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Sweaty Miliary During the Heat Period in A Sub-Saharan Country (Mali)

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Abstract **Original Research Article**

Considered to be commonplace in our countries, sweaty miliary can be responsible for pruritus with significant socio-professional repercussions. No data are available on this condition in our environment. The aim of this study is to describe sweaty miliary during hot weather in the dermatology hospital of Bamako. This is a descriptive cross-sectional study over a period of 6 months (1 February to 31 July 2019), carried out at the dermatology hospital in Bamako, the study involved all patients received for sweaty miliary without distinction of age, sex or origin and who gave their informed consent. Socio-demographic, clinical and therapeutic variables were collected on a survey form, entered and analysed with Epi Info 7.2.2.6. A total of 93 patients (18 males and 75 females) out of 13,000 patients or a frequency of 0.7%. Median age of patients was 11.31 years. The dominant clinical type was crystalline miliaria (sudamina) in 79.56%. Dermocorticoids and zinc oxide were the most used in the treatment and flattening of the abscess in 8 complicated cases.

Keywords: Sweaty miliary, Heat, Sub-Saharan, Mali.

INTRODUCTION

Considered to be commonplace in our countries, sudoral miliaria can be responsible for pruritus with significant socio-professional repercussions (sleep disorders for the patient and/or parents, difficulties at school and in relationships). In France, 10% of children suffer from sudoral miliaria [1], in Japan crystalline miliaria (sudamina) represents 4.5% [2] and in Mali sudamina represents 4.9% of the causes of pruritus [3]. Profuse sweating is the cause of frequent dermatoses, such as highly pruritic sudoral miliaria [4]. Its management, which seems easy, consisting in avoiding further sweating, a few hours in a cool environment bringing relief, is made difficult by the lack of knowledge and the poverty of the population (difficulty in obtaining air conditioning and cost of electricity).

In Africa and more particularly in sub-Saharan Africa, where the consequences of global warming are increasingly felt due to a low capacity for adaptation, studies on this pathology are rare, whereas a better knowledge of the disease could improve its management. The objective of this study is to describe the oozing miliaria during heat periods in the dermatological hospital of Bamako (HDB).

PATIENTS AND METHODS

We conducted a descriptive cross-sectional study at the dermatology hospital in Bamako over a period of 6 months (from 1 February to 31 July 2019), a period when the temperature under shelter can range from 35 to 40°C. We included all patients presenting with sweaty miliary regardless of age, sex and origin at the time of first consultations.

The Sweaty miliary was described as crystalline miliary (sudamina) by the presence of small

vesicles 1 to 2 mm in diameter, "dewdrop-shaped" on healthy skin, and red miliary (bourbouille) and deep miliary by the presence of larger (1 to 4 mm in diameter) papules (or pustules) arranged on an erythematous base.

The diagnosis was essentially clinical, as no biopsy was performed (to determine the location of the obstruction in the sweat ducts). Other examinations depending on the context (Blood cell count, thick blood drop for malaria, blood culture, coproculture, viral serologies) were requested in some patients to explore the terrain.

For data collection, we used a survey form containing socio-demographic variables (age, sex, profession, medical insurance, lifestyle), clinical variables (reasons for consultation, duration of evolution, history of febrile pathology, elementary lesions, site of lesions, body surface affected (Wallace's nine rule), complications), therapeutic variables (medical and surgical advice). Data were entered and analysed with Epi Info 7.2.2.6.

Informed consent was obtained from the patients.

RESULTS

Epidemiological aspects

During the study period, we recorded 93 patients with sweaty miliary out of a total of 13,000 consulted patients, i.e. a frequency of 0.7%. The age groups affected were under 2 years (newborn and infant) 41.94%, 2 to under 18 years (children and adolescents) 30.11%, 18 to under 35 years (young people) 24.73%, 35 to under 60 years (adults) 0% and over or equal to 60 years (elderly) 3.23% (Table 1). The sexes were divided into 18 (19%) men and 75 (81%) women with a sex ratio of 0.23. The median age was 11.31 years with extremes of 1 and 70 years (Table I). 97.84% of our patients came from Bamako and 60% of our patients had medical insurance. The number of patients consulting per month from February to July was respectively 2 (2.15%), 8 (8.60%), 17 (18.05%), 23 (24.73%), 37 (39.78%), 6 (6.40%) (Figure 1).

Table 1: Distribution of patients by age group

Age groups	Numbers	Percentage
0 – 2 years	39	41,94
3 – 18 years	28	30,11
19 - 34 years	23	24,73
35 - 60 years	0	0,00
> 60 years	3	3,23
Total	93	100,00

Median age: 11, 31ans Extremes: 1-70 ans

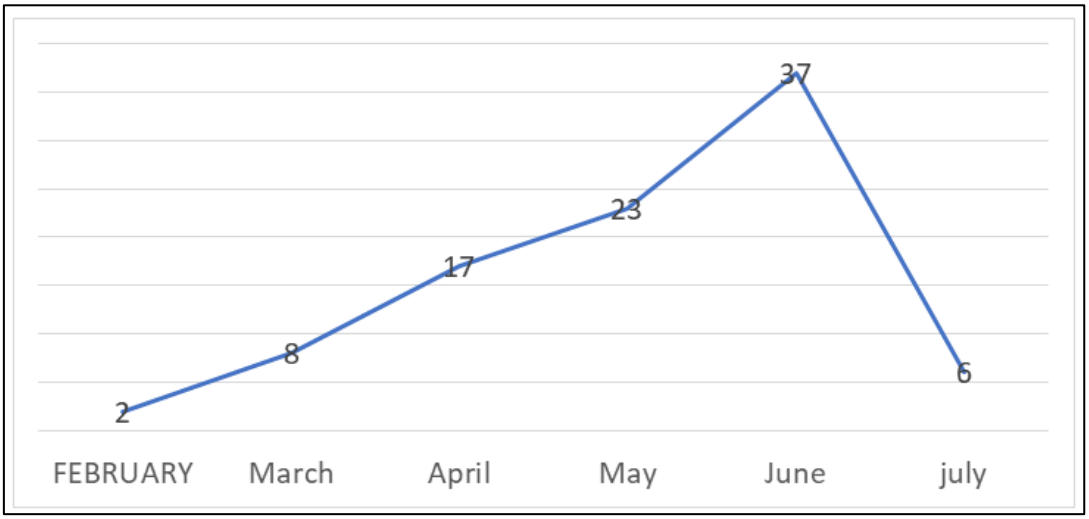


Figure 1: Distribution of patients by month of consultation

Clinical Aspects

The reasons for consultation were pruritus in 95.70% and rash in 96.77%. The consultation time was 2 weeks in 46.24%. A history of febrile illness (malaria) was noted in 3 (3.23%) patients. As regards clothing, 47 (50.53%) patients wore cotton, 69 (74.19%) wore nylon, 3 (3.22%) wore synthetic, and 8 (8.60%) wore indeterminate. The thickness of these garments was light in 5 (5.37%) and heavy in 88 (94.62%) patients (Figure 3).

In search of means of heat control, 7 (7.53%) patients washed only once a day, 50 (53.76%) patients twice a day, 21 (22.58%) three times a day, 15 (16.13%) more than three times a day. About 80% of our patients bathed with cool water, 5.37% with warm water, 20.43% with lukewarm water. In the same trend, 72 (77.41%) patients slept on ventilators, 14 (15.04%) patients on air conditioners and 10 (10.75%) patients in the open air (Figure 4).

The elementary lesions were represented by erythema in 12 (12.90%) patients, vesicles in 74 (79.56%) patients, papules in 50 (53.76%) patients and pustules in 38 (40.86%) patients (Table 2). Lesions were located on the head and neck in 85 (91.39%) patients, trunk in 82 (88.17%) patients and limbs in 71 (76.34%) patients. The affected skin area was less than 10% in 9 (9.67%) cases, between 10 and 30% in 17 (18.27%) cases and more than 30% in 67 (72.04%) cases (Figures 5).

Crystalline miliaria (sudamina) was found in 74 (79.56%) patients and red miliaria (bourbouille) and deep miliaria in 19 (20.43%) patients (Figure 6). Complications included follicular infections (folliculitis and abscesses) in 35 (37.63%) patients, eczematization in 15 (16.12%) patients, irritation in 10 (10.75) patients and others such as tropical anhidrotic asthenia, malignant hyperthermia were not found (Table 3).

Figures 2: Sudamina (A, B: Back of two patients and C: on the arm and trunk of a child, D: Sudamina complicated by folliculitis in the back, E: Sudamina complicated by follicles on the face)

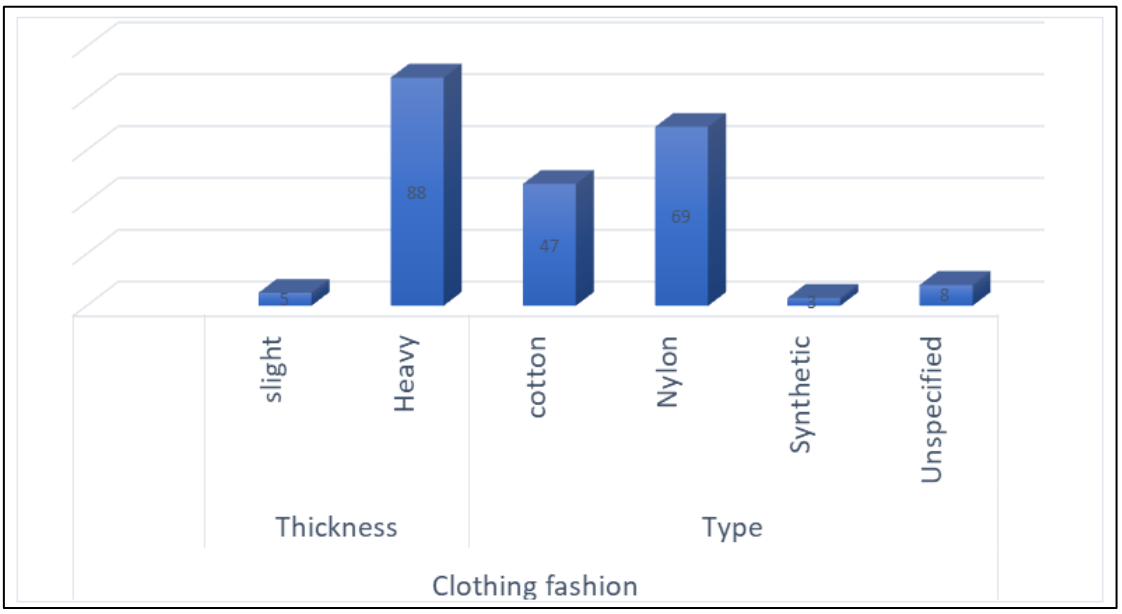


Figure 3: Distribution of patients by mode of dres

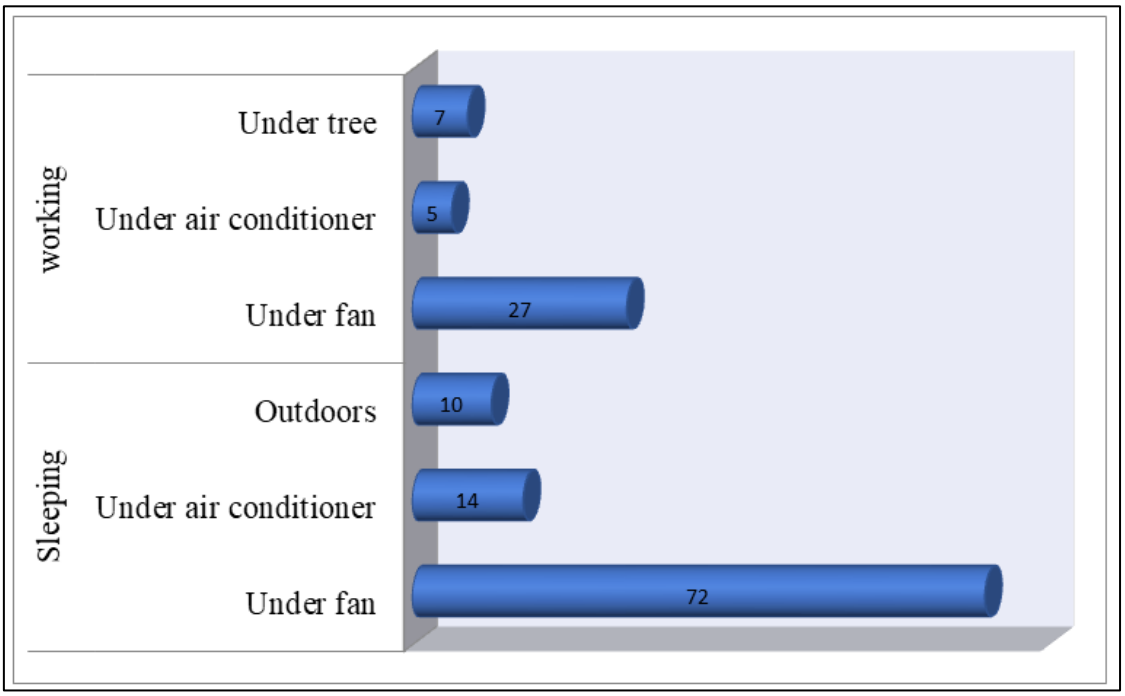


Figure 4: Distribution of patients according to whether they work or sleep under a heat control device

Table 2: Distribution of patients according to elementary dermatological lesions Observed

Elementary dermatological lesions	Numbers	Percentage
Desquamation	31	33.33
Papules	50	53.76
Pustules	38	40.86
Erosions	10	10.75
Vesicles	74	79.56
Erythema	12	12.9
Xerosis	5	5.37
Scabs	1	1.07

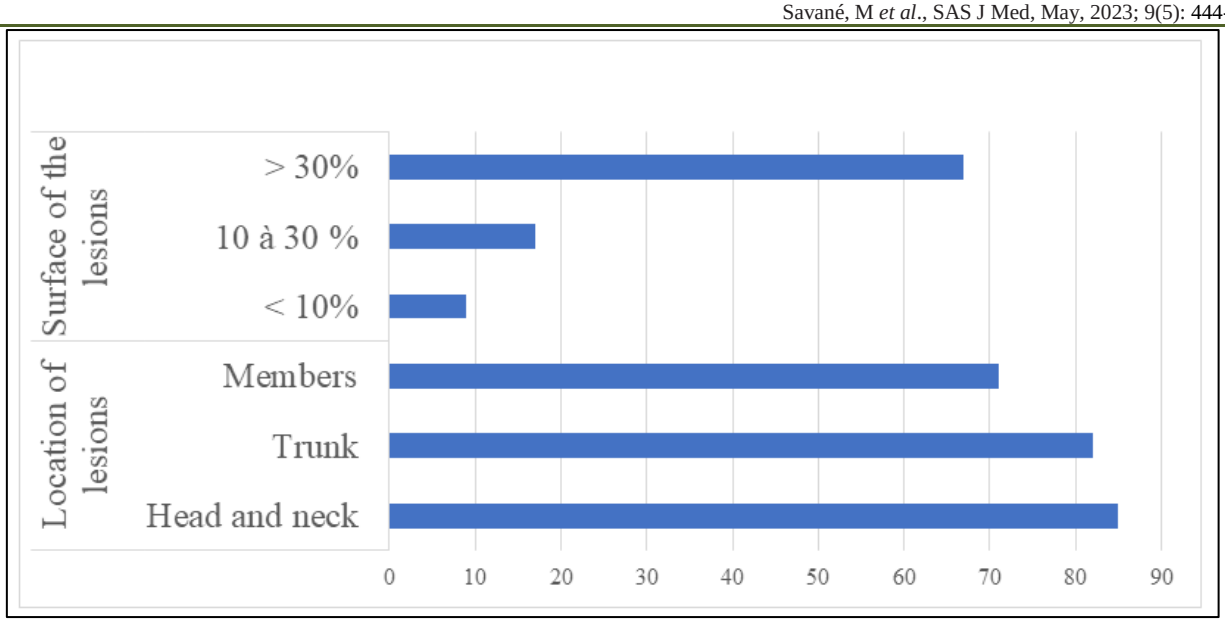
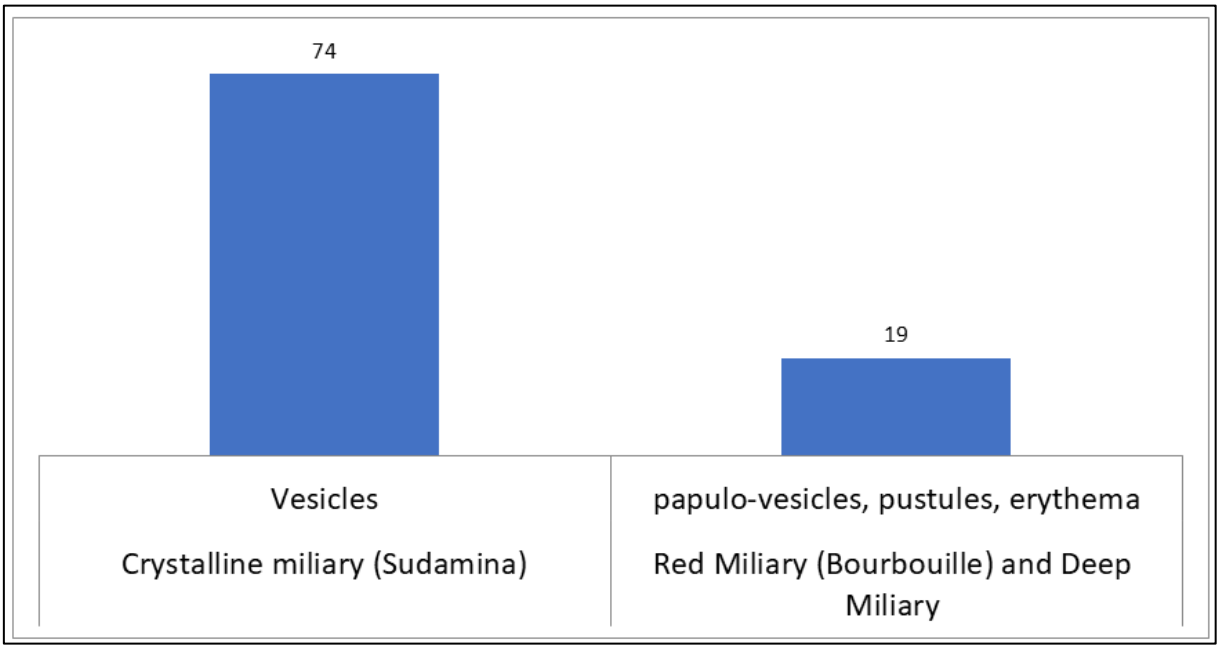


Figure 5: Distribution of patients by location and extent of lesions



Figures 6: Distribution of patients according to clinical types of sweaty military

Table 3: Complications of sweaty miliary encountered in our patients

Complications	Numbers	Percentage
Malignant hyperthermia	0	0
Tropical anhidrotic asthenia	0	0
Irritation	10	9.30
Eczématization	15	13.95
Folliculitis and abscesses	35	32.55
Impétiginization	5	4.65

Therapeutic aspects

Our patients were treated medically with zinc oxide in 83 (89.24%) patients, dermocorticoids in 80 (86.02%) patients, sedative antihistamines in 54 (58.06%) patients and surgically (flattening the abscess) in 8 (8.60%) patients (Figure 7).

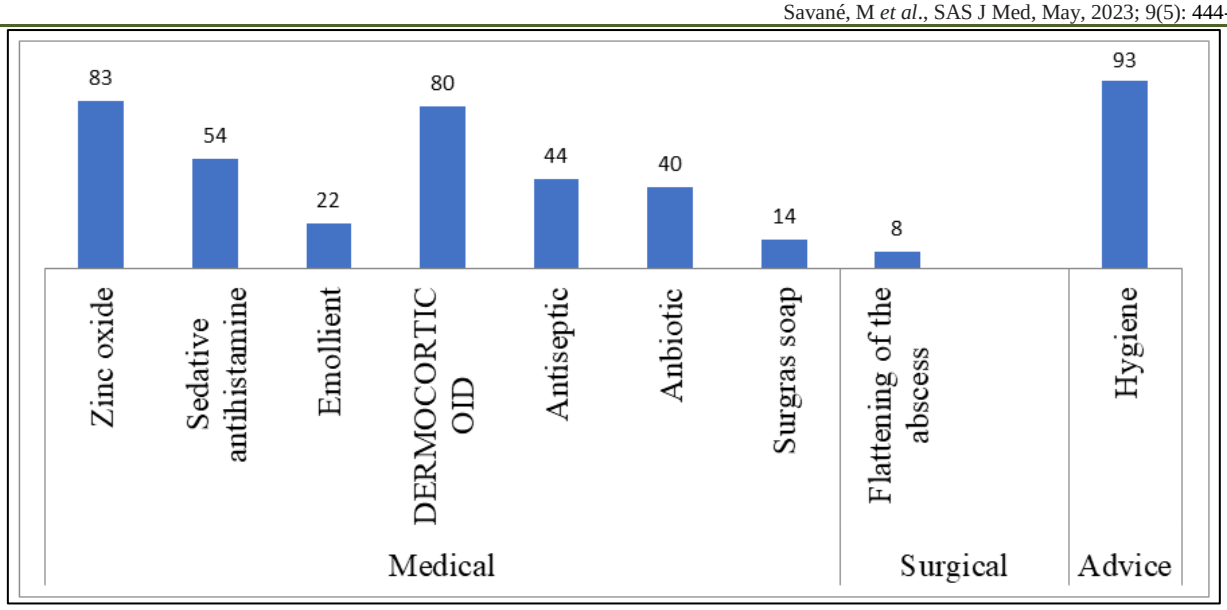


Figure 7: Distribution of patients by treatment modality

DISCUSSION

The aim of this study, the first of its kind in Mali, is to describe the epidemiological and therapeutic aspects of sweaty miliary in order to contribute to the study of this condition, which is considered to be commonplace in our country. Sweaty miliary is a benign cutaneous manifestation related to sweat retention secondary to obstruction of the sweat ducts [5], generally witnessing excessive exposure to heat, ambient humidity or hyperthermia that spares the mucous membranes [6].

Mali is in the tropical zone where, especially between March and May, temperatures commonly rise to 35 or even 40°C under shelter, raising fears of hyperthermia and dehydration [4].

The diagnosis of sweaty miliary was based on clinical examination, we did not perform a biopsy to distinguish the different types of sweaty miliary according to the site of obstruction of the sweat ducts and some cases required a biological work-up to look for an aetiology of the fever present on examination. In this study, the frequency of sweaty miliary was 0.7%, whereas in France it affects 10% of children [1], in Japan crystalline miliary (sudamina) represents 4.5% [2] and in Mali sudamina 4.9% of the causes of pruritus in consultation [3]. These differences in frequency would be explained by the fact that the majority of our patients were only from Bamako (97.85%) and had medical insurance (60.22%), so those outside Bamako who did not have medical insurance would appear to take this condition as commonplace. We found no studies on sweaty miliary in sub-Saharan Africa. The most affected age group was under 2 years (41.94%), which was also highlighted by Haas et al. and could be explained by the immaturity of the sweat ducts at this age [7], with a female predominance (81%) which could be due to the fact that, unlike men, they pay particular attention to themselves at the first sign of skin problems. It has been suggested that rupture of the ducts is the immediate cause of miliaria [8], as the hydration of corneocytes varies with the degree of humidity and temperature of the environment. The majority of patients consulted between May and June respectively (24.73% and 39.78%), which could be explained by the high heat observed during these months. In the search for ways to combat the heat, certain practices were noted, in particular cold drinks in 77 (82.79%) patients with more than 3 litres per day in 17 (18.27%) patients, sleeping in the open air at night.

Only malaria was the febrile pathology considered as the cause of the fever that caused sweaty miliary in 3 of our patients under anti-malarial treatment with positive thick drop results, this fact would be due to the fact that malaria remains the most frequent endemic in this tropical zone. The dominant clinical form was sudamina (crystalline miliaria) in 79.56% of cases, the most superficial (retention of sweat in the stratum corneum) characterised by small vesicles 1 to 2 mm in diameter without inflammatory halo. If opened with a needle, a clear, watery fluid is discharged [7], making it fun for most patients or their relatives to crush these vesicles with their fingernails, a source of impétinization. The other forms bourbouille (prickly hea) and Profound miliaria (retention in the dermis) difficult to distinguish clinically have a polymorphic rash (large vesicle up to 4mm, papule, pustule) on an erythematous base [9].

The main complications were follicular infections (folliculitis and abscesses), eczematization and irritation, due to self-treatment with irritating and inappropriate products (such as shea butter, Chinese warming ointments and other products of unknown composition in our markets). Although the only effective treatment and prevention of sweaty miliaria is

to avoid further sweating, a few hours in a cool environment will bring relief [7], in our study dermocorticoids and zinc oxide were the most used and surgical treatment which consisted in flattening the abscess in eight (8) patients.

CONCLUSION

Sudoral miliaria although common is considered commonplace in our tropics. We have not found any study on sudoral miliaria in sub-Saharan Africa. The very young are the most affected because of the fragility of their skin on the one hand and on the other hand their heavy and often nylon clothes. We must also add the application of heavy topicals that do not allow good ventilation of the skin. All these elements are responsible for the discomfort of the skin. A better knowledge of sweaty miliaria will help to better manage this condition.

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No conflicts of interest

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