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Clinical study of Vernal Kerato Conjunctivitis

Jyothi N Sanganal[1], Manish K[2]

Abstract

Objectives: To study the variations in epidemiological characteristics, clinical features, disease process and various modalities of management in VKC. *Materials and Methods:* A hospital based prospective study of 150 patients presenting with symptoms of allergic conjunctivitis was done at Out Patient Department of Ophthalmology, ESIC Medical College, Gulbarga, from July 2018 to June 2019. Multiple epidemiological (age, sex) and clinical parameters (type, symptoms, treatment, failure of treatment) were studied. All patients were appropriately managed and reviewed once in fortnight and follow up ranged from a minimum of 3 months to 6 months. *Results:* In our study, out of 150 patients who presented with symptoms of VKC, predominance of male that was seen in 74%compared to females being 26%. Mean age affected was found to be in range of 10-16 years 66%. In our study 68% patients had seasonal symptoms, 32% complained perennial symptoms, 30% patients had personal or family history of allergic diseases, asthma and rhinitis being common and maximum cases were reported during January to April. In our study, 100% patients complained of itching, 52% had redness, 32% had ropy discharge, 24% complained of photophobia, 18% had burning sensation, 12% had watering. The disease pattern consisted of palpebral form in 63.3%, bulbar form in 21.3% and mixed form in 23% patients. Corneal involvement was seen in 12 (13.33%) patients. Superficial punctate keratitis was the commonest presentation. Bulbar form of the disease was found to be sensitive to Sodium cromoglycate alone. Olopatadine hydrochloride 0.1% E/d and antihistamine E/d were used along with steroids in patients and proved beneficial for long term. *Conclusion:* VKC is a common form of conjunctivitis in a tropical country like ours. It is a bilateral, recurrent debilitating form of disease found to affect young males below 16 years. VKC is associated with other systemic atopy or family history of allergic disorders. It can be successfully treated with available antiallergic treatment with good prognosis.

Keywords: VKC; OPD.

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Introduction

Vernal Keratoconjunctivitis is a recurrent bilateral chronic allergic inflammatory disease of the ocular surface. The distribution of vernal conjunctivitis is worldwide accounting from 0.1% to 0.5% of patients with ocular problems. It is observed in children and young adults presenting with complaints of severe itching and photophobia accompanied by ocular discomfort and lacrimation. [1,2].

It is a chronic ocular allergy that affects mostly children and adolescents living in warm or hot climatic conditions [3]. VKC primarily affects boys more than girls in the first decade of life around the age of 7 years. The male: female ratio observed is 2.3:1 [3]. The onset of the disease is usually after the age of 5 years and resolves around puberty, only rarely persisting beyond the age of 25 years [4].

Various exogenous as well as endogenous causes have been reported to be associated with the etiopathogenesis of VKC. An immune mechanism is found to be involved in its development as suggested by various studies [5]. The disease is usually seasonal, lasting from the beginning of spring until autumn. Its predominance during the high pollen season lends credence to the widely accepted hypothesis that VKC is an

Author Affiliation: [1]Assistant Professor, Dept. of Ophthalmology, ESIC Medical College, Gulbarga, Karnataka 585106, India. [2]Associate Professor, Dept. of Forensic Medicine, Gulbarga Institute of Medical Sciences, Gulbarga, Karnataka 585101, India.

Corresponding Author: Manish K, Associate Professor, Dept. of Forensic Medicine, Gulbarga Institute of Medical Sciences, Gulbarga, Karnataka 585101, India.

E-mail: manikemster@gmail.com

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immunologically mediated, hypersensitive reaction to environmental antigens [3].

VKC occurs frequently and has extremely annoying symptoms that has led to absences from school and work and on addition to this compliance to its treatment plays important role. With the background knowledge of nature of the disease, the patient has to be educated regarding what to expect and the pit falls of management. Consequently this study was undertaken to know the variations in epidemiological characteristics, clinical features, disease process and various modalities of management in VKC.

Materials and Methods

The present study was a Hospital based prospective study. It was carried out on 150 patients with symptoms of allergic conjunctivitis attending the outpatient department of the Department of Ophthalmology attached to ESIC Medical College, Gulbarga, Karnataka from January 2019 to June 2019. It was carried out after obtaining permission from ethical committee of the institution, and consent from the study participants.

All patients with history of itching, photophobia and mucous discharge were included in the study. Patients who were non compliant, who were not available for follow up for required period of time and those with other ocular disorder like glaucoma, infectious keratitis, posterior segment abnormality were excluded from the study.

Using a preformed proforma, history was obtained from each patient with special attention to characteristic symptoms, duration of symptoms, occurrence of symptoms, whether seasonal or perennial, family and personal history of allergy and past treatment. Patients underwent a detailed clinicalexamination; unaided visual acuity was determined separately for each eye. The BCVA was recorded after refraction, slit lamp examination with fluorescein staining, measuring of intraocular pressure using an applanation tonometer and fundus examination. Patients were divided mild,moderate and severe based on signs and symptoms (Table 1). Depending severity patients were divided in two treatment groups andtreated systematically (Table 2).

Results

Out 0f 150 patients of VKC, 111 (73.33%) were male and 39 (26.67%) were female. Table 3 displays the age and sex distribution at the onset of VKC. The highest incidence of VKC occurred in the age group 11–16 years that is 66 cases (44%). Table 4 shows periodic variation in VKC with highest cases seen with seasonal variation 102 cases (68%). As shown in Table 4 according to symptom profile, all cases presented with itching while redness was seen in 78 (52%) cases and history of photophobia in 36 cases (24%), ropy discharge in 48 cases (32%), and watering and burning sensation in 27 (18%) and in 18 (12%) of cases respectively.

Table 1: Table showing signs and symptoms in VKC and grading

Signs and Symptoms	Mild	Moderate	Severe
Itching	Occasionally feel like rubbing	Occasionally rubbing eyes	rubbing eyes daily
Burning	Occasional	Daily with occasional closing	Close eyes Daily
Discharge	Occasionally wipe eyes	Wipe eyes daily	Wipe eyes several times a day
Papillae	≤1 mm- ≥3 mm	≥1 mm - ≤3 mm	≥3 mm
Limabal involvement	Limbal involvement ≤1 bulbar quadrant	1 to 3 bulbar quadrant	All 4 quadrants
Superficial punctate keartitis	None	<1/2 cornea	>1/2 cornea

Table 2: Table showing treatment groups

Treatment group	Treatment
I	Sodium Cromoglycate 4% E/d HS + Olopatadine hydrochloride 0.1% E/d BD + Topical Anti Histamines E/d 5 times daily.
II	Topical Fluoromethalone E/d TID + Olopatadine hydrochloride 0.1% E/d BD + Topical Anti Histamines E/d 5 times daily.
III	Topical Fluoromethalone E/d TID + Olopatadine hydrochloride 0.1% E/d BD + Topical Anti Histamines E/d 5 times daily + Antibiotic E/d +/- (Cycloplegics)

Disease pattern as described in (Table 5) depicts palpebral form of VKC was seen in 95 cases (63.33%), bulbar form in 32 cases (21.33%), and mixed form in 23 cases (15.33%). Table 6 describes the presence of various ocular signs in cases examined, All cases (100%) had papillae on upper palpebral conjunctiva, 50 cases (34.67%) had limbal invovement, 20 cases (13.33%) had SPKs and limbal papillae, Corneal complications as shown in Table 7 occurred in 20 (13.33%) patients.

Patients with VKC often give a history of allergy or of atopic diseases such as allergic rhinitis, asthma, or hay fever, but in the present study, coexisting allergic conditions could be detected in only 45 (30%) patients as shown in Table 8.

Table 3: Table showing age wise and sex wise prevalence in VKC

Age of the pts	Males	Females	
3–9 yrs	31	8	39 (26%)
10–16yrs	45	21	66 (44%)
17–23yrs	24	6	30 (20%)
23–30yrs	11	4	15 (10%)
Total	111 (74%)	39 (26%)	150

Table 4: Periodic variation in VKC

Periodic variation	No. of pts
Seasonal variation	102 (68%)
Perrineal variation	48 (32%)
Total	150

Table 5: Table showing incidence of symptoms

Symptoms	No. of pts presented
Itching	150 (100%)
Redness	78 (52%)
Photophobia	36 (24%)
Ropy discharge	48 (32%)
Burning sensation	27 (18%)
Watering	18 (12%)

Table 6: Table showing disease pattern

Disease pattern	No. of patients
Palpebral form	95 (63.33%)
Bulbar form	32 (21.33%)
Mixed	23 (16.42)
Total	150

Table 7: Table showing various ocular signs

Signs and symptoms	No. of patients
Papillae	150 (100%)
Limabal involvement	50 (33.33%)
Superficial punctate keratitis	12 (13.33%)

Table 8: Table showing association with allergic disorders

Coexisting allergic disorders	No of patients
History of allergic disorders	45 (30%)
With no history of allergic disorders	115 (76.66%)
Total	150

All the cases were divided depending on their severity (Table 2) in to mild, moderate and severe degree. Out of 150, we categorized 52 cases as mild VKC, 86 cases as moderate 12 patients as severe grade (Table 9) and treated accordingly (Table 10).

Table 9: Table showing grading of patients depending on signs and symptoms

Signs and symptoms	No. of Patients	Mild	Moderate	Severe
Itching	150	52	86	12
Burning	150	52	86	12
Discharge	48	1	35	12
Papillae	150	52	86	12
Limabal involvement	50	8	30	12
Superficial punctate keratitis	12	3	4	5

Table 10: Table showing treatment groups

Treatment group	Treatment	No. of cases
I	Sodium Cromoglycate 4% E/d HS + Olopatadine hydrochloride 0.1% E/d BD + Topical Anti Histamines E/d 5 times daily.	52 (34.66%)
II	Topical Fluoromethalone E/d TID + Olopatadine hydrochloride 0.1% E/d BD+ Topical Anti Histamines E/d 5 times daily.	86 (57.33%)
III	Topical Fluoromethalone E/d TID + Olopatadine hydrochloride 0.1% E/d BD + Topical Anti Histamines E/d 5 times daily + Antibiotic E/d +/- (Cycloplegics)	12 (8%)
Total		150

Table 11: Table showing outcome of disease

Treatment group	Improved cases	Uncontrolled cases	
With no steroids (Group I)	45 (30%)	7 (4.66)	52 (34.66%)
Steroids (Group II)	83 (55.33%)	3 (2%)	86 (57.33%)
With antibiotics(Group III)	12 (8%)	0	12 (8%)
Total	140	10	150

All patients except 10 showed moderate to good control over a period of one month. Among 10 patients who were not under control, 3 patients belonged to group II and 7 belonged to group1 (Table 11). Out of 3 patients in Group II. 2 had lost for follow up and one progressed to grade III and treated accordingly. Out of 7 patients in Group I. 3 progressed to Grade III. 1 lost for follow up. 2 were non compliant. And 1 developed shield ulcer that is progressed to Grade III.

Z test for proportions, $Z = 1.19$, $p>0.05$

Discussion

In our study, out of 150 patients who presented with symptoms of VKC, predominance of male that was seen in 74%compared to females being 26%. Similar results were obtained by Baryishak Y.R, Zavaro *et al*. study showed incidence of 73.0% males being affected by VKC [5].

Mean age affected was found to be 66% in range of 10-16 years, Similar results were observed by Bisht *et al*. in his study, the mean age as 14.3 years (range 7-20 years) [6]. The notable difference between sexes, and the resolution of the disease with puberty are features that have persistently suggested that hormonal factors play a part in the development of VKC (Bonini *et al*.) [7] 68% patients had seasonal symptoms, 32% complained perennial symptoms, 30% patients had personal or family history of allergic diseases, asthma and rhinitis being common and maximum cases were reported during January to April.

These results correlatedwith study done by Ujwala S Saboo and associates showing 64% seasonal, 36% perennial occurrence, 4.91% of patients had personal or family history of allergy and highest incidence of disease was noted in month of May, [8] which corresponds to hot dry weather in southern part of India

In this study, 100% patients complained of itching, 52% had redness, 32% had ropy discharge, 24% complained of photophobia, 18% had burning sensation, 12% had watering. Similar results were observed by Bisht R. Goyal A. *et al* [6]. The diseasepattern consisted of palpebral form in 63.3%, bulbar form in 21.3% and mixed form in 23% patients. Study done by Togby showed mixed form to be predominant about 71.4% followed by palpebral form 17.4%, and bulbar form 11.2% [9].

The multi centric study from Italy reported predominance of limbal form about 53.8%, [10] whereas Ukponmwan reported 82.6% cases with palpebral presentation in Nigeria [11]. This signifies that the prevalence of subtypes of VKC is different in various parts of the world.

VKC can cause various corneal complications leading to decreased vision. In our study, corneal involvement was seen in 12 (13.33%) patients. Superficial punctate keratitis was the commonest presentation. We noted moderate vision loss in 8.89% patients. Bonini *et al*., noted permanent visual loss in 6% of patients due to corneal complications and scarring [7].

Pulse steroid therapy was found to be a safe and effective method of management of vernal conjunctivitis in our study. Bielory BP and associates found similar observations [12].

Topical soft corticosteroids are the most effective treatment for moderate to severe forms of VKC because of their broad and early interference with the inflammatory cascade with less side effects. Bulbar form of the disease was found to be sensitive to Sodium cromoglycate alone.

Dahan and associates observed improvement in 90% subjective and 58% objective signs of bulbar form of the disease treated with sodium cromoglycate [13].

Olopatadine hydrochloride 0.1% E/d and antihistamine E/d were used along with steroids in patients and proved beneficial for long term treatment. Corum *et al*, reported that 2 monthstreatment with Olopatadine hydrochloride 0.1% relieves the signs and symptoms of VKC [14].

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