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Original Research

Evaluation of clinical profile of vernal keratoconjunctivitis patients

¹Atul Kakkar, ²Preeti Kakkar

¹MS Ophthalmology, Kakkar Eye Hospital, Income Tax Office Road, Patiala, Punjab, India; ²DMRD Radiodiagnosis, Orbit Scan Centre, Income Tax Office Road, Patiala, Punjab, India

ABSTRACT:

Purpose: To study the demographic and clinical profile of patients with vernal keratoconjunctivitis (VKC). **Materials and Methods:** A retrospective chart review of every VKC patient was conducted. There were 100 patients with VKC in all. Based on the patient's medical history and typical indications and symptoms, VKC was determined to be the cause. On the basis of the patient's complaint of ocular irritation, upper tarsal conjunctival papillae, limbal hypertrophy, and bulbar conjunctival pigmentation, active VKC was identified. **Results:** A total of 100 patients of VKC had been assessed. Monthwise distribution showed highest number (63; 63%) of the patients in the month of May. The mean age at presentation was 16 years. There were 81(81%) males and 19 (19%) females. The disease was active at initial presentation in 76 individuals (76%). The average period between the initial onset of symptoms and presentation to this institute was 21 months. Patients who had their first episode at or after 20 years of age were categorized as adult onset VKC. 16 patients (16%) were aged ≥ 20 years at the time of presentation, of which 10 (6 males, 4 females) patients had an adult onset of disease, while the rest had primarily a childhood disease that continued beyond 20 years of age. **Conclusion**: Clinical pattern of VKC seen in the tropical climate of India is essentially similar to that seen in other tropical countries. Few distinct features that we noted represent chronic perennial disease, low association with atopy, and higher propensity for disease and treatment-related complications.

Keywords: Allergic eye disease, papillae, shield ulcer, vernal keratoconjunctivitis

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Corresponding author: Preeti Kakkar, DMRD Radiodiagnosis, Orbit Scan Centre, Income Tax Office Road, Patiala, Punjab, India

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INTRODUCTION

Vernal keratoconjunctivitis (VKC) is a recurrent, bilateral allergic inflammation of the conjunctiva.¹ The episodes are often periodic and have seasonal recurrences. Seasonal exacerbations characterize the condition in the initial stages with a peak incidence during spring and summer. Over time, the condition tends to become perennial. VKC is a subtype of allergic conjunctivitis. Vernal keratoconjunctivitis (VKC) is a type of allergic conjunctivitis.²

Additional types include perennial and seasonal rhinoconjunctivitis, atopic keratoconjunctivitis, and giant papillary conjunctivitis.VKC is classified based on the area of ocular involvement into palpebral, limbal, and mixed forms.³

The incidence, as well as the type, of VKC varies depending on geographic region: limbal VKC is the

predominate form in central and southern African countries,⁴ while the palpebral form is most frequent in Europe and the Americas.⁵ Seasonal exacerbations may occur based on the time of year, most often in Europe and Asia, but a significant number of patients may develop chronic perennial disease.⁶ Although the disease is most often self-limiting, and will often resolve after puberty, some patients can develop sight-threatening complications. Immunosuppressive therapy is the mainstay of treatment, but surgical intervention may be required to manage the disease and its complications.

Hence, this study was conducted to evaluate clinical profile of subjects having vernal keratoconjunctivitis.

MATERIAL AND METHODS

A retrospective chart review of every VKC patient was conducted. There were 100 patients with VKC in

all. Based on the patient's medical history and typical indications and symptoms, VKC was determined to be the cause. On the basis of the patient's complaint of ocular irritation, upper tarsal conjunctival papillae, hypertrophy, and bulbar conjunctival limbal pigmentation, active VKC was identified. The diagnosis of the quiescent type was made on the basis of scarring, inactive upper tarsal conjunctival papillae, and a history of ocular irritation. Patients with cobblestone papillae measuring more than 1 mm on the upper tarsal conjunctiva and no limbal infiltration were classified as having the palpebral form, while those with papillae measuring less than 1 mm and limbal infiltration had the mixed form of VKC.

A total of 100 patients of VKC had been assessed. Month-wise distribution showed highest number (63; 63%) of the patients in the month of May. The mean age at presentation was 16 years. There were 81(81%)males and 19 (19%) females. The disease was active at initial presentation in 76 individuals (76%). The average period between the initial onset of symptoms and presentation to this institute was 21 months. Patients who had their first episode at or after 20 years of age were categorized as adult onset VKC. 16 patients (16%) were aged \geq 20 years at the time of presentation, of which 10 (6 males, 4 females) patients had an adult onset of disease, while the rest had primarily a childhood disease that continued beyond 20 years of age.

RESULTS

Table 1: gender-wise distribution of subjects

of subjects Percentage	Number of subje	Gender
1 81%	81	Males
9 19%	19	Females
100%	100	Total
$\frac{9}{100}$ 100%	19	Total

The common reported symptoms were itching (72%), redness (69%), and watering (61%). The commonest signs were palpebral papillae (79%) and limbal thickening (66%). Perilimbal conjunctival pigmentation was present in 34/100 (34%) of patients. Chronic perennial form of VKC, lasting for more than 48 months was present in 59 patients (59%). Isolated limbal form of VKC was present in 17 patients (17%), while isolated palpebral form was seen in 19 patients

(19%). The majority (77; 77%) of patients had a mixed form of disease with involvement of both limbal and palpebral areas. The socio-economic status based distribution of these patients showed that 71 patients (71%) belonged to high socioeconomic group, while 29 patients (29%) belonged to low socioeconomic group. The criteria for low and high socioeconomic status were based on the nonpaying and paying categories of the patients, respectively.

 Table 2: Complications of vernal keratoconjunctivitis

Complications	Number of subjects
Corneal scarring	19
Keratoconus	08
Corneal shield ulcers	06
Peripheral corneal neovascularization	16
Limbal stem cell deficiency	04
Cataract	03
Glaucoma	01

The commonest complication was corneal scarring, which was present in 19 patients (19%). Keratoconus was seen in 8%, whereas corneal shield ulcers were Peripheral seen in 6% patients. corneal neovascularization was seen in 16 (16%) patients. Clinically limbal stem cell deficiency (LSCD) (corneal neovascularization along with conjunctivalization and corneal scarring) was seen in 4% of patients. Corticosteroid-induced complications like cataract and glaucoma were seen in 3% and 1% of patients, respectively.

All patients were treated with topical corticosteroids in the active stage of disease along with mast cell stabilizers or antihistaminic eye drops for long-term prophylactic use. Topical 2% cyclosporine A was used in 08 patients (8%). Supratarsal injections of corticosteroid were used in 15 patients to treat severe non-responding disease.

DISCUSSION

Vernal keratoconjunctivitis (VKC) is a bilateral, recurrent inflammation of the conjunctiva that tends to occur in children and young adults. Its onset is most common in the spring and goes into remission during the cooler months.⁷ The highest incidence of the disease is in the warm, temperate Middle East Mediterranean region and Mexico. Boys are affected twice as often as girls with a peak incidence between the ages of 11 and 13 years. Typical symptoms are ocular itching, watering, foreign body sensation and mucoid discharge.⁸

The three forms of vernal conjunctivitis are palpebral, limbal, and mixed.⁹ Corneal manifestations include a superficial pannus and punctate epithelial keratitis. In severe cases, the cornea appears to be dusted with flour. The long-term prognosis is generally good; however 6% of patients develop corneal damage, cataract, or glaucoma.¹⁰ As untreated VKC can lead to

permanent visual loss, we should be aware of allergens and the management and therapeutic options for this disease to allow patients to enter clinical remission with the least side effects and sequelae.

Hence, his study was conducted to assess the clinical profile of subjects having vernal keratoconjunctivitis.

In this study, a total of 100 patients of VKC had been assessed. Month-wise distribution showed highest number (63; 63%) of the patients in the month of May. The mean age at presentation was 16 years. There were 81(81%) males and 19 (19%) females. The disease was active at initial presentation in 76 individuals (76%). The average period between the initial onset of symptoms and presentation to this institute was 21 months. Patients who had their first episode at or after 20 years of age were categorized as adult onset VKC. 16 patients (16%) were aged ≥ 20 years at the time of presentation, of which 10 (6 males, 4 females) patients had an adult onset of disease, while the rest had primarily a childhood disease that continued beyond 20 years of age.

The common reported symptoms were itching (72%), redness (69%), and watering (61%). The commonest signs were palpebral papillae (79%) and limbal thickening (66%). Perilimbal conjunctival pigmentation was present in 34/100 (34%) of patients. Chronic perennial form of VKC, lasting for more than 48 months was present in 59 patients (59%). Isolated limbal form of VKC was present in 17 patients (17%), while isolated palpebral form was seen in 19 patients (19%). The majority (77; 77%) of patients had a mixed form of disease with involvement of both limbal and palpebral areas. The socio-economic status based distribution of these patients showed that 71 patients (71%) belonged to high socioeconomic group, while 29 patients (29%) belonged to low socioeconomic group. The criteria for low and high socioeconomic status were based on the nonpaying and paying categories of the patients, respectively.

The commonest complication was corneal scarring, which was present in 19 patients (19%). Keratoconus was seen in 8%, whereas corneal shield ulcers were seen in 6% patients. Peripheral corneal neovascularization was seen in 16 (16%) patients. Clinically limbal stem cell deficiency (LSCD) (corneal neovascularization along with conjunctivalization and corneal scarring) was seen in 4% of patients. Corticosteroid-induced complications like cataract and glaucoma were seen in 3% and 1% of patients, respectively.

All patients were treated with topical corticosteroids in the active stage of disease along with mast cell stabilizers or antihistaminic eye drops for long-term prophylactic use. Topical 2% cyclosporine A was used in 08 patients (8%). Supratarsal injections of corticosteroid were used in 15 patients to treat severe non-responding disease.

A study by Leonardi et al¹¹ reported M:F ratio of 3.3:1 in a demographic and epidemiological study involving a case series of 406 VKC patients. A descriptive cross-sectional study by Chaudhary et al¹² was conducted among patients presenting to the outpatient department of ophthalmology from June 2020 to May 2021. Ethical approval was taken from the Institutional Review Committee (Reference number: IRC-PA-076). The relevant details of the history and clinical examination of the patients were recorded on a specifically designed proforma. A simple random sampling technique was used. Point estimate and 95% Confidence Interval were calculated.Among2400patients with conjunctivitis visiting the outpatient department of ophthalmology, vernal keratoconjunctivitis was seen in 80 (3.33%).

Corneal shield ulcers were present in 3% of patients; however, slightly greater incidence of corneal shield ulcers were reported by Bonini et al.¹³ (9.7%) and Leonardi et al.¹⁴ (15.3%).

Ujwala S et al¹⁵ evaluated the demographic and clinical profile of patients with vernal keratoconjunctivitis (VKC) at a tertiary eye care center in India. Retrospective chart analysis of 468 patients of VKC seen from January 2006 to December 2006.Mean age at presentation was 12 years. Majority of the patients had mixed pattern disease (72%). Chronic perennial disease was seen in 36% patients. Personal or family history of allergies was noted in 5% patients. Severe disease based on clinical grading was present in 37% patients. Moderate to severe vision loss was seen in 12% of total population. Persistent disease beyond 20 years of age was found in 12% patients. VKC-related complications such as corneal scarring (11%), shield ulcer (3%). keratoconus (6%), and limbal stem cell deficiency (1.2%) were seen. Treatment-related complications like corticosteroid-induced cataract and glaucoma were seen in 6% and 4% of patients, respectively.

CONCLUSION

Clinical pattern of VKC seen in the tropical climate of India is essentially similar to that seen in other tropical countries. Few distinct features that we noted represent chronic perennial disease, low association with atopy, and higher propensity for disease and treatment-related complications.

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