemds/2015/2138
8. Saboo US, Jain M, Reddy JC, Sangwan VS. Demographic and clinical profile of vernal keratoconjunctivitis at a tertiary eye care center in India. *Indian J Ophthalmology* 2013; 61:486-9
9. Zicari AM, Capata G, Nebbioso M, et al. Vernal Keratoconjunctivitis: an update focused on clinical grading system. *Ital J Pediatr.* 2019;45(1):64. Published 2019 May 21. doi:10.1186/s13052-019-0656-4