

## Demographic and Clinical Profile of Vernal Keratoconjunctivitis in Teaching Hospital, Kurnool

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### ABSTRACT

**Introduction:** To describe socio - demographic and clinical profile of patients with vernal keratoconjunctivitis (VKC) and to assess the compliance of patients to the treatment of vernal keratoconjunctivitis.

**Materials and methods:** Prospective study of 100 patients with VKC was done. Purposive sampling of 100 Patients with signs and symptoms of VKC were taken, who satisfy inclusion and exclusion criteria. Treatment was given depending on grade of disease.

**Results:** Out of 100 patients 66 were Males and 33 were Females. Mean age at presentation was 9.4 years and 2 patients presented at the age of 28 and 30 year and 60% patients from rural area, 40% from urban. Family history of allergies was noted in 7% patient. History of chronic perennial disease was seen in 57% patients. Mixed form of VKC was seen in 66%, limbal form in 18% and palpebral form in 16%. 47% had mild and 10% had severe disease.

**Conclusion:** VKC is a bilateral disease affects most commonly young males between ages of 6 to 10 years. Male: female ratio of 2:1. Association of family history of allergic disorders are less. For persistent severe disease needs frequent follow-up.

**KEY WORDS:** Allergy, Compliance, Papillae, and Vernal Keratoconjunctivitis.

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### INTRODUCTION

All components ocular surface is constantly exposed to allergens and affected. Allergic conjunctivitis represents a spectrum of disorders, comprising atopic keratoconjunctivitis (AKC), seasonal allergic conjunctivitis (SAC), perennial allergic conjunctivitis (PAC), vernal keratoconjunctivitis (VKC) and giant papillary conjunctivitis. Vernal keratoconjunctivitis (VKC) and atopic keratoconjunctivitis are most severe forms can involve cornea lead to visual loss [1]. VKC is a chronic, recurrent, bilateral, seasonally exacerbated, allergic inflammation of the eye, involving tarsal and bulbar

conjunctiva, in which both IgE and cell mediated immune mechanisms play an important role with ill-defined, nonspecific, hypersensitivity responses [2]. VKC is a common ocular surface disorder in the Mediterranean region, Central Africa, India and South America. It mainly affects children between the age of 6 and 18 years. It is a self-limiting disorder with spontaneous resolution after puberty or early adult life [2]. Most common symptoms observed are itching, redness, watering, foreign body sensation and photophobia. The most common signs are palpebral (upper tarsal)

papillae, conjunctival giant papillae (cobble stone appearance), limbal thickening, and perilimbal conjunctival pigmentation [1-4].

The diagnosis is generally based on complaints of ocular itching in the presence of upper tarsal conjunctival papillae and/or limbal hypertrophy with bulbar conjunctival pigmentation. But difficult cases can be diagnosed by conjunctival scraping and demonstration of infiltrating eosinophils [2]. Treatment for VKC includes Topical mast cell stabilizers, antihistaminic, leukotriene antagonists help only in mild to moderate cases. In severe cases or in cases with acute exacerbations topical steroids are used. Corticosteroids are the most effective topically applied medication in the treatment of VKC, inducing a generalized anti-inflammatory and immunosuppressant effect and decreasing phagocyte response [4]. However, corticosteroids are known to have serious side effects, like increase in intraocular pressure, posterior sub capsular cataract, increased risk of infection and delayed wound healing. Hence corticosteroids should be used in caution [2-4]. Cyclosporine and Tacrolimus are used for chronic and severe cases of VKC [2]. Previous epidemiological studies of VKC in India have been undertaken in a different environmental setting and concerned a different ethnic group report on the prevalence and risk factors associated with VKC. Hence, our study aimed to describe socio- demographic and clinical profile of patients with vernal keratoconjunctivitis (VKC) and to assess the compliance of patients to the treatment of vernal keratoconjunctivitis

## MATERIALS AND METHODS

This prospective observational study was conducted with 100 patients with signs and symptom of VKC (Itching, Tearing/ discharge, Photophobia, Foreign body sensation Signs – Papillae, Hyperemia, Horner Tranta spots, Punctate epithelial Keratitis), who are attending Ophthalmology outpatient department, at Viswabharathi Medical college and Hospital, Kurnool, Andhra Pradesh. Who had given voluntary informed consent were included in this study, who were attended, department of ophthalmology in every month were 10 to 12 cases per month, and Patients with infective keratitis, ocular disorders such as glaucoma, contact lens users and those who are not willing to participate in this study were excluded. After obtaining their informed consent from the patients or from their parents or guardians' complete ophthalmic examination was done. Symptoms and signs of VKC were noted in specially designed proforma Special importance was given which includes socio-demographic details like occurrence of symptoms (seasonal or perennial), family history of allergy, Aggravating and relieving factors and past history. And Detailed ocular examination includes testing of Visual acuity: Distance vision by Snellen's chart, slit lamp examination, Intraocular pressure using Goldmann's applanation tonometer. Fundus examined with 90D lens.

The type and severity of VKC and its association with corneal involvement were noted. Clinical grading was done, Bonini et al [5] suggest a new grading system based on the clinical characteristics of VKC as follows.

S.No.	Grade	Symptom
1	Grade 0 (quiescent)	Free of symptoms and Papillae may be present without local signs of disease activity (no conjunctival hyperemia).
2	Grade 1 (mild intermittent)	The patients refer onset of symptom during spring season and present a slight ocular inflammation (mild hyperemia) without corneal involvement, giant papillae may be present.
3	Grade 2 (moderate intermittent/persistent)	Patients are presenting the same symptoms as in grade 1 but more frequent and disturbing during the day, with mild to severe papillary reaction and conjunctival hyperemia. The intermittent form defines patients with occasional symptoms without corneal involvement; the persistent variant includes patients symptomatic every day during season with occasional involvement of the cornea (superficial punctate keratitis).
4	Grade 3 (severe)	If symptoms are present every day and hamper daily activities, severe conjunctival hyperemia and secretion may be associated to the presence of Horner-Trantas dots and the cornea may present superficial punctate keratitis, papillary reaction is moderate to severe.
5	Grade 4 (very severe)	If severe itching and photophobia are present everyday with mucus discharge on the ocular surface and between papillae, Horner-Trantas dots are present and corneal complications are common.
6	Grade 5 (evolution)	The patients present occasional symptoms during seasonal periods, conjunctival papillary reaction may be present, but the cornea is spared and conjunctival fibrosis may be seen on the upper tarsal conjunctiva or at the fornix.

Moderate disease (intermittent and chronic) Patients with corneal involvement in the form of fine punctate erosions, Horner–Tranta’s dots, focal limbal inflammation, and thickening of 2–3 months during which the patient is off medications. This would mean a maximum of 3–4 episodes in a year, which remit on therapy. Chronic disease is defined as inflammation free intervals of 6 clock hours are classified as a severe disease. Blinding disease Patients with extremely active large cobblestones, active shield ulcers, severe annular limbal inflammation, limbal stem cell deficiency manifesting as extensive conjunctivalization, Treatment was initiated depending on the grade of VKC Mild disease Treated with avoidance of allergen (A), lubricants (L), antihistaminics (H), and mast cell stabilizers (M) Moderate disease (intermittent and chronic) They require add on therapy (in addition to allergen avoidance (A), lubricants (L), antihistaminics (H), and mast cell stabilizers (M). Based on the periodicity of disease, in intermittent disease short pulses of mild surface acting steroids (e.g. Loteprednol) can be given to tackle the recurrences. In chronic disease, long term continuous therapy with topical 0.5% cyclosporine is initiated and for persistent inflammation low frequency mild steroids 21 Severe disease Treated initially with the pulse of potent topical steroids (along with ALHM) and then maintained with chronic 1% cyclosporine therapy. Tacrolimus 0.03% ointment can also be used either trans dermally or in the eye based on tolerance Blinding disease Use of potent steroids in addition to ALHM. Cyclosporine 2% drops and tacrolimus 0.03% ointment can be used in combination.

**RESULTS**

A total of 100 patients were enrolled in the study over a period of one year. Out of 100 patients 67 were males and 33 were females. Male: female ratio of 2:1. 52% of patients were between age group of 6 to 10 years, 27% between 11 to 15 years and 13% between d” 5 years. Mean age of presentation was 9.4 years. Youngest age of presentation was 4 years and oldest was 30 years. In our study most of patients were distributed between d” 20 years.

60% of our patients were from rural area and 40% are from urban area.

**Table 1:** showing the symptoms of study participants of VKC.

Symptoms	No. of Patients	Percentage
Seasonal	35	35%
Perennial	60	60%
Itching	98	98%
Redness/change in eye colour	100	100%
Pain	9	9%
Watering	45	45%
Sticky eyes	22	22%
Poor vision	8	8%
Foreign body sensation	55	55%
Swollen eyelid	5	5%

100% of patients presented with redness and change in colour of eye fallowed by itching, foreign body sensation, watering, sticky eyes, pain, poor vision and swollen eyelid. 60% had history of perennial disease which was present throughout the year. 35% had seasonal onset of disease. Patients with other atopies or family history of allergy/atopy Total 07 patients had history of allergy, 04 patients were males and 03 patients were females.

**Table 2:** Showing the Ocular signs in VKC patients.

Signs	No. of patients	Percentage
Papillae	100	100%
Horner-Tranta’s dots	54	54%
Fine SPEE	21	21%
Cobblestones	27	27%
Focal or limbal inflammation	37	37%
Annular limbal inflammation	20	20%
Coarse SPEE/PEK	6	6%
Conjunctival granulomas	1	1%
Pannus	17	17%
Macro erosions	1	1%
Shield ulcer	0	0%
LSCD with complication	0	0%

On examination 100 % had papillae, 54% had limbal papillae with Horner-Tranta’s dots, 37% had focal or limbal inflammation, cobble stone appearance was noted in 27%, pannus in 17%, fine SPEE 21%, annular limbal inflammation in 20%

**Visual acuity in patients with VKC:** 75 % had normal vision, VKC associated decrease vision was 25 %, 20.5% had vision between 6/9 to 6/12, 4 patients had 6/18 to 6/24 and only one patient had 6/36.

Most common type of VKC observed was mixed form in 66% of patients, limbal in 18%, palpebral in 16%. 48% of patients had Mild grade of

VKC, 25% had mild intermittent grade. Most commonly patients presented when disease in Mild and Moderate grade. 10% of patients were presented when the disease in severe grade.

**Table 3:** Showing the Clinical types of VKC among study participants.

	No. of patients	Percentage	
Type	Mixed	66	66%
	Palpebral	16	16%
	Limbal	18	18%
Grades of VKC	Mild	48	48%
	Moderate intermittent	25	25%
	Moderate chronic	17	17%
	Severe	10	10%
	Blinding	0	0

## DISCUSSION

VKC is the leading allergic eye disease affect ocular surface, involve both palpebral and limbal conjunctiva. It as predilection towards male gender, in our study similar observation was noted with male to female ratio of 2:1. Majority of patients were between 6 to 10 years. 52% of patients were between age group of 6 to 10 years, 27% between 11 to 15 years and 23% between d" 5 years. Mean age of presentation was 9.4 years. Youngest age of presentation was 4 years and oldest was 30 years. When comparing with other studies by Ujwala et.al.<sup>3</sup>, they have reported mean age of presentation was 12 year. In our study onset was earlier and mean age of presentation was earlier. Sex distribution similar with study by Rajsekar<sup>6</sup>. We observed 60% of study participants from rural area and 40% from urban area, there are no studies which noted about distribution of VKC among rural and urban population.

Most common presenting feature symptom was itching followed by redness. Most common clinical sign was papillae. In our study patients were commonly presented with redness and change in colour of eye followed by itching, foreign body sensation, watering, sticky eyes, pain, poor vision and swollen eyelid. This was similar to other studies by ujwala et al [3], Rajsekar [6] and Tabbara K F [7] and. Family history of allergies or atopy was noted in 7% patients, which is similar to Ujwala et.al [3]. Study but significantly less compared to 30 % in Rajsekar study [6]. In our study

ocular signs of VKC observed were papillae (100%), 54% had Horner-Tanta's dots, 37% had focal or limbal inflammation, cobble stone appearance was noted in 27%, pannus in 17%, fine SPEE 21%, annular limbal inflammation in 20%, which is similar to other studies by Rajsekar [6], Ujwala et.al [8], and Bonini et al [9].

In our study we have observed association of VKC with mild loss of vision in 25%. Out of 25%, 20% had vision between 6/9 to 6/12, 4 patients had 6/18 to 6/24 and only one patient had 6/36. When compare to Ujwala et.al [3], Bonini et al [9]. They had reported moderate to severe loss of vision (<6/60) in more than 12%. The most common clinical type of VKC observed was mixed form in 66%, limbal form in 18% and palpebral form in 16%. Similar observation was seen in Ujwala et.al [3] study but in other studies by keziath N M [10] and Adhikari S et.al [11] reported limbal form was commonest. Rajsekar K [6] reported palpebral (62%) form was commonest. Most of the patients presented in Mild and moderate intermittent grade of VKC, this is similar with other studies [3,6].

## CONCLUSION

VKC is a bilateral disease affects most commonly young males between ages of 6 to 10 years. Male: female ratio of 2:1. Association of family history of allergic disorders was less. VKC is more common in rural area. These patients usually present with symptoms of itching, redness and rubbing of eyes. VKC patients presents usually in a stage of mild to moderate grade. Most common clinical type is mixed form of VKC. For persistent severe disease needs frequent follow-up. VKC being chronic disease compliance of patients to treatment initially was good but for long term compliance is poor.

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