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### RESEARCH ARTICLE

#### RISK FACTORS AND CLINICAL PRESENTATION OF VERNAL KERATOCONJUNCTIVITIS IN PATIENTS VISITING THE OUTPATIENT DEPARTMENT AT A RURAL TERTIARY CARE HOSPITAL

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#### Manuscript Info

##### Manuscript History

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#### Abstract

**Introduction:** Vernal keratoconjunctivitis (VKC) is an allergic eye disease. It is a bilateral, seasonal, external ocular inflammatory disease of unknown cause. The clinical picture of VKC is characterized by ocular symptoms such as pruritus, tearing, burning, foreign body sensation and photophobia. There are three clinical forms: Palpebral, bulbar and mixed. Risk factors include allergic tendencies, family history of atopy, tropical climate. There is male preponderance to this condition.

**Aims/objectives:** To study the known risk factors predisposing to and clinical presentation of Vernal keratoconjunctivitis in patients at our rural tertiary care hospital.

**Materials and Methods:** We included 40 patients of both genders who came to the outpatient department of our rural tertiary health centre with signs and symptoms of VKC and excluded patients with other ocular surface disorders.

**Results:** Out of 40 study participants, 26 (65%) were male and 14 were female. Majority of patients (55%) visited the OPD in the summer season. There was a significant history of other atopic manifestations, such as eczema or asthma, in 55% of patients. A family history of atopy was found in 19 (47.5%) patients. It was bilateral in 95% (38) patients. The predominant form seen in our RHTC was palpebral in 25 patients (62.5%), followed by mixed (25%) and bulbar (12.5%). Commonest symptom was itching, seen in 70% of patients. Diminution of vision was seen in 5% of patients due to corneal scarring and Shield ulcer. Signs included papillae, limbal thickening, Horner Trantas spots, punctate epithelial erosions or keratitis, Shield ulcers.

**Conclusion:** VKC is a bilateral, allergic, seasonal, external ocular inflammatory disease of unknown cause. It involves the conjunctiva and can involve the cornea and eventually lead to vision threatening complications.

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#### Introduction:-

Vernal keratoconjunctivitis (VKC) is an allergic eye disease. It is a bilateral, seasonal, external ocular inflammatory disease of unknown cause.

The clinical picture of VKC is characterized by ocular symptoms such as ocular pruritus, tearing, burning, foreign body sensation and photophobia [1].

Signs of VKC can be described in three clinical forms (Cameron Classification):[2]

**Palpebral form-** The upper tarsal conjunctiva is involved bilaterally. Typical lesion is characterized by the presence of hard, flat-topped papillae arranged in cobblestone fashion. In severe cases papillae undergo hypertrophy to produce 'giant papillae'. These are cauliflower like outgrowths.

**Bulbar form-** Here, we see dusky red triangular congestion of bulbar conjunctiva in the palpebral area. We can also see gelatinous thickened accumulation of tissue around the limbus and presence of discrete whitish raised dots along the limbus (Tranta's spots).

**Mixed form-** Includes the features of both palpebral and bulbar types.

VKC is an allergic condition in which IgE mediated mechanisms play a role. Patients who suffer from VKC often give a family history of other atopic diseases such as hay fever, asthma or eczema.

**Risk factors include-**

**Age-** 4–20 years.

**Sex-** It is more common in boys.

**Season –** More common in summer. The name Spring catarrh is a misnomer.

**Climate –** Seen commonly in tropical areas. VKC is seen mostly in the summer months, when the temperature is high, therefore, a more suitable term for it is "summer catarrh" Ref.[3]

### **Aims And Objectives:-**

To study the known risk factors predisposing to and clinical presentation of Vernal keratoconjunctivitis in patients at a rural Tertiary care hospital

### **Materials And Methods:-**

#### **Study setting:**

Ophthalmology OPD , Rural Tertiary care hospital

#### **Source of data :**

Patients with symptoms of Vernal Keratoconjunctivitis visiting the Ophthalmology OPD at a Rural Tertiary care hospital.

#### **Sample size:**

40

#### **Study Duration:**

December 2020 to September 2022

We included patients of Vernal Keratoconjunctivitis of both genders coming to a rural tertiary care centre and excluded patients with other ocular surface disorders (Dry eye, Vit A deficiency etc)

Data was recorded in a structured proforma which included age, sex, month of visit, chief complaints, family and allergic history, occupational exposure of family members, use of sunglasses.

### **Results:-**

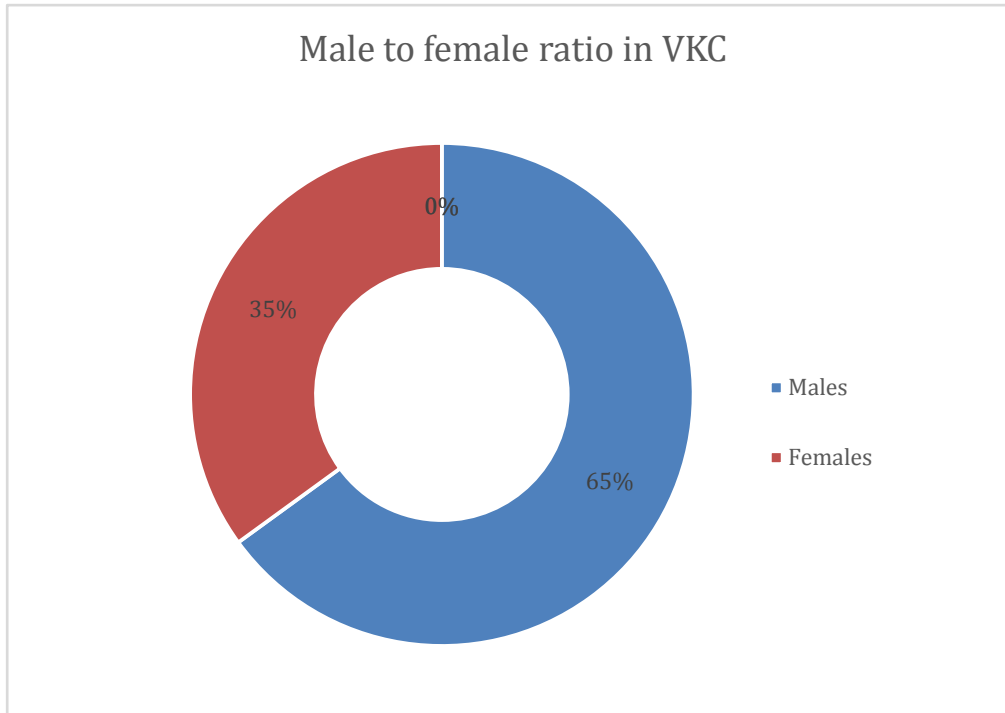
Out of 40 study participants, 26 (65%) were male and 14 were female, suggesting that vernal keratoconjunctivitis is more commonly seen in males. Most of the patients (55% or 22 patients) visited the outpatient department in the summer. There was a significant history of other atopic manifestations, such as eczema or asthma, in 55% of patients or 22 patients. A family history of atopy was found in 19 (47.5%) patients. It was bilateral in 95% (38) patients.

The predominant form seen in RHTC was palpebral in 25 patients (62.5%), followed by mixed (25%) and bulbar (12.5%). The commonest symptom was itching, seen in 70% of patients. Diminution of vision was seen in 5% of

patients due to corneal scarring and shield ulcer. Signs observed in the study are papillae, seen in 25 patients. Out of these 25 patients, 7 had giant papillae. Limbal thickening was seen in 15 patients. Horner Tranta's spots were seen in 3 patients. Shield ulcer was seen in 1 patient. Corneal scarring involving the visual axis was seen in 1 patient.

### Discussion:-

Out of 40 study participants, 26 (65%) were male and 14 were female, suggesting male preponderance. Similar results were seen in Neumann et al. 1959 [4]; Beigelman 1965 [5]; Bonini et al. 2000 [6]



Majority of patients (55%) visited the OPD in the summer season. This was consistent with Minhas S et al. 2019 which found that majority of patients visited OPD in summer months [7]

There was a significant history of other atopic manifestations, such as eczema or asthma, in 55% of patients or 22 patients. This is in agreement with Hayilu D et al 2016 which found that children with non-ocular allergic diseases were associated with increased risk of vernal keratoconjunctivitis. [8]

A family history of atopy was found in 19 (47.5%) patients. Similar results were seen in Bonini et al. 2000 where 49% patients had a family history of allergic disorders like asthma, allergic rhinitis, eczema, urticaria and multiple atopic diseases.

It was bilateral in 95% (38) patients. Similar results were seen in Kumar S et al 2009 [9]

The predominant form seen in RHTC was palpebral in 25 patients (62.5%), followed by mixed (25%) and bulbar (12.5%) which is consistent with Nagpal et al 2017 [10]. This is in contradiction to other studies which mention Limbal form to be more common in tropical regions of the world.

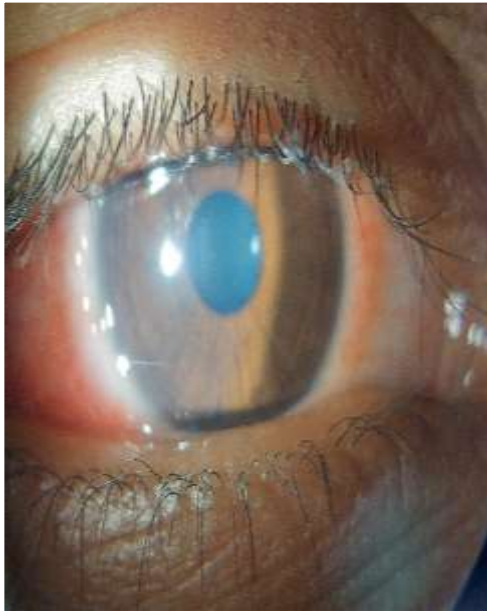


Figure 1:- Limbal VKC

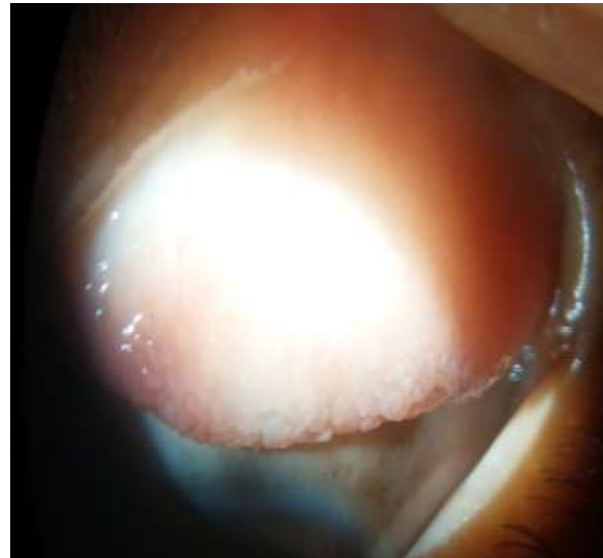
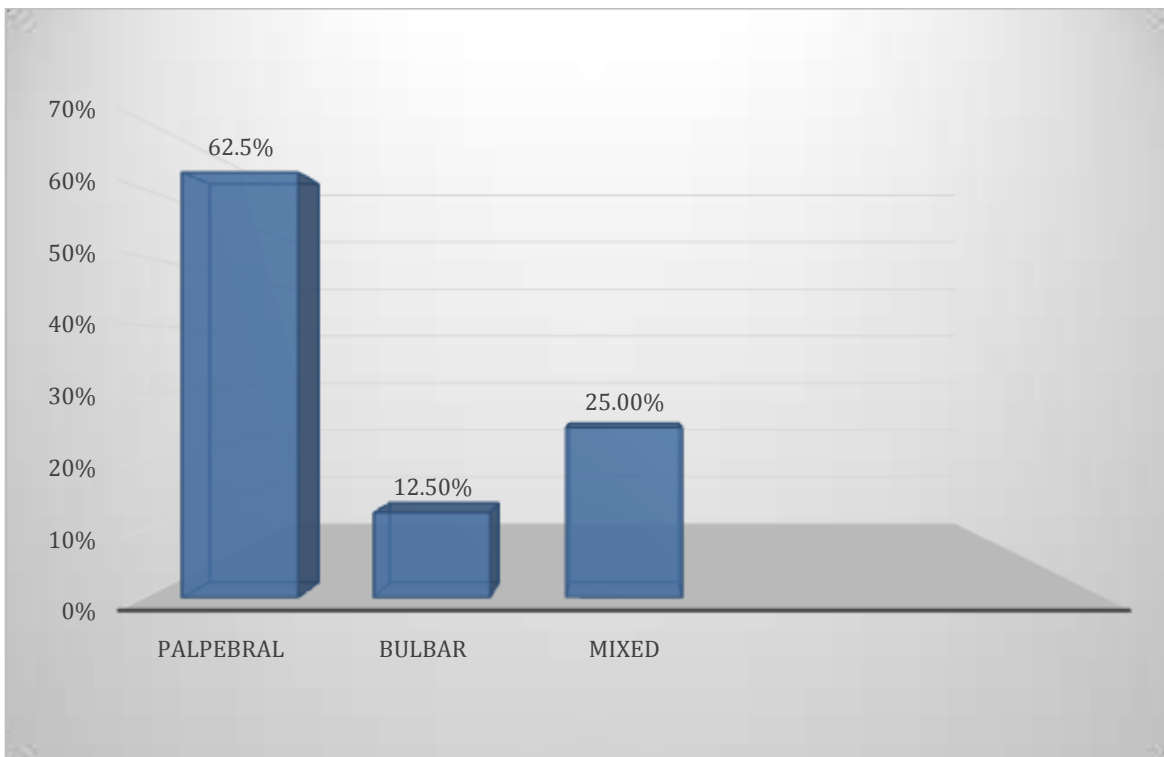


Figure 2:- Palpebral VKC.



The commonest symptom was itching, seen in 70% of patients, similar to Kumar S et. al 2009.

Diminution of vision was seen in 5% of patients due to corneal scarring and Shield ulcer, similar results were noted in Neumann et al. 1959; Cameron 1995a [11]; Tabbara 1999 [12]

Symptoms	Number of patients	Percentage
Itching	28	70%

Foreign body sensation	20	50%
Photophobia	16	40%
Burning sensation	13	32.5%
Watering	25	62.5%
Diminution of vision	2	5%

Conjunctival signs observed in our study were-diffuse conjunctival injection and upper tarsal papillae. Papillae were seen in 25 patients. Giant papillae are discrete >1mm in diameter that characteristically have flattened tops. Out of these 25 patients with papillae, 7 had giant papillae.

Limbal signs observed in our study were-limbal thickening, seen in 15 patients. Horner Tranta's spots were seen in 3 patients.

Limbal VKC is characterized by limbal thickening and opacification of the limbal conjunctiva as well as gelatinous appearing and sometimes confluent limbal papillae. We also observed Peri-limbal Horner-Trantas dots in 3 patients. Horner- Tranta's spots are focal white limbal dots consisting of degenerated epithelial cells and eosinophils.<sup>[13]</sup> Limbal disease can result in a limbal stem cell deficiency which can lead to pannus formation with corneal neovascularization.<sup>[14]</sup>

Corneal signs observed in our study included: Punctate epithelial erosions or keratitis and Shield ulcers. Corneal neovascularization, pseudogerontoxon are other corneal signs seen in VKC, although we did not observe any patient with cornea neovascularization or pseudogerontoxon. Keratoconus has been shown to be more prominent in VKC patients as well; possibly due to increased eye rubbing of chronically irritated patients.<sup>[15]</sup>

Shield Ulcer was seen in 1 patient consistent with Mushtaq, Iqra, et al.'s study [16]. Keratoconus, which was not seen in any patient, similar to Caputo R et al's study [17] where they found a low prevalence of Keratoconus in a sizeable sample of 651. Corneal scarring partially involving the visual axis was seen in 1 patient, which lead to diminution of vision. Therefore, a total of 2 patients had visual disturbances and vision threatening complications, amounting to 5% of total patients in the study.

### Conclusion:-

VKC is a bilateral, allergic, seasonal, external ocular inflammatory disease of unknown cause. It is an important cause of hospital referral among children in India and one of the leading causes of discomfort and absenteeism from school. It is commonly seen in summers and in dry climate. It is seen commonly in male children. It mainly affects the conjunctiva, which occasionally becomes severe and leads to corneal involvement and other vision threatening complications. Therefore, we must try to detect Vernal Keratoconjunctivitis early, improve the patients comfort and minimise further damage to the eye.

### References:-

- [1]Singhal D, Sahay P, Maharana PK, Raj N, Sharma N, Titiyal JS. Vernal Keratoconjunctivitis. *Surv Ophthalmol*. 2018.
- [2] Cameron, J. A. (June 1995). "Shield ulcers and plaques of the cornea in vernal keratoconjunctivitis". *Ophthalmology*. 102 (6): 985–993. doi:10.1016/s0161-6420(95)30925-6. ISSN 0161-6420. PMID 7777308.
- [3] Shah, Syed Imtiaz Ali (2014). *Concise Ophthalmology* (4th ed.). Paramount. p. 31. ISBN 978-969-637-001-7.
- [4] Neumann E, Gutmann MJ, Blumenkranz N & Michaelson IC (1959): A review of four hundred cases of vernal conjunctivitis. *Am J Ophthalmol* 47 : 166–172
- [5] Beigelman MN (1965): Vernal conjunctivitis. Los Angeles: University of Southern California Press
- [6] Bonini S, Bonini S, Lambiasi A, et al. Vernal keratoconjunctivitis revisited: a case series of 195 patients with long-term followup. *Ophthalmology*. 2000;107(6):1157–1163. [PubMed] [Google Scholar].
- [7] Minhas, S., Tuli, R., Sharma, G., & Mahajan, V. (2019). CLINICAL PROFILE OF PATIENTS WITH VERNAL KERATOCONJUNCTIVITIS. *International Journal of Medical and Biomedical Studies*, 3(8).
- [8] Hayilu, D., Legesse, K., Lakachew, N., & Asferaw, M. (2016). Prevalence and associated factors of vernal keratoconjunctivitis among children in Gondar city, Northwest Ethiopia. *BMC Ophthalmology*, 16(1).
- [9] Kumar, S. (2009, March). Vernal keratoconjunctivitis: A major review. *Acta Ophthalmologica*. <https://doi.org/10.1111/j.1755-3768.2008.01347>

- [10] Nagpal H, Rani N, Kaur M. A retrospective study about clinical profile of vernal keratoconjunctivitis patients at a tertiary care hospital in Patiala, Punjab, India. *Kerala J Ophthalmol* 2017;29:189-91
- [11] Cameron JA (1995a): Shield ulcers and plaques of the cornea in vernal keratoconjunctivitis. *Ophthalmology* 102 : 985–993.
- [12] Tabbara KF (1999): Ocular complications of vernal keratoconjunctivitis. *Can J Ophthalmol* 34 : 88–92
- [13] Buckley, R.J., Vernal keratoconjunctivitis. *Int Ophthalmol Clin*, 1988. 28(4): p. 303-8.
- [14] Bonini, S., et al., Vernal keratoconjunctivitis. *Eye (Lond)*, 2004. 18(4): p. 345-51.
- [15] Cameron, J.A., A.A. Al-Rajhi, and I.A. Badr, Corneal ectasia in vernal keratoconjunctivitis. *Ophthalmology*, 1989. 96(11): p. 1615-23.
- [16] Mushtaq, Iqra, et al. "Vernal keratoconjunctivitis with shield ulcer: A rare case report." *Tropical Journal of Medical Research*, vol. 19, no. 1, Jan.-June 2016, p. 74. Gale AcademicOneFile, [link.gale.com/apps/doc/A438549605/AONE?u=googlescholar&sid=googleScholar&xid=576b84e3](http://link.gale.com/apps/doc/A438549605/AONE?u=googlescholar&sid=googleScholar&xid=576b84e3).
- [17] Caputo R, Versaci F, Pucci N, de Libero C, Danti G, De Masi S, Mencucci R, Novembre E, Jeng BH. Very Low Prevalence of Keratoconus in a Large Series of Vernal Keratoconjunctivitis Patients. *Am J Ophthalmol*. 2016 Dec;172:64-71. doi: 10.1016/j.ajo.2016.09.009. Epub 2016 Sep 14. PMID: 27640005.