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Epidemiological, Clinical and Therapeutic Aspects of Tropical Endemic Limboconjunctivitis (LCET) at the Secondary Ophthalmology Center of Ouélessébougou

Malle Sekou[1*], Keita Dramane[2], Sidibe Moro[3], Coulibaly Moussa[1], Goita Daouda[4], Dembele Adama[3], Konate Kadiatou Berthe[4], Diabate Kassoum[5], Sissoko Yaya[6], Diallo Oumar[4], Nomoko Cheick[3], Dougnon Amassagou[7], Napo Abdoulaye[7], Diassana Moussa[8]

[1]Ouélessebougou Reference Health Center, Koulikoro, Mali
[2]YANFOLIA Reference Health Center, Yanfolila, Mali
[3]Sikasso Regional Hospital, Mali / Alliance for the Development of Community Ophthalmology (ADOC), Bamako, Mali
[4]Alliance for the Development of Community Ophthalmology (ADOC), Bamako, Mali
[5]Dioila Reference Health Center, Dioila, Mali
[6]National Institute for Training in Health Sciences (INFSS), Bamako, Mali
[7]African Institute of Tropical Ophthalmology
[8]Sikasso Regional Hospital

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***Corresponding author:** Malle Sekou
Ouélessebougou Reference Health Center, Koulikoro, Mali

Abstract **Original Research Article**

Introduction **:** Tropical endemic limboconjunctivitis (LCET), an autonomous pathological entity distinct from vernal keratoconjunctivitis; bilateral inflammation of the conjunctiva. The objective was tostudy the epidemiological, clinical and therapeutic aspects. ***Patients and Methods*** **:** This was a retrospective, descriptive study, which took place over a period of 12 months (January 1 to December 31, 2023) at the Secondary Ophthalmology Center of Ouélessébougou. ***Results*** **:** The frequency was 5.55%. The age group 1-5 years was the most represented with 33.0%. The average patient age was 10.12 years with a minimum of 2 years and a maximum of 30 years.Normal visual acuity was the most represented with 93%. Pruritus was the most common functional sign with 99%. Limbitis represented the majority of clinical signs with 97.0%. More than half (58%) of the cases were at stage I of the disease. Rhinitis was the main atopy observed with 21% of cases. Superficial punctate keratitis was the most common complication with 2%. Mast cell antidegranulant drugs were used in 85.0% of our patients, followed by antibiotics and corticosteroids. ***Conclusion*** **:** Tropical endemic limboconjunctivitis is a chronic childhood pathology, with periods of remission and worsening.

Keywords : Epidemiological, LCET, Ouelessebougou.

INTRODUCTION

Tropical endemic limboconjunctivitis (TELC), an autonomous pathological entity distinct from vernal keratoconjunctivitis; is a bilateral inflammation of the conjunctiva characterized by its location at the limbus, its chronicity, its frequency, the alteration of vision that it can cause and its high rate of recurrence [1]. It is a very common condition in children aged 0 to 15 years [2]. It is more common in hot, sunny, and dusty regions such as Mali. Its pathogenesis is poorly defined, but the involvement of several triggering factors is reported in the literature [3, 4]. In Africa, reported LCET frequencies range from 2.8% to 90% [2]. In the Sahelian and dry tropical zone where nearly 54 million people live, it can be estimated that there are nearly one million cases of tropical endemic limboconjunctivitis, of which 100,000 are severely disabled, i.e. 10%. It is therefore a real public health problem, especially since only a minority of these patients receive treatment [5]. In East Africa, more than 560 children were diagnosed with LCET in a tertiary care pediatric ophthalmology clinic [6]. In Mali, in a secondary ophthalmology center, Diarra *et al*., reported a frequency of 32.76%[7]. Guindo *et al*., in 2020 at the African Tropical Ophthalmology Institute, in Bamako, observed a frequency of 43.51% [8]. Its diagnosis is easily made with clinical arguments and curative management remains long and difficult, sometimes requiring perfect adherence from the patient and/or his family with a risk of drug dependence. The aim of this work is to study the epidemiological and

clinical characteristics and to share our therapeutic management of LCET at the Ouelessebougou reference health center.

PATIENTS AND METHODS

This was a retrospective, descriptive study, which took place over a period of 12 months (January 1 to December 31, 2023). All patients who consulted for brown coloration at the limbus with pruritus and/or tearing were included in our study, regardless of their age and sex. The diagnostic criteria were symptomatic (chronic, bilateral conjunctivitis, pruritus, photophobia and tearing), clinical (presence of giant papilla on the conjunctiva and infiltration and brown limbal coloration), evolutionary (chronic, with episodes of exacerbated flare-ups), therapeutic (partial or total improvement with antihistamines or corticosteroids) and the geographical area of residence (presence in tropical or subtropical areas, often in rural areas). Incomplete files and patients with other functional signs other than those mentioned were not included. Data collection was carried out on individual survey forms from medical records. Data entry and analysis were carried out using SPSS 20 software.

RESULTS

From January 1, 2023 to June 30, 2023, 1,800 consultations were carried out, of which 100 cases were diagnosed with LCET, representing a frequency of 5.55%. The 1-5 age group was the most represented with 33.0% (Table I). The average patient age was 10.12 years with a minimum of 2 years and a maximum of 30 years. The majority of our patients came from rural areas with 69%. Students represented the majority of our sample with 44% (Figure 1). Normal visual acuity was the most represented with 93% (Table II).Pruritus was the most common functional sign with 99% (Table III). Limbitis represented the majority of clinical signs with 97.0% (Table IV). More than half or 58% of the cases were at stage I of the disease (Table V). Rhinitis was the main atopy observed with 21% of cases (Table VI). Superficial punctate keratitis was the most common complication with 2% (Table VII). Mast cell antidegranulants were used in 85.0% of our patients, followed by antibiotics and corticosteroids (Table VIII).

Annexes:

Table I: Distribution of the sample according to age.

Age	Frequency	Percentage
1 to 5 years	33	33.0
6 to 10 years old	27	27.0
11 to 15 years old	19	19.0
16 to 20 years old	8	8.0
> 20 years	13	13.0
Total	100	100.0

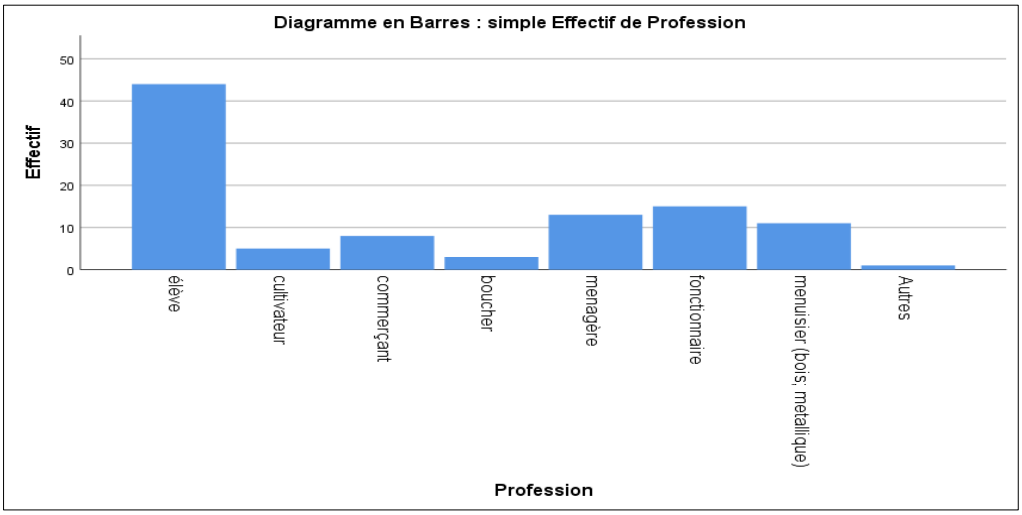

Figure 1: Distribution of the sample by profession

Table II: Distribution of the sample according to thevisual acuity.

Visual acuity	Frequency	Percentage
Normal (3/10 to 10/10)	93	93.0
Moderate blindness (1/10 to <3/10)	3	3.0
Severe blindness (<1/10)	4	4.0
Total	100	100

Table III: Distribution of the sample according to functional signs.

Functional sign	Effective	Percentage (%)
Itching	99	99%
Watering eyes	96	96%
Feeling like a grain of sand	49	49%
Photophobia	43	43%
Pain	8	8%

Table IV: Distribution of the sample according to clinical signs of the disease.

Clinical signs	Effective	Percentage (%)
limbite	97	97.0
Hyperemia	69	69.0
Taste buds	44	44.0
Grain of Trantas	24	24.0
Follicules	5	5.0

Table V: Distribution of the sample according to stage.

Evolutionary stage	Frequency	Percentage
Stage I	58	58.0
Stage II	19	19.0
Stage III	18	18.0
Stage IV	5	5.0
Total	100	100.0

Table VI: Distribution of the sample according to the types of atopy.

Atopy	Frequency	Percentage
Rhinitis	21	21.0
Asthma	9	9.0
Sinusitis	8	8.0
Not available	62	62.0
Total	100	100.0

Table VII: Distribution of the sample according to complications

Complications	Frequency	Percentage
Corneal invasion	1	1.0
Superficial punctate keratitis	2	2.0
Pannus	1	1.0
Fibrovascular veil	1	1.0
None	96	96.0
Total	100	100.0

Table VIII: Distribution according to treatment:

Types of Treatments	Frequency	Percentage
Mast cell anti degranulants	85	85.0
Antibiotics	70	70.0
Corticosteroids	66	66.0
Anticholinergics	55	55.0
Tear substitutes	37	37.0
Antiparasitics	22	22.0

DISCUSSION

1. Frequency

From January 1, 2023 to June 30, 2023, 1,800 consultations were carried out, including 100 cases diagnosed with LCET, representing a frequency of 5.55%. Our frequency was higher or close to certain African data ranging from 2.9% to 6.04%, particularly in Cameroon, Chad, Djibouti, Mali and Senegal [2-24]. On the other hand, it was lower than those reported in Guinea Conakry by Sonassa Diané *et al*., in September 2022 with a frequency of 26.16% and by Laminou *et al.*, in March 2024 in Niger with 11.76% [25, 26].

This difference would be linked not only to the climatic variation between these different countries but also to the methodology adopted by different authors.

2. Socio-Demographic Data

The average age of patients was 10,12 years with a minimum of 2 years and a maximum of 30 years. In Cameroon, Koki G *et al*., [27], in 2011 reported an average age of 6.5 years. However, in 2023, in Yaoundé, Cameroon, Nomo *et al*., reported an average age of 15 years. Furthermore, in Nomo's study, patients were seen after a follow-up of at least two years out of 10 years [28], and Koki's those over 15 were excluded.

The 1-5 age group was the most represented with 33.0%. We note a regression in the frequency of the pathology with age. This makes LCET a childhood pathology, with periods of remission and worsening. In the majority of cases, it disappears at the age of puberty but can persist in a small proportion after puberty. This is reported in the literature by Hall [6]. In our study, the male sex was the most represented with 62%; which was close to the study of Nomo *et al*., [28], which reported 66.7%. In Africa, Cameroonian and South African authors report a male predominance [29- 31]. The fact that they spend more time playing outside than little girls would be the cause of this male predominance.

On the other hand, Laminou *et al*., in Niger, found that LCET reached subjects of both sexes without statistically significant difference (p=0.421) [26]. In our study, schoolchildren represented the majority of our sample with 44%.

3. Clinical Data

In our study, visual acuity was normal in 93% of cases. This result is similar to that of Torossian M *et al*., [32], who found more than 95% of patients with visual acuity greater than 3/10. Nomo *et al*., also did not find any deterioration in visual function [28]. This explains why the visual prognosis of patients is not very quickly affected at the beginning.

Despite this preservation of visual function at the onset of the disease, some rare cases of complications have been described by some authors, leading to deterioration of function. In the DRC, Chenge *et al*., [33], reported a case of blindness in a 15-year-old patient with keratoconus. DOHVOMA *et al*., [34], had reported a case of blindness of severe and persistent form of LCET in a 42-year-old adult. Other rare complications of LCET due to corneal involvement such as corneal ulcer and invasive pannus or side effects of corticosteroids such as cataract or glaucoma have been reported in the literature [6].

More than half of our patients, or 60% had a disease duration of less than 5 years. This explains why the complaints begin during early childhood and progress with age to generally disappear at puberty. On the other hand, we can occasionally encounter older children affected, which was confirmed in this study with 11% of those over 15 years old. In Senegal, a rate of 37% of LCET in children after 15 years old has been reported [35].

In our study, pruritus was the most common functional sign with 99%. This result is similar to that of Laminou *et al*., who reported pruritus in all patients in their series. This was observed by the majority of authors, thus confirming the predominance of pruritus as a major functional sign with a frequency of 70 to 100% of cases depending on the studies [7-37]. Besides this major complaint, we observed other complaints such as tearing, sensations of grains of sand, photophobia and pain.

In our study, conjunctival hyperemia represented the majority of clinical signs with 97%; this is close to Laminou's result [26], who found that conjunctival hyperemia was present in 82.32% of cases.

According to Diallo's classification [2], LCET is classified by increasing severity into four stages. In our study, more than half or 58% of the cases were at stage I followed by stage II with 19% of the cases of the disease. This result is comparable to that of Koki *et al*., [5], who found stage I with 55.25% of the cases followed by stage II with 19.15% of the cases. On the other hand, this result is different from that of Nomo *et al*., [28], which mainly found stage II with 58.3% of cases followed by stage III with 41.7% of cases.

Rhinitis was the main atopy observed with 21% of cases in our series. This finding is different from that of Laminou *et al*., [26], where sinusitis was the most represented atopy with 24.55%. In Cameroon, Eballe *et al*., [29], observed a predominance of rhinitis and asthma with 50% and 41.1% of cases respectively. Resnikoff [5], observed LCET in 19% of asthmatics.

Some rare complications can be observed during LCET. Corneal lesions are the main complications observed in this disease. In our study, we observed superficial punctate keratitis as the most frequent complication with2%. In the literature, corneal involvement is different. In Mali, Diarra *et al*., reported 13.21% of corneal complications. Tabbara *et al*., [38], in Riyadh, Saudi Arabia, between 1995 and 1997, found 5.2% keratoconus and 12.1% corneal scarring.

4. Therapeutic Data

Treatment of LCET depends on the clinical stage and symptoms. Generally, the patient should be relieved, especially during periods of exacerbation of symptoms, and complications should be avoided or treated. In our series, mast cell anti-degranulant drugs were the most commonly used, accounting for 85.0% of our patients, followed by antibiotics and corticosteroids. Diarra *et al*., [7], reported a majority use of anti-allergy drugs, followed by antibiotics and corticosteroids.

CONCLUSION

Tropical endemic limboconjunctivitis is a chronic childhood disease, with periods of remission and worsening. Despite the preservation of visual function at the onset of the disease, some rare cases of complications may occur in the absence of adequate management.

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