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Cutaneous signs and symptoms of treatment failure in a patient previously controlled on HAART.

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ABSTRACT

Background: Being the largest organ of the body, the skin often plays a vital role in not only aiding in the diagnosis of HIV/AIDS, but also as an indicator of possible treatment failure, poor treatment compliance and as a sensitive indicator of clinical regression in patients already on treatment. This case study seeks to point out cutaneous signs that may indicate severe immune suppression secondary to HIV/AIDS.

Keywords : *Human immunodeficiency virus (HIV), cutaneous infections, tinea capitis, tinea corporis, highly active antiretroviral therapy (HAART). Acquired Immuno-deficiency syndrome (AIDS). Cluster of Differentiation 4 (CD4) cell count.*

INTRODUCTION

Between 2010 and 2019, South Africa's total HIV-infected population increased from 5.9 to 7.64 million. In the same period, the overall HIV incidence rate fell by 55%. New infections still occur: 201 000 in 2018/2019. However, the percentage of 'ever-tested' South Africans has risen, from 47.3% in 2010 to 76.3% currently. [1]

As of 2021, a total of 20.7 million, or 54%, of the globe's 38 million people living with Human immunodeficiency virus (HIV) live in Eastern and Southern Africa. Most (87%; range: 15% – 98%) are aware of their diagnosis, 83% (37% – 98%) are on ART, and 90% (68% – 97%) of these have suppressed viral loads. [1,2]

The emergence of resistance to antiretroviral drugs is an inevitable consequence of expanding access to antiretroviral therapy (ART) and longer durations of exposure. [2]

CASE PRESENTATION

A 56-year-old African male presented at dermatology outpatient department, at Universitas Academic hospital in Bloemfontein, Free State province. He presented with a history of being on HAART first line treatment, namely the triple therapy Tenofovir disoproxil fumarate, Emtricitabine and Efavirenz (TDF/FTC and EFV) in the standard single tablet fixed dose combination.

At the time of his visit, he had been on treatment for the past seven years, and it had been more than a year since his last blood results at which his viral load then was more than 10 000 copies/ml and had a CD4 of 203. He had previously pulmonary tuberculosis that was successfully treated a few years back.

His main complaint at the time of his visit was an itchy rash on his face, truck and asymptomatic skin lesions on the side of his tongue.

On examination, he presented with normal weight, apyrexia to touch with barely palpable, non-tender lymphadenopathy from his groin, axillae, and occipital lymph nodes.

On skin examination, he presented with slightly erythematous, course papules that were prominent on his cheeks and forehead, although there was a diffuse facial involvement (see **Fig A1**).

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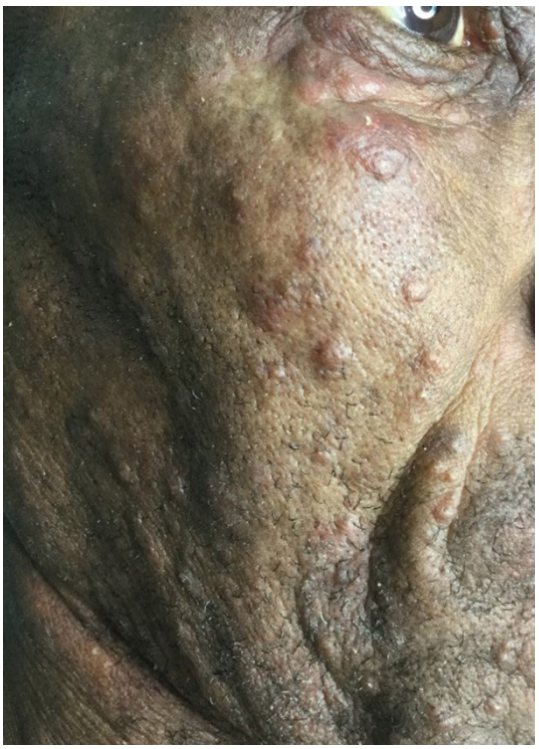
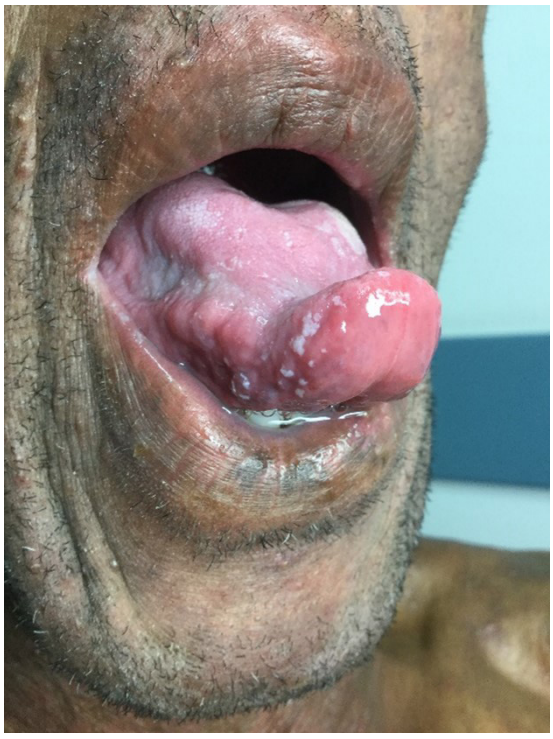
Figure 1: Acneiform eruptions of Eosinophilic folliculitis highly associated with HIV/AIDS.



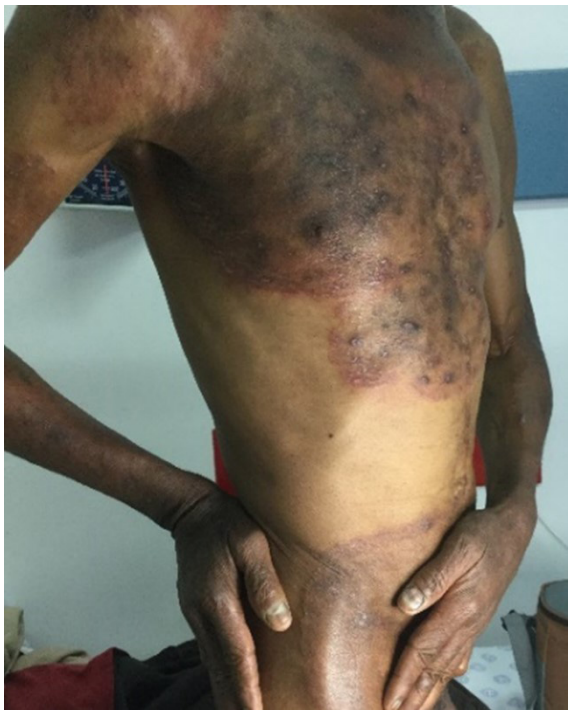
The lateral aspect of the tip of his tongue had painless, corrugated white papules that coalesced bilaterally (Fig A2).

Figure 2: Oral hairy leukoplakia



He also presented with sharply demarcated large plaques covering the entire chest area, with marked erythema and excoriations that resolve in hyperpigmentation and scarring. Plaques extend to the groin area, were monomorphic with marked dystrophy of most of his fingers (Fig A3).

Figure 3: Tinea corporis, tinea cruris and tinea unguium.



DISCUSSION

Skin manifestations occur in more than 90% of patients with human immunodeficiency virus (HIV) infection.[3]

A wide range of skin conditions can assist in raising red flags for the clinician to suspect an underlying HIV/AIDS diagnosis. These can range from infective, neoplastic and atypical presentations, often severe, recurrent and at times recalcitrant to conventional treatment. [4]

When broadly classified, HIV/AIDS manifestations through the skin, hair and nails can be classified into two categories, namely the clinical stages and the disease profile grouping system. When the later is used, it can further be divided as depicted on the table below which shows a summarized grouping of common skin conditions seen in an HIV setting.

Cutaneous involvement in HIV can often have an atypical presentation, marked with incidences of recurrence and severe skin manifestations.

The severity of skin involvement does not always correlate with the degree of immune suppression. There was no statistically significant association between incidence of skin diseases and the level of CD4 cell counts, for example, a retrospective studies found that the majority of patients with

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PPE had CD4 cell counts <200 cells/mm3. In contrast, patients with herpes zoster had relatively high CD4 cell counts. These findings were similar to those reported by Goldstein et al (1997).[7,8]

However, conditions such as Kaposi sarcoma, prurigo nodularis, severe bacterial infections such as ecthyma and systemic fungal infection have a direct correlation with a very low CD4 cell count, i.e <100 cells/mm3.[9]

As a direct result of immune-dysregulation and polypharmacy, patients on HAART tend to experience a higher rate of cutaneous drug reactions. It is common for patients on HAART to also be on Isoniazid prophylaxis, trimethoprim-sulfamethoxazole (TMP/SMX) prophylaxis and on additional treatment for a wide variety of opportunistic and associated diseases such as anti-tuberculosis treatment. [10]

Table 1: Modified classification of disease profile grouping system in HIV/AIDS.[6,7]

HIV/AIDS related cutaneous infections and infestations.	**Skin conditions associated with HIV/AIDS**	**HIV associated drug reactions**	**Skin conditions that can worsen in a HIV/AIDS clinical background.**
Viral Human papillomavirus (Heck's disease, verruca group) Human herpes virus (Zoster, varicella, Kaposi sarcoma) Molluscum contagiosum Oral hairy leukoplakia	Porphyria cutanea tarda	Toxic epidermal necrolysis	Seborrheic dermatitis
Bacterial Ecthyma Bacillary angiomatosis Folliculitis5 Other	Eosinophilic folliculitis	Steven Johnsons' syndrome	Psoriasis (plaque, pustular, erythrodermic)
Fungal Dermatophytes (tinea group) Mucocutaneous candidiasis Deep/systemic fungal infections	Papular pruritic eruptions (PPE)	Drug hypersensitivity reaction	
Infestations Scabies (Norwegian)	Acute HIV seroconversion	Melanonychia	
	Papular necrotic tuberculid	Lichenoid drug eruption	
	HIV-associated photo-dermatitis		
	Kaposi sarcoma		
	Prurigo nodularis		
	Xerosis		
	Eczematous dermatosis		
	Cutaneous vasculopathy		
	Alopecia		

MANAGEMENT

Early clinical signs and symptoms of human immunodeficiency virus infection are protean and can reflect the effects of the virus or represent early manifestations of an illness associated with the acquired immunodeficiency syndrome. [11, 12]

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Anti-retroviral therapy (ART) has revolutionized the treatment and prognosis of people living with HIV (PLHIV). The life expectancy has changed drastically in the era of combined anti-retroviral therapy (ART). The success of the South African ART programme is evident in the increases in the national life expectancy, rising from 61.2 years in 2010 to 67.7 years in 2015. [13, 14]

CONCLUSION

Our patient was started on systemic antifungal treatment in a form of fluconazole for four weeks, second generation antihistamines for the associated itch, and 1% hydrocortisone for his face for the same duration. He was changed to second line treatment following clinical evidence of first line treatment failure coupled with counselling on treatment adherence. His clinical picture improved over time and his latest routine blood count was pending at the time of the article write up.

The ongoing challenge in combatting the scourge of HIV/AIDS lies in continuous promotion and expansion of local prevention research (and implementation). Sustained accessibility to HIV-related education, testing, treatment availability and monitoring.

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The study was also conducted in accordance with the Declaration 105 of Helsinki.

Conflict of interest declared : No

Abbreviations

HIV : Human immunodeficiency virus
AIDS : Acquired Immuno-deficiency syndrome
HAART : Highly active antiretroviral therapy
CD4 Cell Count : Cluster of Differentiation 4
TDF : Tenofovir disoproxil fumarate
TFC : Emtricitabine
EFV : Efavirenz
PPE : Papular pruritic eruptions
TMP/SMX : Trimethoprim-sulfamethoxazole
PLHIV : People living with HIV

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