

## Original Research Article

### **Magnitude of vernal kerato conjunctivitis among school children in Koulikoro**

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**Abstract:** The magnitude of vernal kerato conjunctivitis is unknown in Mali. The purpose of this study was to determine the prevalence and the clinical features of this disease among children. We carried out a cross-sectional study among children from 0 to 15 years old. Of a total of 322 patients examined 37.27% (n=120) had vernal kerato conjunctivitis. About the symptoms, itching was prevalent with 41.1% (n=116). Redness was the most frequent sign with 28.43%, followed by discharge, 25.54% (n=106) and limbite, 21.2% (n=88). The finding of 37.27% VKC cases indicates that the disease is frequent among children in Koulikoro and needs to be tackled early lest it will impair their sight.

**Keywords:** Magnitude, kerato conjunctivitis, school, children.

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#### **INTRODUCTION**

Vernal kerato conjunctivitis (VKC) is a bilateral recurrent form of allergic disease characterized by interstitial inflammation of the conjunctiva with secondary involvement of the cornea with periodic incidence of self-limited. It is more frequent in children and occurs commonly in the prepubertal age group. VKC typically occurs in males before the age of 10 in 80% of cases; it lasts 2–10 years, and it usually resolves during puberty. Males have an earlier presentation of symptoms than females and the male to female ratio decreases with age [1, 2]. VKC is more prevalent in hot and dry areas: Mediterranean basin, the Middle East, Africa and the Indian subcontinent [3]. It is relatively unusual in most of North America and Western Europe [4]. The main symptoms are itching; redness and foreign body sensation. Tearing (lacrimation or watering); photophobia; blepharospasm and pseudo-ptosis due to palpebral thickening are highly specific symptoms of VKC. These symptoms if not treated appropriately can persist for weeks [5]. The signs include papillary response of the conjunctiva, principally of the limbus or upper tarsus; thick, abundant and ropy mucus; Trantas dots and “cobblestone papillae”. Keratitis (which occurs in up to 50% of cases) and shield ulcers are sight-threatening complications [6]. VKC may cause significant complications and lead to loss of vision [7]. Very few studies dealt with VKC in Mali; the objective

of our study was to assess the frequency of this disease among children in Koulikoro.

#### **MATERIAL AND METHODS**

We conducted a prospective cross-sectional study from July 2007 to March 2009 in the health referral center of Koulikoro. The inclusion criteria were children aged 0-15 years with the informed consent of their parents. The simple random sampling was applied

The Sample size calculation was done using the formula:  $N = P.Q. (E\alpha/e)^2$ ,

P is the prevalence of VKC in a previous study = 90% [8],  $\alpha = 5\%$ ,  $e\alpha = 1, 96$ ,  $e = 5\%$ , thus the sample size is 138 patients. For data collection, an individual questionnaire was used. The data were analyzed using the software SPSS 10.0. About ethical issue, the written consent of school authorities and the verbal consent of parents were obtained.

#### **RESULTS**

Of a total of 322 patients examined 37.27% (n=120) had vernal kerato conjunctivitis. The age of the patients ranged from 1-15 years. The age group 0-4 years was more involved with 47.5% (n=57). Males were 67.5% (n=81) and females accounted for 32.5% (n=39) with a sex ratio M/F=2.07. About the symptoms, itching was predominant with 41.1% (n=116), tearing

accounted for 33.7% (=95), foreign body sensation accounted for 17.4% (n=49), and pain accounted for 7.8% (n=22).

**Table 1: Symptoms at the time of presentation**

Symptoms	N	%
Itching	116	41.13
Foreign body sensation	49	17.37
Tearing	95	33.68
Pain	22	7.8

**Table 2: Signs at the time of presentation**

Signs physiques	N	%
Redness	118	28.43
Limbite	88	21.2
Discharge	106	25.54
Tarsal papillae	50	12.04
Trantas dots	25	6.02

**Table 3: Subtypes of vernal kerato conjunctivitis**

Subtypes of vkc	N	%
Tarsal	210	65.22
Limbal	50	15.53
Mixed	62	19.25

**Table 4: Presence of allergic diseases**

Allergic disease	N	%
Rhinitis	17	50.0
Asthma	15	44.1
Sinusitis	2	5.9

## DISCUSSION

Vernal kerato conjunctivitis is quite frequent in our screened children. Of a total of 322 patients examined 37.27% (n=120) had vernal kerato conjunctivitis. The age group 0-4 years was more involved. Males were predominant with 67.5% (n=81). Our results corroborate those of many authors. In Nigeria, Ukponmwan, [9] identified VKC as the most common conjunctival disease in children seen in hospital. VKC is found with predilection in males children worldwide [10, 11, 12]. A study carried out in Rwanda about VKC in school children by Smedt *et al.*; noticed a prevalence of 4.0% [13]. A prevalence of 5.2% was found by Fekadu in a study conducted on VKC in primary school children in Ethiopia [14]. This prevalence's are far below ours. Our study was carried out in a dusty and polluted area; these conditions may explain the higher prevalence of VKC in the screened children.

Three types of VKC are recognized: limbal type (fine papillae with circumferential gelatinous limbal infiltration and Horner-Trantas dots); the palpebral type (giant papillae of >1 mm in diameter on

the superior tarsal conjunctiva) and a mixed type [15]. The limbal type was prevalent in our patients, they accounted for 67.5% (n=81). This finding contradicts the results of Malu in Nigeria [16] who found in his study the prevalence of limbal form, 46.5%. Our results agree with those of many others: Majekudomi in Niger in Nigeria, Chenge *et al.*; in Congo who noticed the predominance of tarsal form of VKC [17, 18].

In our study, the most frequent symptom was itching with 41.1% (n=116) whereas redness was the most frequent sign with 28.43 (n=118). Our results are comparable to those of Pokharel *et al.*; [1], in their study, the commonest symptom among VKC cases was itching (100%) followed by redness of eyes and discharge (76.5% each) and the commonest sign was tarsal papillae (100%).

According to Tissa *et al.*; [19] the cause of vernal kerato conjunctivitis is not known, but it is often associated with asthma or eczema and is probably due to a longstanding allergic reaction. The condition usually starts between the ages of three and 25 years.

Among our 322 patients, 34 (10.56%) had an allergic disease; 17 had rhinitis, 15 had asthma and 2 had sinusitis. Environmental pollution may play a role in the increasing of allergic diseases.

Marcos Geraldini in Brazil [20] in a study about ocular allergy and co-morbidities in adolescents showed that rhinitis was the most frequent co-morbidity (64.6%). Asthma occurred in 31.4%. Worldwide, approximately one-third of the population is affected by some form of allergic disease and ocular allergic symptoms are estimated to be present in 40%–80% of the affected individuals [21, 22]. Allergic diseases have dramatically increased in the last decades [23]. Ocular allergy represents one of the most common ocular conditions encountered in clinical practice. A single cause of this increase cannot be pinpointed and experts are therefore considering the contribution of numerous factors, including genetics, air pollution in urban areas, pets, and early childhood exposure [24].

## CONCLUSION

Vernal kerato conjunctivitis is quite frequent in our screened children. Males are more involved than females. The tarsal type is prevalent; co-morbidity with some allergic diseases was found. Early diagnosis and treatment is needed to avoid complications

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