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TO STUDY THE CLINICAL PROFILE OF VERNAL KERATOCONJUNCTIVITIS IN A TERTIARY HEALTH CARE CENTRE (VINDHYA REGION MP)

Ophthalomology

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ABSTRACT

PURPOSE- To evaluate clinical profile of VKC in tertiary health care centre.
METHODS-This prospective observational longitudinal single-Centre study, included 200 eyes of 100 patients with age group 05-20 years with diagnosed VKC. Subjects who satisfy all inclusion criteria and meet no exclusion criteria were included in the study. A written and detailed Informed consent was taken and demographic details of all patients were documented. Each patient was thoroughly examined with slit lamp.
RESULTS- In the study, the age group 11-15 yr was in majority (49%) followed by 16-20 yr (26%) while 25% cases belong to the age group 5-10 yr. The study included 76 males while 24 were females. The history of allergic disorder was found in 31 cases. Chronic VKC stage was the common present in 61% cases. The palpebral VKC type was present in maximum 59% cases. Itching was present in all the 100% cases. The other major symptom was redness, watering, photophobia and ropy discharge.
CONCLUSION- Refractive errors are also becoming serious public health problem and are major cause of poor quality of life in children. So, each VKC patient should have proper refraction after diagnosis. There is need for better understanding and management of VKC.

KEYWORDS

VKC, Visual Acuity, Astigmatism, Palpebral, Chronic

INTRODUCTION:

Vernal keratoconjunctivitis (VKC) /Spring catarrh is a chronic, bilateral, may occasionally present unilaterally[1] at times asymmetrical, seasonally exacerbated, allergic inflammation of the ocular surface, involving the lids, conjunctiva (tarsal/bulbar), limbus and the cornea,[2-3] with periodic incidence of self-limited character.[4] The male predominance in VKC is conspicuous below 20 years of age but after 20 years, male and female ratio almost become equal. It is more common and most severe in hot, arid environment such as temperate zones, Central and West Africa, the Middle East, Japan and the Indian subcontinent. Some patients also have family history of atopy, most common atopy being Asthma. Most common presenting symptoms of VKC are itching, redness, photophobia, burning sensation, watering, and a mucinous or ropy discharge. Refractive errors are also becoming serious public health problem and are major cause of poor quality of life in children. So, each VKC patient should have proper refraction after diagnosis. Only few literatures have found the association of VKC with refractive errors. In the present study, we have tried to observe if there is an association between refractive error with types of VKC, and the stages of disease.

MATERIAL AND METHOD- This prospective observational longitudinal single- centre study a total of 200 eyes of 100 patients with VKC attending the out-patient department of Ophthalmology Department of S.S. Medical College and associated Gandhi Memorial Hospital, Rewa (M.P.) fulfilling the following criteria were enrolled in the study.

Inclusion Criteria:-

1. All cases of vernal keratoconjunctivitis.
2. Patients willing to sign consent.

Exclusion Criteria:-

1. Patients below 5 years of age.
2. Patients with previous history of drug instillation.
3. Patient with ocular trauma and surgery.
4. Contact lens wearers.
5. Ocular disorders like glaucoma and blepharitis.

DATA COLLECTION METHOD:

Subjects who satisfy all inclusion criteria and meet no exclusion criteria were included in the study. A written and detailed Informed consent was taken and demographic details of all patients were documented. The purpose of study was explained to the subjects and their parents in cases of minority.

Ocular Examination:

Under the following headings including:

Visual Acuity: Assessment of visual acuity with snellen's visual acuity chart, Landolt's C-Chart in an adequately lighted room.

Slit Lamp Bio-microscopy: Slit lamp examination for anterior segment evaluation, and fluorescein staining was performed to detect any epithelial erosions, keratitis, or shield ulcers.

Refraction: Cycloplegic refraction and astigmatism were recorded.

Intraocular Pressure: Intraocular pressure of each patient was noted with Applanation tonometer.

Keratometry: Keratometry was done by using shin Nippon Autoref-Keratometer.

Autorefrectometry: Autorefractometry (ARK) in all patients of VKC was done with Shin Nippon Autorefractometer.

Fundus Examination: With 90D Lens and Indirect Ophthalmoscopy.

Schirmer test 1 was performed on each patient to see for the presence or absence of associated dry eye.

Statistical Analysis Plan

1. The collected data was fed in computer in MS Excel sheet and an individual master chart was prepared for each group for analysis.
2. Graph pad instat software employed for the statistical analysis in which unpaired t-test and Chi square was applied to compare the two groups and thus the probability (p) value was procured. 'p' value indicates how likely it is that a result has occurred by chance alone.
3. Smaller the 'p' value more is the significance of a test and so a 'p' value of < 0.05 or < 5% is taken as statistically significant.

RESULTS

Table 1: Age and gender distribution of the patients

Age group in years	Male		Female		Total	
	No of cases	%	No of cases	%	No of cases	%
5-10 yr	19	19.0%	06	06.0%	25	29.0%
11-15 yr	38	38.0%	11	11.0%	49	49.0%
16-20 yr	19	19.0%	07	07.0%	26	26.0%

Total	76	76.0%	24	24.0%	100	100.0%

Table 1 depicts the Age and gender distribution of the patients. In the study, the age group 11-15 yr was in majority. The study included 76 males while 24 were females.

Table 2: Visual acuity at presentation

VA	No. of Eyes	%
6/24 - 6/18	4	2.0
6/12 - 6/9	108	52.0
6/6	88	44.0
Total	200	100.0

In the present study, maximum cases had visual acuity between 6/12 – 6/9 (52%). While the cases with VA 6/6 were 44% and cases with VA 6/24-6/18 were 2% only.

Table 3: Seasonal variation of Vernal keratoconjunctivitis (VKC)

Seasonal variation of Vernal keratoconjunctivitis (VKC)		
January to March	20	20.0
April to June	46	46.0
July to September	12	12.0-
October to December	22	22.0
History of allergic disorder		
Present	31	31.0
Absent	69	69.0
VKC Stages		
Acute	39	39.0
Chronic	61	61.0
Clinical Type		
Palpebral	59	59.0
Bulbar	16	16.0
Mixed	25	25.0
Symptoms		
Itching	100	100.0
Redness	56	56.0
Watering	43	43.0
Photophobia	47	47.0
Ropy discharge	13	13

Table 3. In the study maximum cases were reported in April – June (46%). The history of allergic disorder was found in 31cases. In 61 cases, chronic VKC stage was present. The palpebral VKC type was present in maximum 59% cases. Itching was present in all the 100% cases, redness in 56% watering,43% cases while photophobia in 47% cases and ropy discharge was present in 13% of cases.

Table 4: Ocular signs of VKC patients:

	Ocular Signs	No. of Cases	Percentage
I	**Bulbar Conjunctiva**		
	a) Congestion	58	58.0
	b) Thickening cornea Tranta's dots	40	40.0
	c) Perilimbal conjunctival pigmentation	60	60.0
II	**Tarsal Conjunctiva**		
	a) Micro papillae	34	34.0
	b) Macro <1mm papillae	35	35.0
	c) Giant >1mm papillae	15	15.0
	d) Mega cobble stone	14	14.0
III	**Cornea**		
	a) Micro-erosion	0	0.0
	b) Macro-erosion	0	0.0
	c) pseudogerontoxon	35	35.0
	d) Shield ulcer	0	0.0
IV	**Limbal**		
	a) Focal inflammation <180	32	32.0
	b) Diffuse inflammation >180	30	30.0
	c) Limbal deficiency	01	01

Table 4 depicts the ocular signs of the VKC patients. Regarding bulbar Conjunctiva, congestion was found in 58% cases and Tranta's dots in 40% cases. Perilimbal conjunctival pigmentation was present in 60% cases. Tarsal conjunctiva, micro papillae was found in 34% cases, pseudogerontoxon in 35% cases, Shield ulcer in none of the cases, while limbal deficiency in 1% of the cases.

Table 6: Distribution of Cases according to Schirmer's Test 1:

Schirmer Test	No. of Eyes	%
Normal	190	95.0
Mild	6	3.0
Moderate	4	2.0
Distribution of Cases according to Intraocular pressure (IOP):		
5-10 mmHg	31	15.5
11-15 mmHg	143	71.5
16-20 mmHg	26	13.0

Table 6 showing majority of the cases had normal Schirmer's test 1 (95%), while mild and moderate levels were found in 3% and 2% eyes respectively. Majority of the cases had IOP level between 11-15 mmHg (71.5%), while IOP of 5-10 mmHg was found in 15.5% eyes and IOP of 16-20 mmHg found in 13% eyes.

DISCUSSION

Distribution In Accordance With Age:

In our study total 100 patients were enrolled. The age group considered in our study was 5 to 20 years. The mean age of presentation was 12 (mean 10±2.5 years) years with maximum subjects were in the age group of 11-15 years,similar to the other studies conducted by **Saleh et al**[5] in 2011 at Yemen Saudi Arabia (9±3.0) years**, Shaikh et al**[6] in 2001 at Pakistan (mean 10±2.0 years) and**, Bonini et al**[2] in 2000 at Rome Italy (7.1±4.7 years), **Leonardi et al**[7] in 2006 at Italy (7.0±5.0 years), **Niharika Shetty et al**[8] in 2019 at Tumakuru Karnataka (10±2.0 years).

Distribution In Accordance With Visual Acuity At Presentation:

In present study we had **52%** patients with visual acuity (VA) ranging between 6/12-6/9 mild vision loss**, 2%** patients were having moderate vision loss while **44%** were having visual acuity 6/6. **Ujwala SS et al**[9] in 2012 at Hyderabad reported slightly higher **88%** patients with mild vision loss,8% moderate vision loss and 4% with severe vision loss.

Distribution In Accordance With Season (seasonal Variation) Of Vkc:

Disease was more presentable during summer peaking at April to June month, with maximum **46%** of patients. which was coinciding with other studies conducted by **Jivangi VS et al**[10] in 2015 at Kerala, **Sinha R et al**[11] in 2019 at Patna and **Ujawala SS et al**[9] where percentage were 50%, 44% and 72% respectively.

In this study **31%** patients were having history of allergy. While slightly higher patients were having allergic history in studies conducted by **Lambiase et al**[12]**, Tuft et al**[13]**, and Bonini et al**[2], where the percentage were (**41.5%), (40%)** and (**48%)** respectively. In contradictory to these studies a study conducted by **Ujwala SS et al**[9] in 2013 at India shown only 5% patients with allergic history. In present study we found **39%** patients were having presentation as acute VKC and **61 %** patients with chronic VKC. Similar findings were shown in study conducted by **Niharika KS et al**[8] in 2012 at India, where the percentage were acute (24%) and chronic (76%) respectively**.**

Itching was the commonest presenting complaint, and was observed in almost (100%) cases of VKC, followed by redness (56%), watering (43%) and photophobia. Similar findings were reported by studies conducted by **Ujwala SS et al**[9] in 2013 at India (88%), **Dahal P et al**[14] in 2015 at Bharatpur (100%),**Bisht R et al**[15] in 1992 at Himanchal Pradesh (90%), **Rajappa SA et al**[16] in 2014 at Karnataka (100%), **Nagrale P et al**[17] in 2017 at Telangana**, Nagpal et al**[18] in 2017 at Punjab, **Panda TK et al**[19] in 2018 at Odisha**, Ramzan R et al**[20] in 2018 at Kashmir**, Sinha R et al**[11] in 2019 at Patna (100%) **Jivangi VS et al**[10] in 2015 at Karnataka **Duke RE et al**[21] in 2016, **Shetty NK et al**[8] in 2019 at Karnataka and **Ahmed SM et al**[22] in 2015 at Kashmir.

Distribution Of The Vkc Patients According To Signs:

Bulbar Conjunctiva

In the present study, **58%** of the included group showed congestion and hyperaemia in bulbar conjunctiva. Studies conducted by **Nagpal et al**[18] in 2017 at Punjab and **Dahal P et al**[14] in 2015 at Bharatpur and **Ahmed SM et al**[22] in 2018 at Egypt were showing congestion in 34.67%, 94.1%, 76%, and 62% respectively.

Perilimbal conjunctival pigmentation (PCP) as a consistent finding in VKC was found in **60%** of the cases. Similar findings with higher percentage of perilimbal conjunctival pigmentation were observed in various studies conducted by **Rao et al**[29] in 2004 at India (60%) and

Luk FO et al[23] in 2008 at China (54%)**.**

While percentage was low in Nepal (11%) in a study done by **Pokharel S et al**[4] in 2007 at Nepal.

The presence of Horner–Tranta's dots, was found in 40% of the cases. Similar results **observed** by **Awargaonkar AV et al**[24] in 2014 at India, 57.14%.

However, study conducted by **Kumar J et al**[25] in 2019 at Jhansi UP showed relatively lower percentage (18%).

Tarsal Conjunctiva

In tarsal conjunctiva, micro papillae were found in 34% cases, macro <1mm papillae in 35% cases, giant >1mm papillae in 15% cases and mega cobble stone in 14% cases (total **98%** cases). Similar results were shown in studies conducted by **Ujwala SS et**[9] al in 2006**, Nagpal et al**[18] in 2017**, Jivangi VS et al**[10] and **Dahal P et al**[14] the percentage were 85%, 73%, 97% and 100% respectively.

CORNEA

Pseudogerontoxon in **35%** cases. Similar result was shown in study conducted by K**umar J et al**[51] in 2019 at Jhansi UP showing percentage (32%), while Shield ulcer in none of the cases. Contradictory to this, studies conducted by **Bonini et al**[26] and **Leonardi et al**[25] reported shield ulcer 9.7% and 15.3% respectively.

LIMBAL

Limbal signs focal inflammation <180 was found in 32% cases, while limbal deficiency present in **1%** of the cases. Similar to the study conducted by **Ujwala SS et al**[9] in 1.2% of the cases.

Distribution Of Refractive Error In Vkc Patients:

Myopia was the commonest refractive error **(28%)** followed by astigmatism **(19%)** and hypermetropia **(9%)** associated with VKC.

Contradictory to above study, **Niharika KS et al**[8] in 2018 at Karnataka observed hypermetropia **(48%)** as the commonest associated refractive error, followed by myopia (38%) and astigmatism (14%). While **Tahir T et al**[27] in 2013 at Pakistan found astigmatism as the commonest associated refractive error 22 **(55%)**, 10 (25%) myopia and 8 (20%) hypermetropia.

Distribution According To Types Of Astigmatism In Vkc Patients:

Astigmatism was present in 19% of the patients. Amongst astigmatism group the maximum **(10%)** had mixed type of astigmatism that is hyperopic as well as myopic component co-existed, similar to a study conducted by **Niharika KS et al**[8].

Distribution According To Schirmer Test 1:

In accordance with DEWS the cut off value for Schirmer's test 1 was done and our study found that 4 eyes **(2%)** had values less than 10mm in 5 minutes (moderate dry eye) and 6 eyes **(3%)** have value less than 15mm (mild dry eye). Similar results were shown in study conducted by **Minhas S et al**[28] in 2019 at Tanda found 7 right eyes and 6 left eyes had values less than 10 mm in 5 minutes.

CONCLUSION:

Thus to conclude the prevalance of vernal keratoconjunctvitis among children in the tropical country like India (**Vindhya region MP)** was high which indicate that it is a serious health issue in our region. VKC patients experiences significant ocular morbidity, which affects the quality of life. Refractive errors are also becoming serious public health problem and are major cause of poor quality of life in children. So, each VKC patient should have proper refraction after diagnosis.

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