

Dermatological manifestations during HIV infection in children in Dakar, Senegal

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ABSTRACT

Background: Dermatological manifestations are frequent and often constitute a circumstance of HIV discovery in 70% of cases [1]. They are observed in 83% of patients with AIDS and at an early stage in 75% [2,3,4,5]. The objective of this study was to describe the epidemiological, clinical, therapeutic, and evolutionary aspects of skin manifestations during HIV infection in children. **Materials and Methods:** We conducted a cross-sectional, multicentric, descriptive study over a period of ten years in two dermatology departments and one pediatric department in Dakar, Senegal. We included all HIV-seropositive children aged 0–15 years with mucosal cutaneous manifestations. A dermatologist and a specialist in the medical care of HIV performed the diagnosis of cutaneous manifestations. Data entry and analysis were performed with the SPSS software, version 9.05. **Results:** We collected 206 cases of cutaneous manifestations in 454 children followed for HIV infection. The hospital frequency was 45.3%. The children were male in 115 cases (55.83%) and female in 91 cases (44.17%), giving a sex ratio of 1.26. The mean age of the patients was sixty months, with extremes of one month to fourteen years. A mycotic dermatosis origin was noted in 47.37%, ringworm in 22.37%, dermatophytosis in 8.58%, oral candidiasis in 6.58%, seborrheic dermatitis in 6.58%, and perleche in 3.29%. Bacterial skin diseases were represented by furunculosis in 1.97%, and impetigo in 7.24%. Viral dermatoses included molluscum contagiosum in 10.53%, shingles in 9.21%, warts in 9.87%, and chickenpox in 3.95%. As for parasitic dermatoses, scabies was noted in 8.55, followed by larva migrans in 0.66% and cutaneous leishmaniasis in 0.66%. Immuno-allergic dermatoses accounted for 25% and included prurigo in 94.3%, atopic dermatitis in 1.90%, and fixed pigmented erythema in 1.90%. **Conclusion:** Cutaneous manifestations are a common discovery during HIV infection in children. They are marked by a predominance of infectious dermatoses in sub-Saharan Africa.

Key words: skin diseases; HIV; children; Dakar

INTRODUCTION

Human immunodeficiency virus (HIV) infection in children is a public health issue in several resource-limited countries in sub-Saharan Africa. Indeed, according to the World Health Organization and UNAIDS, in the 2.1 million children who died of AIDS in 2016, 88% lived in sub-Saharan Africa [1]. Dermatological manifestations are frequent and often constitute a circumstance of HIV discovery in 70% of cases. They are observed in 83% of patients with AIDS and in 75% at an early stage [2-5]. They tend to occur early in childhood during HIV

infection. The early diagnosis of HIV infection not only improves medical care, yet also helps to improve the prognosis in children. The objective of the following study was to describe the epidemiological, clinical, therapeutic, and evolutionary aspects of skin manifestations during HIV infection in children.

MATERIALS AND METHODS

We conducted a cross-sectional, multicentric, descriptive study over a period of ten years in two dermatology

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departments and one pediatric department in Dakar, Senegal. We included all HIV-seropositive children aged 0–15 years with mucosal cutaneous manifestations. A dermatologist and a specialist in the medical care of HIV performed the diagnosis of cutaneous manifestations. Serological tests confirming the status of HIV were performed either by ELISA serology confirmed by the western blot or by plasma PCR-RNA in children under fifteen months of age. Data entry and analysis were performed with the SPSS software, version 9.05.

RESULTS

We collected 206 cases of cutaneous manifestations in 454 children followed for HIV infection. The hospital frequency was 45.3%. The children were male in 115 cases (55.83%) and female in 91 cases (44.17%), giving a sex ratio of 1.26. The mean age of the patients was sixty months, with extremes of one month to fourteen years. The age group between 13 and 60 months was the most representative (42.23%) (Fig. 1). Regarding family environment, the children lived with married parents in a couple in ninety cases (43.69%), were fatherless in fifty-one cases (24.76%), were motherless in thirty-four cases (15.04%), and were orphaned by both parents in four cases (1.94%). They had divorced parents in twenty-seven cases (13.10%). The circumstances of the discovery of HIV infection (Table 1) were with the waning of suggestive symptoms in 141 cases (68.45%), during the screening of seropositive parents in 55 cases (24.35%), and during the screening of pregnant women in ten cases (4.85%). Mother-to-child transmission was noted in 163 cases (97.95%) and through breastfeeding in 41 cases (19.9%). Prurigo (23.56%), ringworm of the scalp (15.11%), and molluscum contagiosum (7.11%) were the main circumstances of the skin discovery of HIV infection. Figure 2 shows the main skin manifestations in childhood HIV.

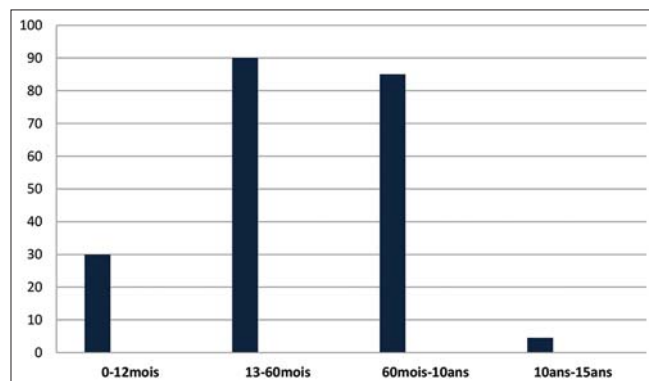


Figure 1: Distribution of the children depending to the age group.

A mycotic dermatosis origin was noted in 47.37%, ringworm in 22.37%, dermatophytosis in 8.58%, oral candidiasis in 6.58%, seborrheic dermatitis in 6.58%, and perleche in 3.29%. Bacterial skin diseases were represented by furunculosis in 1.97%, and impetigo in 7.24%. Viral dermatoses included molluscum contagiosum in 10.53%, shingles (Fig. 3a) in 9.21%, warts in 9.87%, and chickenpox in 3.95%. As for parasitic dermatoses, scabies was noted in 8.55% followed by larva migrans in 0.66% and cutaneous leishmaniasis (Fig. 3b) in 0.66%. Immuno-allergic dermatoses accounted for 25% and included prurigo in 94.3%, atopic dermatitis in 1.90%, and fixed pigmented erythema in 1.90%. Virologically, the children were positive for HIV-1 in 200 cases (97.09%) and HIV-2 in 6 cases (2.91%). A CD4 count assay was performed in 108 cases (52.4%). Table 2 illustrates the distribution of patients according to the CD4 count. From a therapeutic standpoint, all children had received antiretroviral treatment and specific

Table 1: Circumstance of the discovery of the child's HIV

	CLINICAL SIGNS	NUMBER (%)
General signs	Fever	10 (2.02)
	Chronic adenopathy	70 (14.1)
	Weight loss	14 (2.8)
	Failure to thrive	6 (1.21)
	Malnutrition	108 (21.8)
Digestive	chronic diarrhea	10 (2.02)
	Splenomegaly	5 (1.01)
	Hepatomegaly	5 (1.01)
Pulmonary	Interstitial lung disease	5 (1.01)
	Pulmonary tuberculosis	6 (1.2)
	Pneumonia	13 (2.6)
	Bronchial dilatation	3 (0.6)
	Pneumocystosis	2 (0.4)
Skin diseases	Cutaneous infections	226 (45.6)
Orthonaso-pharyngological	Recurrent otitis	8 (1.6)
	Parotidomegaly	3 (0.6)

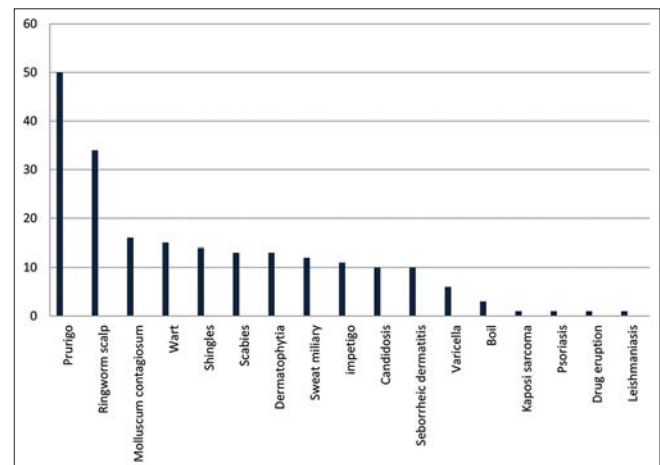


Figure 2: Distribution of the dermatoses during HIV infection in children.

medical care for the associated dermatosis. The course of the dermatosis was favorable in 70% of the cases. However, a recurrence of the dermatosis was noted in 8.89%, 11% were lost to follow-up, and the mortality rate was 11%.

DISCUSSION

Our study was particular by the high frequency of cutaneous manifestations in children infected with HIV at 40.5%. The high prevalence of skin diseases during HIV was also reported by several series in sub-Saharan Africa, Ethiopia, and Tanzania (Table 3) [6-11]. The average age of the children was sixty months, with their age ranging from 13 months to 120 months in 74.27%. The 0–5 year age group was more represented in our study as well as in the one reported in Africa [12-15]. This was related to a high prevalence of mother-to-child transmission of

HIV infection [4,5]. A lack of regular HIV monitoring among pregnant women as well as denial and stigma were the contributing factors.

Clinically, the predominant mucosal cutaneous manifestations were the circumstance of discovery in 46% and were in the following decreasing order: prurigo, profuse dermatophytosis, profuse molluscum contagiosum, flat facial warts, multi-metameric shingles, profuse chickenpox, profuse generalized scabies, recurrent pyoderma, ulcerative crusty cutaneous leishmaniasis, and Kaposi’s disease.

Infectious dermatoses were the most observed in 67.5%. These results were consistent with previous works reported from tropical Africa [7-9]. Among infectious dermatoses, superficial mycosis represented the majority (47.37%). They were specific in the diffuse nature of the lesions as well as the severe mucosal cutaneous involvement indicative of immunosuppression in children. Viral dermatoses were represented by molluscum contagiosum in 7.11%. This prevalence was also similar to that observed in Guinea (7.69%) [9]. In fact, molluscum contagiosum is observed in 5% to 18% of children infected with HIV, more particularly in patients whose CD4 count is below 200 cells/mm³ [16]. Molluscum contagiosum is frequent in children; however, in seropositive patients, the localization may be diffuse, atypical on the neck and on the face in particular [16,17].

Shingles was noted in 6.22%. It is a common occurrence in HIV. In Africa, its prevalence in HIV is estimated at 7.69% in Guinea [9], 0.7% in Tanzania [11], and 2.3% in Mali [10].

Bacterial dermatosis consisted mainly of pyoderma, with a predominance of impetigo and folliculitis. They were characterized by a diffuse and necrotic appearance.



Figure 3: (a) Ophthalmic shingles in childhood HIV. (b) Cutaneous leishmaniasis in childhood HIV.

Table 2: Distribution of patients according to the CD4 count

Etiology of Dermatitis	CD4<200	200 < CD4 < 400	400 < CD4 < 499	CD4>500
Immunoallergic	15	10	10	10
Fungal	19	10	8	8
Viral	10	-	8	7
Bacterial	-	6	10	8
Parasitic	1	-	1	2
Other	2	5	11	10

Table 3: Our study compared to other African studies

	Our study	Mali [10]	Guinée[9]	Tanzanie[11]
Hospital frequency %	40.5	30.5	50	80.5
Sex-ratio	1.26	1.51	0.91	1.07
Circumstance of discovery	Prurigo	Prurigo	Candidiasis 38.46%	Prurigo
	23.56%	25.1%	Prurigo	45.5%
	Ringworm scalp	Ringworm scalp	29.23%	Wart
	15.11%	14%	Molluscum contagiosum 7.69%	20%
	Molluscum contagiosum	Sweat miliary		Ringworm scalp
	7.11%	12.8%		16%
Antiretroviral therapy	43.69%	50%	100%	91.2%
Favorable outcome	70%	92.3%	75.38%	-
Mortality	11.11%	0	16.92%	-

Parasitic dermatoses were mainly represented by scabies (5.78%). In children with HIV infection, the lesions appeared diffuse, with the involvement of the face-characterized scabies and scalp. We noted two cases of Kaposi's disease, which is rarely reported in childhood HIV. It was Kaposi with the diffuse involvement of the tegument.

CONCLUSION

Cutaneous manifestations are a common discovery of HIV infection in children. They are marked by a predominance of infectious dermatoses in sub-Saharan Africa. Diagnosis, early treatment, and strengthening the prevention of mother-to-child transmission of HIV infection improve the prognosis of HIV-infected children.

Statement of Human and Animal Rights

All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the 2008 revision of the Declaration of Helsinki of 1975.

Statement of Informed Consent

Informed consent for participation in this study was obtained from all patients.

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