CLINICAL PICTURE OF VERNAL KERATOCONJUNCTIVITIS IN CENTRAL ODISHA

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ABSTRACT

BACKGROUND

In this new era of increased pollution and dusty atmosphere, there is high risk of eyes getting exposed to allergens and its manifestation in form of vernal keratoconjunctivitis. It is still one of the iceberg phenomenon diseases which needs early diagnosis and intervention. Hence this study was conducted with an objective to identify the clinico demographic profile of this condition in Central Odisha.

MATERIALS AND METHODS

A hospital based prospective study of 180 patients selected from Ophthalmology OPD, SCB MCH, Cuttack from April 2016 to March 2018 to study their epidemiology, clinical parameters (types, symptoms) and severity of this condition.

RESULTS

Vernal keratoconjunctivitis was found to affect more young males below 16 years (72%). Itching was the commonest presentation. Palpebral form was the predominant variety of all the three.

CONCLUSION

Vernal keratoconjunctivitis affects many school going children and in summer season with varied clinical symptoms and signs. So, this condition still needs thorough evaluation and meticulous approach for early diagnosis and reduced morbidity.

KEYWORDS

Allergy, Limbal, Palpebral, Vernal Keratoconjunctivitis.

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BACKGROUND

Vernal Keratoconjunctivitis (VKC) is a recurrent bilateral interstitial, inflammation of the conjunctiva, which affects mainly young males in 1st decade of life[1] and resolves spontaneously after several years. It is classified as limbal, mixed, or palpebral type based on the location and characterised by papillae ranging from 1mm to giant papillae (cobble stone appearance) on tarsal conjunctiva, Horner Trantas spots, a discrete or confluent gelatinous hypertrophy of the limbal conjunctiva and in resistant cases leading to superficial punctuate keratitis, epithelial erosions, shield ulcers or plaque. Horner-Trantas spots indicate lymphocytic infiltration of the limbal conjunctiva. Vernal keratoconjunctivitis is associated with intense itching, redness (bulbar conjunctiva hyperaemia), lacrimation, photophobia and a mucinous or ropy discharge containing eosinophils. Symptoms get exacerbated when there is exposure to wind, dust, bright light, hot weather or physical exertion associated with sweating. Asians show perilimbal conjunctival pigmentation and pseudogerontoxon. Conjunctival thickening, subepithelial fibrosis, mucus metaplasia, neovascularisation and scarring are typical of chronic condition. Epithelial changes, connective tissue deposition, oedema, inflammatory cell infiltration and glandular hypertrophy, all contribute in tissue remodelling of this disease. The eyelid margins are not involved in this condition unlike other allergic conjunctivitis. VKC is mainly a type-1 hypersensitivity reaction with additional immune mechanisms involved in the basket of its pathogenesis. VKC has a global distribution with widely varying incidence.[2] Though keratoconjunctivitis is better understood in recent years, still this condition is challenging because of its complications and often confused with other chronic allergic conjunctivitis like seasonal allergic conjunctivitis, perennial conjunctivitis, atopic keratoconjunctivitis, giant papillary conjunctivitis as chlamydial infection. Patients with long standing keratoconjunctivitis may develop limbal stem cell deficiency due to long standing inflammation. Keratoconus and irregular astigmatism can be challenging complications due to this condition due to frequent eye rubbing in atopic paediatric population. Steroid induced glaucoma can also be an outcome of frequent topical steroids administration. Herpetic and bacterial infection (staphylococcal) of cornea may occur because of impaired cell mediated immunity. Sensory deprivation amblyopia can also lead to long term

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visual loss. Factors that promote fibroblast proliferation include Th2 cytokines, growth factors such as TGF Beta, F, PDGF and also histamines. The present study aims to identify the clinicodemographic profile and incidence of Vernal keratoconjunctivitis in central Odisha from April 2016 to March 2018.

MATERIALS AND METHODS

All the patients of age group 5-20 years were selected from ophthalmology OPD, SCBMCH, RIO, Cuttack giving suggestive complaints. They were randomly chosen for study with fulfilment of diagnostic criteria (subjective and objective). Any of subjective and any objective criteria were taken into consideration. Symptoms (subjective and objective). Any one of subjective and any one of the objective criteria were taken into consideration. Symptoms (subjective) considered are itching, redness, watering, discharge. Signs (objective) considered are limbal signs (gelatinous opacification nodule, Horner Trantas spots), palpebral signs (cobble stone appearance, papillae), corneal signs (punctate epithelial keratitis, superficial pannus, shield ulcer): exclusion criteria were patients below 5 and above 20 years age, previous history of allergy or drug reaction, ocular trauma and eye surgeries, patients on steroids and immunosuppressive drugs. Those participants found associated with other systemic disorders were also excluded from our study. The present study consists of 80 clinically diagnosed Vernal keratoconjunctivitis patients. Each case was carefully interrogated, and detailed history was taken under following headings with an interval of 10-15 minutes between each to avoid biased results.

a) Personal details of patient
b) Detailed history of presentation and associated disorders
c) General and systemic examination
d) Local eye examination
e) Slit lamp examination and staining procedures

Materials required for this study was corneal loupe, Slit lamp biomicroscope, sterile fluorescein strips, glass slides. The method of evaluation was done with gradation of symptoms and signs as described below.[3]

(1) Itching in eyes
  (0) - No desire to scratch or rub eyelids
  (1) - Occasional desire to scratch
  (2) - Frequent desire
  (3) - Constant desire

(2) Tearing
  (0) - Normal tear production
  (1) - Sensation of tears but not spilling over lids
  (2) - Infrequent spilling of tears
  (3) - Nearly constant spilling of tears

(3) Discharge
  (0) - No discharge
  (1) - Ropy discharge in cul de sac
  (2) - Presence of crust on awakening
  (3) - Lids tightly matted with discharge

(4) Photophobia
  (0) - No difficulty
  (1) - Mild difficulty causing squinting
  (2) - Dark glass necessary
  (3) - Difficulty causing to stay indoor

(5) Conjunctival hyperaemia
  (0) - Normal quiet eye
  (1) - Mild slightly dilated blood vessels
  (2) - Moderate - more apparent dilated blood vessels; intense Red, involves vast majority of vessels
  (3) - Severe - Numerous dilated blood vessels, deep red, sometimes with chemosis.

(6) Limbal Nodule
  (0) - No evidence
  (1) - In one quadrant
  (2) - In two quadrants
  (3) - In three or more quadrant

(7) Papillary hypertrophy
  (0) - No Evidence
  (1) - Mild Papillary hyperaemia
  (2) - Hyperaemia with hazy view of tarsal vessels
  (3) - Papillary hypertrophy and non-visualization of tarsal vessels

(8) Punctate keratitis
  (0) - No Evidence
  (1) - In one quadrant
  (2) - In two quadrants
  (3) - In >3 quadrants

Total Patients from Apr-16 to Mar-18	No. of Patients with Vernal Keratoconjunctivitis	Percentage (%)
32336	180	0.557

Table 1. Incidence of Vernal Keratoconjunctivitis

Table 1 shows 180 patients were registered in the ophthalmology Dept. SCBMCH, Cuttack from Apr-16 to March-18. The low incidence in our hospital could be due to limited knowledge about this entity and low socioeconomic status.

Age (years)	Male (%)	Female (%)	Total (%)
5-9	18 (17%)	12 (17%)	30 (17%)
10-14	58 (55%)	40 (54%)	98 (54%)
15-19	30 (28%)	22 (29%)	52 (29%)
	106 (100%)	74 (100%)	180 (100%)

Table 2. Age and Sex Distribution of Patients

Males are found to be affected more than to female and were majority in between 10-14 yrs. of age.

No. of Patients	Limbal	Mixed	Palpebral
180	(54%) 96 54 male 42 female	(30%) 53 31 male 22 female	(16%) 31 21 male 10 female

Table 3. Distribution of Patients in Subtypes of VKC

The above table shows that Limbal subtype of vernal keratoconjunctivitis is more common followed by mixed and then Palpebral type, with male gender being more affected.

Symptoms and Signs	(Score) Males	(Score) Females
Redness or Itching	2.24	2.16
Watering	1.94	1.86
Discharge	1.52	1.47
Limbal Nodule	1.23	1.17
Photophobia	0.85	0.77
Papillary Hypertrophy	1.87	1.79
Keratitis	0.42	0.39

Table 4. Average Values of Symptoms and Signs of Vernal Keratoconjunctivitis

The above table (4) shows that itching is the commonest presentation followed by watering and keratitis or corneal shield ulcer scores at the bottom. Baseline scores of males are significantly more than Table 5.

Month	Male	Female
January	3	4
February	7	6
March	10	4
April	13	6
May	8	4
June	33	26
July	17	13
August	8	4
September	2	1
October	2	2
November	2	2
December	1	2

Table 5. Monthly Distribution of Patients with Vernal Keratoconjunctivitis

The above table shows that vernal keratoconjunctivitis is more common during June-July months with an abrupt decline thereafter in following winter months.

Ocular Disorders	Male (%)	Female (%)	Total
Refractive error	64 (30%)	41(23%)	105 (53%)
Eyelid disorder	23 (12%)	16(10%)	39 (23%)
Keratopathy	12 (7%)	6(4%)	18 (11%)
Episcleritis	3 (2%)	5(3%)	8 (0.5%)
Conjunctival Nevus	1(1%)	2(2%)	3 (0.3%)
Pterygium	3(2%)	4(3%)	7 (0.6%)

Table 6. Distribution of VKC Patients with Associated Ocular Disorders

The above table depicts that vernal keratoconjunctivitis patients are found to be more associated with refractive errors and eyelid disorders.

Occupation	Male	Female	Total
Students	41	34	75
Labourer	39	26	65
Unemployed	26	14	40

Table 7. Relationship between Occupation and VKC

Table-7 shows that vernal keratoconjunctivitis was found more common in school going children and daily labourers including farmers.

DISCUSSION

The lower incidence of vernal keratoconjunctivitis in our study was maybe due to ignorance of this chronic conditions and immediate symptomatic relief after getting treated by local quack workers. Also taboos and myths are associated with it. Vernal keratoconjunctivitis was found significantly more in males,[4,5,6] may be due to over exposure to allergens and higher literacy rate compared to females, in our area. Male predominance was also found in studies by Saboo US et al, Leonardi A, unlike Ukponmwan. Kawuma, M found vernal keratoconjunctivitis more in 6-10 yrs. but Saboo US et al found this condition more common in age more than 20 yrs. More of vernal keratoconjunctivitis patients in my study belonged to limbal variety which is also found similar to other studies done before in Europe and Middle East,[7,8] unlike the results got by Khan FA et al, Saboo US et al, Rajappa. Itching was found to be the most common symptom which coincide with previous study by Bisht R et al.[9] This disease was more presentable during summer season peaking at June-July months which was coinciding with other studies done before by Jivange VS et al, Malu KN in Nigeria.[10] Though this condition was found to be associated with more with refractive error, hardly any correlation could be established. Students are found more prone to this disease because it is a hypersensitivity reaction and found more in extra exposure persons which was also found in a study by Bonini et al.[11,12]

CONCLUSION

Vernal keratoconjunctivitis is a common form of allergic conjunctivitis which is more common in a tropical country like ours. It is a chronic and recurrent debilitating form of disease affecting mainly young and school going children. It is associated with refractive error and other allergic eye diseases. Palpebral type is the most common subtype of this condition. Although most types of allergic conjunctivitis do not affect vision, vernal keratoconjunctivitis is unusual in that damage to the cornea from the condition can result in visual loss. Unfortunately, severe and chronic cases of this disease still remain a challenging threat. So, continued research, further detailed evaluation and studies are still required to understand the complex nature of this condition, so as to treat it fully and with less morbidity.

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