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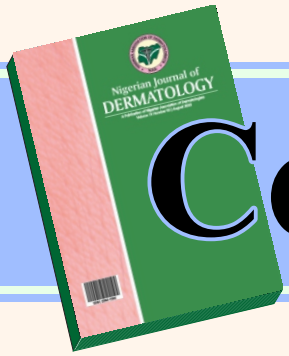

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INFORMATION TO CONTRIBUTORS AND READERS

Nigerian Journal of Dermatologists, NJD, is a forum for communication of research results and policy issues in the health sciences especially as related to dermatology and allied sciences, Plastic Surgery, Venereology, Pathology, Anatomy, Physiology and Biochemistry.

The journal is dedicated to serving primarily scientists in Africa and other developing countries outside the continent who seek a medium for publishing their research findings. Since science is global, articles would be welcome from every geographical location across the world.

There are pressing and specific problems related to Africa and to people of coloured skin. Ainhum, acne keloidalis are examples of two of a long list of cutaneous diseases peculiar to the sub region and waiting for research by the basic sciences; gratifying modalities of treatment are equally awaited.

The editorial board will therefore give priority to the development and promotion of such cutaneous health issues.

Frequency of publication: Quarterly.

Content format: Each issue will contain essentially the following sections, with variants where necessary:

i. A short editorial statement on policy issues not more than two thousand words, placed not necessarily on the first page.
ii. A short review (not more than five thousand words) titled "Perspective" on a current topical issue in Dermatology.
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vi. News about, and on, African health and related matters.

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iii. Name and address of the corresponding author and his/her phone/fax numbers (home & office).
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vi. Introduction.
vii. Materials and methods.
viii. Results.
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xi. Acknowledgments — placed immediately after the next, and before the references
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B. Citation of Books

Ole Fijerskov, Firoze Manji and Vibeke Baellum, eds. Dental fluorosis Handbook for health workers. Copenhagen: Munksgaard, 1988 p.

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Same as (B) above.

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in the body of text should be in chronological order and identified by roman numerals in brackets: e.g. Specific point mutations in ..... naturally resistant laboratory isolates of P. Falciparum [4, 5]

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Figure legends and tables should be professionally done. Tables/charts should be in black and white - 100 mm (minimum) and 175 mm (maximum). Coloured pictures may be submitted. Such pictures should be very clear and in size 5 x 7 inches. Where digital pictures are submitted, they should be in jpeg or bitmap format and not less than 300dpi resolution. Unclear and blurred pictures will be rejected. The publisher also reserves the right to convert coloured plates to grayscale where necessary.

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G. Submission of paper to the Journal

Anyone who submits a paper for publication must provide the following:

i. A letter of submission electronically.
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vi. A letter of acceptance will be sent once the above stages have been complied with.

GUEST EDITORIAL COMMENT:

Harmful Skin Care Practices in Nigeria

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Editor's Comments

Skincare is a range of regular practices that help support skin integrity, enhance its appearance and relieve skin discomfort. The desperate search for effective beauty products may result in the inclusion of harmful ones.

Egyptians were the first to cultivate beauty extravagantly, using cosmetics as part of their personal beautification habits and religious ceremonies. As early as 3000 BC, Egyptians used minerals, insects, and berries to create makeup for their eyes, lips, and skin. They stained their hair and nails a rich, warm red with henna. They infused essential oils from plants' leaves, bark, and blossoms for use as perfumes and purification purposes. Queen Nefertiti (circa 1400 BC) stained her nails red by dipping her fingertips in henna, wearing lavish makeup designs, and using custom-blended essential oils. Castor oil, Sesame oil and Moringa oil were used to stop wrinkles and prevent the skin from ageing. Soap pastes were made from Clay and Olive Oil and used to cleanse the skin. Dead Sea salt was used to exfoliate (1). Every item probably had potential side effects.

The Yoruba people of Southwestern Nigeria have had a rich tradition of using oils, soaps, fragrances, and beads to enhance their beauty. The African black soap (Ose Dudu), Dudu Osun, shear butter (Ori), palm kernel oil, coconut oil, Tiros (eyeliners), Efun and tattoos are part of the ingredients (2). The tattoos are for tribal marks and beauty scarifications on the skin and can lead to complications, including hypertrophic scars and keloids. Applying "tiro" to the eyelashes can cause physical irritation or allergy to the ground substances and the transmission of infection by the applicator from one person to another. With potential allogenic properties, henna is much less used than in the far north amongst the Hausa, Fulani, and Nupe. It imparts a reddish-brown colour to the skin and nail plates but can result in redness, itching, burning, swelling, blisters, and skin scarring. Henna is unsafe when taken by mouth. Applying henna to the skin of infants and children with G6PD deficiency can cause their red blood cells to burst. Henna might decrease how well the body gets rid of lithium (3).

Ancient skin care practices in Northern Nigeria included the Hamman steam bath that used argan oil, clay mask and other natural ingredients (4). Potential side effects of a Hammam bath include dizziness, fainting, increased heart rate, low blood pressure, particularly for individuals with pre-existing heart conditions, high blood pressure, respiratory issues, or pregnant women; discomfort or irritation from the scrubbing process if done too vigorously; and potential skin reactions to soaps or oils used during the treatment if allergies are present (4).

Among the Hausa-Fulani women of Zaria, Nigeria, women are subjected to the "wakan-jego", hot scalding bathe when they return home after childbirth. Their thighs, buttocks and breasts are the most susceptible areas where these hot-water scald burns are the worst (5). Women in Borno state of Nigeria traditionally have their traditional beauty procedures, including Halawa and

Dilke, a body scrub made with potatoes, cloves, turmeric, and oils, and Durkhaan, a smoke bath made from sandalwood to tighten skin. Halawa is a hair-removal wax made from melted sugar, honey, and lime, and Dilke is a body scrub made from potatoes, cloves, turmeric, and oils. Some of these practices can be harmful because they can be contaminated with bacteria and spores.

Harmful skin care practices in rural Nigeria include improper use of baby products. In Ekiti, Nigeria, babies were treated with a wide range of substances, including engine oil and menthol-based balms. In some cases, babies are treated with multiple substances on different parts of their body (6)

Various researchers in Nigeria revealed a consistently high prevalence of skin bleaching practices. Denials and ignorance plague proper documentation. The ease of accessibility stems from the availability and affordability of the creams in the marketplace (7). The extended application of anti-ageing products may cause heightened sensitivity in the skin, elevate the likelihood of developing skin cancer, and contribute to a range of additional health complications over time. Implementing a massive health education campaign about the dangers of using these products and enforcing government legislation would be necessary (7).

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The pH of Common Soaps and Cleansers in Nigeria and Implications for Skin Health and Inflammatory Dermatoses

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ABSTRACT

Background: The pH of skin cleansers is important to skin health, particularly for those with sensitive or dry skin or inflammatory dermatoses. Soaps, which are alkaline, can cause skin dryness and barrier disruption, while syndets, typically acidic or neutral, are less irritating. The pH of common soaps and cleansers used in Nigeria is undocumented.

Objectives: This study assessed the pH and costs of various skin cleansers commonly used by Dermatology patients in Lagos and Ibadan, Nigeria.

Methods: Sixty commercial skin cleansers were selected and purchased for pH analysis based on their popularity among patients attending dermatology clinics in Lagos and Ibadan. A 10% emulsion of each product was created using distilled water. The pH of each sample was recorded at room temperature (25°C) using pH test strips and a calibrated digital water pH meter. The manufacturing country and market cost of each cleanser were also documented.

Results: Of the 60 cleansers - 49 bars and 11 liquid cleansers, 45 (75%) had an alkaline pH of between 9.0 and 11.1, while 15 (25%) had an acidic pH of between 5.1 and 6.8. Thirty-five cleansers (58.3%) were manufactured locally and were all alkaline soaps, while 25 (41.7%) were imported, and the majority (15; 60%) were acidic or pH-balanced syndets. The average cost of imported cleansers was 7 times higher than that of Nigerian-made soaps.

Conclusion: The predominance of alkaline skin cleansers among Nigerian dermatology patients may have negative implications for skin health, especially for those with inflammatory skin conditions or sensitive skin. There is a need to advocate for using pH-balanced cleansers and their local production to improve affordability.

Keywords: pH, Soaps, Cleansers, Skin health, Inflammatory Dermatoses, Nigeria

Le pH des Savons et Nettoyants Courants au Nigéria et leur Implication dans la santé de la Peau et des Dermatoses Inflammatoires

Contexte: Le pH des nettoyants cutanés est important pour la santé de la peau, en particulier pour les personnes ayant une peau sensible ou sèche ou des dermatoses inflammatoires. Les savons, qui sont alcalins, peuvent entraîner une sécheresse cutanée et une altération de la barrière cutanée, tandis que les syndets, généralement acides ou neutres, sont moins irritants. Le pH des savons et nettoyants courants utilisés au Nigéria n'est pas documenté.

Objectifs: Cette étude a évalué le pH et les coûts de divers nettoyants pour la peau couramment utilisés par les patients en dermatologie à Lagos et Ibadan, au Nigéria.

Méthodes: Soixante nettoyants commerciaux pour la peau ont été sélectionnés et achetés pour une analyse du pH en fonction de leur popularité auprès des patients fréquentant les cliniques de dermatologie à Lagos et

Ibadan. Une émulsion à 10 % de chaque produit a été créée à l'aide d'eau distillée. Le pH de chaque échantillon a été enregistré à température ambiante (25 °C) à l'aide de bandelettes de test de pH et d'un pH-mètre d'eau numérique calibré. Le pays de fabrication et le coût du marché de chaque nettoyant ont également été documentés.

Résultats: Sur les 60 nettoyants – 49 barres et 11 nettoyants liquides, 45 (75 %) avaient un pH alcalin compris entre 9,0 et 11,1, tandis que 15 (25 %) avaient un pH acide compris entre 5,1 et 6,8. Trente-cinq nettoyants (58,3 %) ont été fabriqués localement et étaient tous des savons alcalins, tandis que 25 (41,7 %) ont été importés et la majorité (15 ; 60 %) étaient des syndets acides ou à pH équilibré. Le coût moyen des nettoyants importés était 7 fois plus élevé que celui des savons fabriqués au Nigéria.

Conclusion: La prédominance des nettoyants alcalins au Nigéria peut avoir des implications négatives pour la santé de la peau, particulièrement pour les patients souffrant de dermatoses inflammatoires ou sensibles. Il est nécessaire de plaider en faveur de l'utilisation de nettoyants ayant un pH équilibré et de leur production locale pour en améliorer l'accessibilité.

Mots clés: pH, Savons, Nettoyants, la santé de la peau, Dermatoses Inflammatoires, Nigéria

INTRODUCTION

A **skin cleanser** is designed to clean the skin by removing dirt, oil, sweat, certain microorganisms, and other impurities by breaking them down on the skin's surface and allowing them to be rinsed away with water.[1-3] Skin cleansers come in various forms, including gels, creams, lotions, foams, micellar water, and bar soap.[1-3] While soap is a skin cleanser, not all skin cleansers are chemically soap and vary in chemical composition and action.[1,3] Soap, produced through the saponification of natural fats or oils with an alkali, typically has a high (alkaline) pH.[2,3] Soap molecules have a hydrophilic and hydrophobic component, allowing them to dissolve and remove dirt, grease, and oils when mixed with water through emulsification.[1-3] This characteristic makes it effective for personal hygiene, household, and industrial cleaning, for which it has been widely used for centuries.[2-4] However, its alkaline nature makes it drying and irritating, especially for people with sensitive skin or conditions like atopic dermatitis, seborrhoeic dermatitis, acne vulgaris, rosacea or psoriasis.[3-5] Recently, there has been increasing attention to the negative effect of soap on specific inflammatory dermatoses, mainly due to its impact on the skin's moisturization, transepidermal water loss and pH.[4,5]

The skin's outermost layer, the stratum corneum, is a barrier against pathogens, pollutants, UV radiation, and dehydration.[3,5,6] This function is supported by the natural oils, ceramides, and natural moisturizing factors produced by the skin.[3] Additionally, a hydrolipid film, an acidic mixture of sweat and sebum on the skin surface, commonly known as the acid mantle, plays a significant role in maintaining skin barrier function.[5,6] Due to the acid mantle, the normal pH of normal stratum corneum (SC) is acidic and ranges between 4.5 and 6.0.[5,6] The acidic environment helps maintain barrier integrity, promotes the growth of normal microflora, and prevents the overgrowth of pathogenic microorganisms.[5,6] It also regulates the pH-dependent enzymatic processes of stratum corneum formation and turnover. It stabilizes the skin's barrier function by minimizing trans-epidermal water loss and preserving moisture and lipids in the stratum corneum.[5,7,8]

Alkaline soaps or cleansers, like traditional soaps, usually have a pH of between 9 and 11, which can disrupt this balance and function.[2-4,9] They can temporarily alter the skin's normal pH and deplete skin lipids, which may lead to dryness, irritation, pruritus, and the exacerbation of pre-existing skin conditions, particularly inflammatory dermatoses.[3,4,6,7]

In contrast, pH-balanced skin cleansers, usually a class of synthetic detergents (syndets), are formulated to maintain the skin surface's natural acidity.[2,3,7,8,10] Syndets are chemically synthesized from fats, petroleum, or oil-based products, and alkali through a combination of chemical processes known as sulfonation, ethoxylation, and

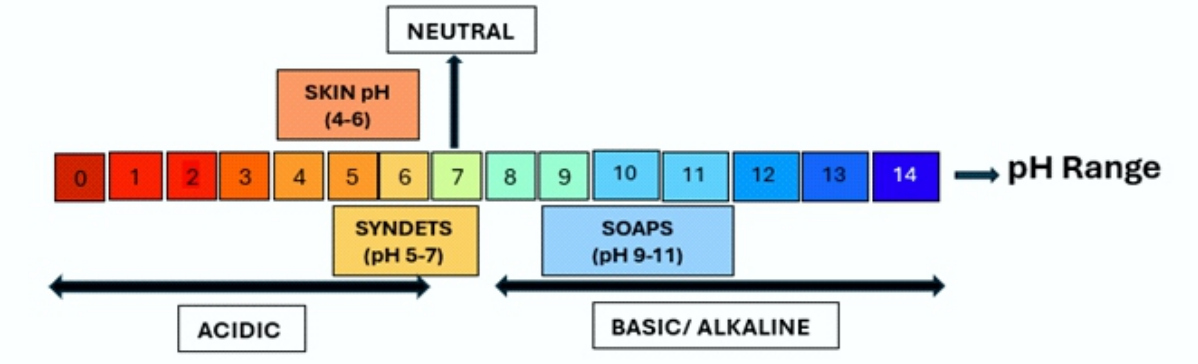

Figure 1: The pH range of normal skin, soaps and syndets

esterification but not saponification.[2,3] They tend to be acidic or neutral and typically have a pH between 5.0 and 7.0, close to the stratum corneum's physiological pH, which helps preserve skin barrier integrity and hydration (See Figure 1).[2-4,10] The efficacy and safety of these cleansers depend not only on the pH but also on their composition.[1,7]

Many pH-balanced cleansers contain one or more syndet molecules, like Cocamidopropyl betaine or sodium cocoyl isethionate, alongside other ingredients like esters, oils, and moisturizing agents.[1,3,10] Figure 2 lists the major soap and syndet molecules used in skin cleansers.

Skin Cleansing Agents

Alkaline Cleansing Agents Commonly Used in Soaps

1. Sodium Hydroxide (pH 14)
2. Potassium Hydroxide (pH 14)
3. Sodium Carbonate (pH 11)
4. Sodium Tallowate (pH 9-10)
5. Sodium Palmate (pH 9-10)
6. Sodium Cocoate (pH 9-10)
7. Sodium Olivate (pH 9-10)
8. Triethanolamine (pH 10-11)
9. Diethanolamine (pH 10-11)
10. Magnesium stearate (pH 9-10)

Traditional Soap Bases

1. Tallow Soap
(animal fat-based, pH 9-10)

2. Castile Soap
(olive oil, palm oil or coconut oil-based, pH 9-10)

3. Lye Soap – White soap
(sodium hydroxide-based, pH 10-11)

4. Black soap
(potassium hydroxide-based, pH 10-11)

pH-balanced synthetic detergents (syndets) used in skin cleansers

Anionic Surfactants:
1. Sodium Lauroyl Sarcosinate (pH 5.5)
2. Sodium Cocoyl Isethionate (pH 5.5)
3. Disodium Lauryl Sulfosuccinate (pH 5.5)
4. Sodium Lauryl Sulfoacetate (pH 5.5)
5. Ammonium Lauryl Sulphate (pH 5.5-6.5)

Non-ionic Surfactants:
1. Polysorbate 20 (pH 5.5-6.5)
2. Decyl Glucoside (pH 5.5-6.5)
3. Lauryl Glucoside (pH 5.5-6.5)
4. Cetearyl Glucoside (pH 5.5-6.5)
5. Sucrose Cocoate (pH 5.5-6.5)

Amphoteric Surfactants:
1. Cocamidopropyl Betaine (pH 5.5-6.5)
2. Lauramidopropyl Betaine (pH 5.5-6.5)
3. Sodium Cocoyl Amphoacetate (pH 5.5-6.5)
4. Disodium Cocoamphodiacetate (pH 5.5-6.5)
5. Sodium Lauroyl MethylAmphoacetate (pH 5.5)

Zwitterionic Surfactants:
1. Sodium Lauroyl Sarcosinate (pH 5.5)
2. Sodium Cocoyl Glycinate (pH 5.5-6.5)
3. Sodium Lauryl Glycinate (pH 5.5-6.5)
4. Cocamidopropyl Hydroxysultaine (pH 5.5-6.5)
5. Sodium Cocoyl Alaninate (pH 5.5-6.5)

Figure 2: Types of Skin-cleansing Agents (Soaps and Syndet molecules)[1-3]

In hot and humid tropical climates like Nigeria, bathing one to three times daily is a common practice, increasing soap usage and heightening the risk of skin irritation. Additionally, many healthcare professionals in Nigeria continue to recommend and even endorse alkaline or medicated soaps without full awareness of their potential negative effects, which can inadvertently worsen certain skin conditions or hinder treatment outcomes.[11,12] Thus, there is a need to document the pH of commonly used soaps and cleansers in Nigeria and highlight the potential effects of the pH of soaps or syndets on skin health. Addressing this knowledge gap could guide clinicians and patients in choosing appropriate skin cleansers, particularly for sensitive or dry skin or inflammatory skin conditions like atopic dermatitis, seborrhoeic dermatitis, acne vulgaris, and rosacea.

This study aimed to determine the pH and cost of commonly available soaps and cleansers used by dermatology patients in Southwest Nigeria and discuss relevant finding implications.

METHODS

Based on clinic records, this observational cross-sectional study analyzed the pH of skin cleansers most commonly used by patients attending the dermatology clinics of the Lagos State University Teaching Hospital, the University College Hospital Ibadan, and some private dermatology clinics in Lagos and Ibadan, Southwest Nigeria. The selected cleansers were purchased from random supermarkets, pharmacies, and cosmetic stores in Lagos. The cleansers were categorized into the following:

1. **Toilet soap** – soap formulations devoid of lightening or antiseptic agents
2. **Antiseptic soap** – soaps with antiseptic agents like chloroxylenol, triclosan, etc, as part of their formulation.
3. **Lightening soap** – soaps with lightening agents like alpha or beta hydroxy acids, mercury, hydroquinone, kojic acid, etc, as part of their formulation.
4. **Liquid syndet** – syndet cleansers in liquid form.
5. **Syndet bar** – syndet cleansers in solid/bar form.

All soap or syndet samples were prepared as 10% emulsions by mixing 1g or 1ml of the solid or liquid cleanser respectively into 9 ml of distilled water and kept for 1-2 hours at room temperature (25°C). The pH of each sample was measured using an MColorpHast pH test strip (one reading) and a Lawnful digital water pH meter (two readings), both of which have a full measurement of pH range (0 to 14). The pH strip has an accuracy of ±0.5 pH, while the digital pH meter has an accuracy of ±0.01 pH at 25°C. Distilled water (pH 7) and pre-packed calibrator fluids were used to calibrate the pH meter and ensure accuracy.

The weight and cost of a single unit of each soap or cleanser purchased and the country of manufacture were also documented.

Simple descriptive statistics were used to calculate the mean pH of the samples, the range, and the mean cost of the soaps and cleansers analysed. The student's t-test was used to determine any statistically significant difference between the mean pH and the mean cost of locally manufactured with imported soaps or cleansers.

RESULTS

Sixty cleansing agents were analyzed; 35 (58.3%) were locally manufactured, while 25 (41.7%) were imported. Forty-nine (81.7%) were in solid or bar form, and 11(18.3%) were in liquid form. The locally manufactured soaps were predominantly in solid bar form, with 35 out of 49 solid bars (71.4%) being locally produced, while 14 (28.6%) were imported. None of the locally manufactured products was in liquid form; all 11 liquid washes (18.3%) were imported. Table 1 documents these characteristics.

There was no significant difference between pH values recorded from the pH strips and the pH meter, and the pH of the digital meter was used for the analysis. The pH of all the cleansers ranged from 5.1 to 10.87, with a mean pH of 9.07 (See Table 1). Forty-five cleansers (75%), all soap in formulation, had a highly alkaline pH of between 9 and 11, while 15 cleansers (25%), all syndets in formulation, had an acidic pH of between 5.1 and 6.6. (See Figure 3)

Table 1 – Characteristics of Skin Cleansers Used by Dermatology Patients

Characteristics	Locally manufactured	Imported	N (% of Total)	p-value
Frequency n(%)	35 (58.3)	25 (41.7)	60 (100)	
Solid bars n(%)	35 (71.4)	14 (28.6)	49 (81.7)	0.00*
Liquid washes n(%)	0 (0)	11 (100)	11 (18.3)	0.00*
Alkaline soap n(%)	35(58.3)	10(16.7)	45(75.0)	0.00*
Acidic Syndets (pH-balanced)	0(0)	15(100)	15(25.0)	0.00*
Parameters	**Locally Manufactured**	**Imported**	**All cleansers**	**p value**
Mean pH	10.32±0.38	7.08±2.09	9.07±2.06	0.00*
Mean cost in Naira	800.0±999.48	5830.67 ±5504.03	2857.89± 4311.98	0.0003*

The mean pH of the locally manufactured soaps was 10.32, whereas the mean pH of imported soaps was 7.08. The difference between the mean pH of locally manufactured and imported cleansers was statistically significant, with a p-value of 0.00001.

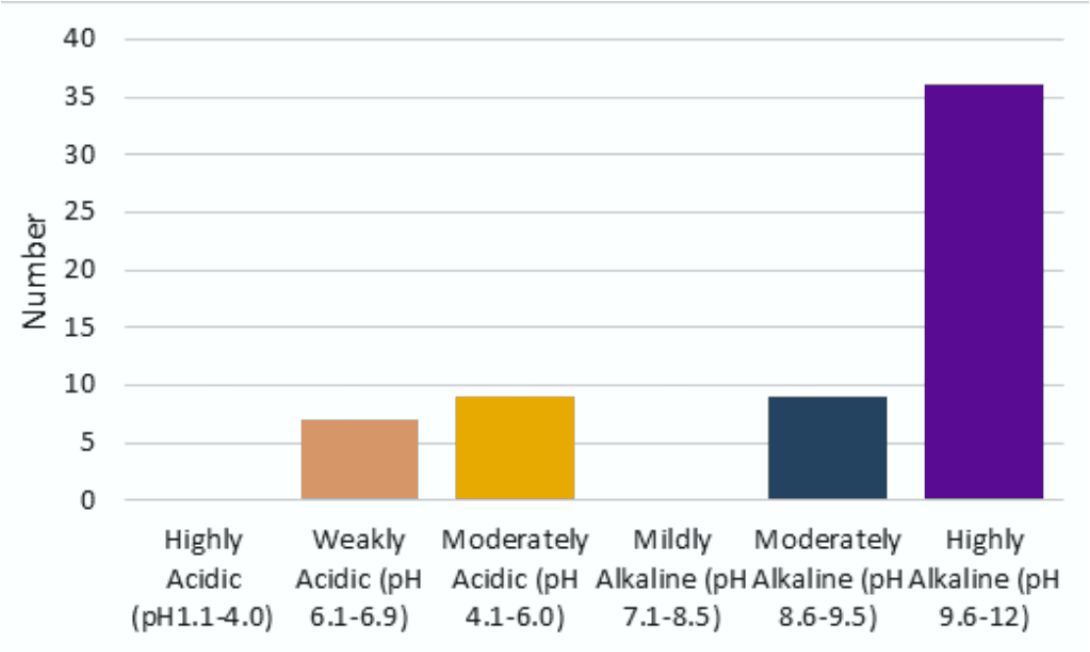

Figure 3 – Degree of Acidity and Alkalinity of Cleansers in this Study

Table 2 - pH of common soaps and cleansers using MColorpHast pH test strips

SOLIDS						LIQUIDS	
Medicated soaps		**Lightening soaps**		**Toilet soaps**		**Liquid cleansers**	
Awa medicated	10.5	**Asantee papaya**	10	**Awa soap**	10	**Atoderm**	5.5
Carat	11	**Black soap (organic)**	10	**Bio-oil**	9	**Aveeno baby**	6
Crusader	10	**Carotone**	10	**Cussons**	9	**Carex**	6
Delta	11	**Caro white**	10	**Dr. Teals**	10	**Cerave**	5.5
Dettol Cool	10	**Extract**	10	**Eva**	9.5	**Cetaphil**	5.5
Dudu Osun	10	**Fair and white**	10	**Forever avocado**	10	**Clearasil**	5.5
Lifebuoy	10.5	**Hawaii**	10	**Ghana Soap**	10	**Dove baby**	6.5
Meriko	11	**Idole papaya**	10	**Imperial leather**	11	**Sebamed (adult & baby)**	5.5
Okin	11	**Idole**	10	**Irish Spring**	9	**Simple**	5.5
Premier Cool	11	**K brothers**	10.5	**Johnsons baby**	9	**Sanex liquid wash**	5
Safeguard	10.5	**Kojie san soap**	10	**Joy**	11	**La Roche Posay lipikar wash**	6
Sanitol	10			**Local black soap**	11	**Topicrem liquid wash**	5
Savlon	11			**Lux**	9		
Septol	10.5			**Neutrogena**	9.5		
2Sure herbal soap	10			**Palmolive**	10		
Tetmosol	10.5			**Pears baby**	9		
Tura	10			**Premier**	10		
				Olay	6.5		
				Supreme	11		
				Syndet Bars			
				Dove	6.5		
				Nivea	6.5		
				Sebamed	5.5		

Table 3 – Weight, Cost, Country of Manufacture and pH (with Lawnful digital pH meter) of common soaps and cleansers

	Soap or Cleanser	Weight or Volume	Market price (Naira)	Country of Manufacture	pH
1.	**Asantee papaya soap**	**150g**	**1400**	**Thailand**	**10.22**
2.	Awa medicated soap	60g	200	Nigeria	10.61
3.	Awa plain soap	60g	200	Nigeria	10.59
4.	**Atoderm liquid wash**	**200ml**	**15,000**	**France**	**5.32**
5.	**Aveeno baby wash**	**250ml**	**15,000**	**US**	**5.87**
6.	Bio-oil soap	250g	2300	Nigeria	9.46
7.	Carotone soap	180g	1400	Nigeria	10.31
8.	Caro white soap	180g	1000	Nigeria	10.18
9.	**Carex liquid wash**	**250ml**	**2600**	**UK**	**5.39**
10.	**Cerave hydrating wash**	**236ml**	**13,00**	**US**	**5.32**
11.	**Cetaphil body wash**	**237ml**	**12,500**	**US**	**5.28**
12.	Cussons baby soap	70g	250	Nigeria	9.51
13.	**Crusader soap**	**80g**	**1000**	**India**	**10.42**
14.	Delta	70g	250	Nigeria	10. 86
15.	Dettol cool	160g	600	Nigeria	10.26
16.	Dettol Skincare	160g	1000	Nigeria	10.18
17.	**Dove beauty bar**	**100g**	**1500**	**US/Germany**	**6.57**
18.	**Dove baby wash**	**400ml**	**8,500**	**US/ Germany**	**6.43**
19.	Dudu Osun black soap	150mg	550	Nigeria	9.87
20.	**Extract whitening soap**	**125g**	**1300**	**Thailand**	**10.13**
21.	Eva soap	75g	350	Nigeria	9.63
22.	Fair and white soap	200g	5500	Nigeria	10.24
23.	**Forever avocado soap**	**150g**	**2200**	**US**	**9.89**
24.	Ghana soap	400g	2000	Nigeria	10.26
25.	Hawaii soap	200g	1100	Nigeria	10.42
26.	Idole soap	120g	1200	Nigeria	10.15
27.	Idole papaya soap	120g	1300	Nigeria	10.11
28.	Imperial Leather soap	150g	700	Nigeria	10.59
29.	**Irish Spring soap**	**110g**	**1500**	**US**	**9.35**
30.	**Johnsons baby soap**	**125g**	**500**	**US**	**9.22**
31.	Joy soap	90g	250	Nigeria	10.68
32.	**K-brothers soap**	**150g**	**1500**	**Thailand**	**10.44**
33.	**Kojie-san soap**	**135g**	**5000**	**Philippines**	**10.42**
34.	Lifebuoy soap	110g	300	Nigeria	10.43
35.	**La Roche Posay Lipikar syndet liquid wash**	**200ml**	**14,000**	**France**	**5.13**

36. Local black soap	500g	2200	Nigeria	10.76
37. Lux soap	90g	250	Nigeria	9.54
38. Meriko soap	80g	300	Nigeria	10.79
39. Nivea bar	**100g**	**1200**	**Germany**	**6.41**
40. Neutrogena bar	**100g**	**1500**	**UK**	**9.36**
41. Olay bar	**113g**	**900**	**US/ South Africa**	**6.46**
42. Okin soap	65g	200	Nigeria	10.87
43. Organic black soap	300g	500	Nigeria	10.22
44. Palmolive soap	90g	1300	Nigeria	9.78
45. Pears baby soap	**125g**	**1000**	**India**	**9.16**
46. Premier soap	60g	300	Nigeria	10.23
47. Premier cool soap	60g	300	Nigeria	10.35
48. Safeguard soap	70g	300	Nigeria	10.42
49. Sanitol soap	75g	200	Nigeria	10.31
50. Sanex body wash	**200ml**	**9,500**	**UK**	**5.20**
51. Savlon soap	120g	250	Nigeria	10.87
52. Sebamed cleansing bar	**150g**	**3,500**	**Germany**	**5.54**
53. Sebamed liquid wash	**200ml**	**7,500**	**Germany**	**5.48**
54. Septol soap	70g	250	Nigeria	10.61
55. Simple body wash	**250ml**	**6,000**	**UK**	**5.19**
56. 2Sure antiseptic soap	75g	500	Nigeria	10.41
57. Supreme soap	75g	450	Nigeria	10.78
58. Tetmosol antiseptic soap	75g	300	Nigeria	10.34
59. Topicrem liquid wash	**200ml**	**17,500**	**France**	**5.33**
60. Tura medicated soap	120g	1000	Nigeria	10.25

**Products in bold ink are imported, while those in normal ink are locally manufactured in Nigeria*

All 35 locally manufactured cleansers (100%) were alkaline soaps, while 10 of the 25 imported cleansers (40%) were also alkaline soap formulations. Most of the imported alkaline cleansers were manufactured in Asia, while most imported syndets were manufactured in the UK and Europe. The most common soap molecule in the selected soap cleansers was sodium palmate, while the most common syndet molecule was cocoamidopropyl betaine **(see Figure 4).**

The average cost of locally manufactured soaps was N800, whereas the average cost of imported soaps was N5830, indicating that imported products are significantly more expensive. The difference in mean costs is statistically significant ($p = 0.00003$).

DISCUSSION

This study shows that the soaps and cleansers commonly used by dermatology patients, and by extrapolation, the general populace in Nigeria, are alkaline. Furthermore, all locally manufactured cleansers are alkaline soaps. This is consistent with studies from South Africa, Sri Lanka, and India.[13-15] However, studies from Poland and Brazil reported that most cleansers available in these regions were acidic or neutral.[16,17] These findings suggest that the irritant potential of alkaline soaps has been considered in the formulation of cleansers in some parts of the world but is yet to be in many developing countries, including Nigeria. All liquid washes analyzed were acidic, which is similar to findings by

Alkaline Cleansing Agents in Soaps in this study
1. Sodium Palmate
2. Sodium Cocoate
3. Sodium Oleate
4. Triethanolamine
5. Diethanolamine
Syndet Cleansing Agents in pH balanced cleansers in this study
1. Cocamidopropyl Betaine
2. Sodium Cocoyl Isethionate
3. Decyl Glucoside
4. Disodium Lauryl Sulfosuccinate
5. Sodium Lauryl Sulfoacetate
6. Glyceryl Cocoate

Figure 4 – Common cleansing agents in soap and syndet formulations in this study

Mendes et al. in Brazil.[17] The predominance of highly alkaline soaps suggests that many people may be exposed to harsh skincare products. Raising awareness and promoting the local production of pH-balanced, affordable soaps could improve dermatological outcomes.

The pH of soaps and cleansers should be an important consideration when managing sensitive, dry, or inflamed skin conditions.[5,8,10] Alkaline cleansers can exacerbate conditions associated with an elevated skin surface pH and transepidermal water loss (TEWL) and further impair skin barrier integrity.[5,8,18] Highly alkaline soaps can also alter the skin's microbiome by reducing normal flora, which could stimulate or aggravate untoward inflammatory responses or lead to infection.[19-21] Thus, skin irritation and barrier impairment from using highly alkaline soaps can impair treatment outcomes and the patient's quality of life.[7,15,22] For conditions like atopic dermatitis, psoriasis, acne, and rosacea, pH-balanced cleansers and moisturizers are recommended to prevent irritation, dryness, and skin dysbiosis.[10,20,23,24] A systematic review by Lichterfeld et al. supports using pH-balanced or soap-free cleansers as an evidenced-based recommendation for optimal skin care.[25] A study in Nigeria observed that alkaline soaps did not cause irritation or affect the pH of normal skin but did cause dryness, as evidenced by reduced sebum levels.[26]

None of the acidic syndets were manufactured in Nigeria; they were all imported from Europe or the US and were significantly more expensive than local soaps, costing over 7 times more. The higher cost of these pH-balanced products may limit their use among the general population. However, for individuals with inflammatory dermatoses or sensitive skin, using more expensive pH-balanced cleansers may ultimately save on treatment costs by preventing irritation.[25] The absence of locally manufactured syndets and liquid washes highlights a gap in the domestic market. The continued production, recommendation, and use of alkaline soaps in Nigeria likely stems from a lack of awareness of the benefits of pH-balanced cleansers and the potentially higher manufacturing costs. Local production of pH-balanced syndet cleansers could make them more affordable and accessible to the wider population, offering gentler, skin-friendly alternatives that protect the skin barrier.

CONCLUSION

Most of the common commercially available cleansers used by dermatology patients in Nigeria are alkaline soaps, which could negatively affect skin health, particularly for those with sensitive or inflammatory skin conditions. Nigerian-made soaps have a significantly higher pH than foreign-made cleansers, most of which are syndets and tend to have a lower, more skin-friendly, and less irritating

pH. While Nigerian-made soaps are more affordable, their higher pH may irritate the skin. Increasing awareness of pH-balanced cleansers among healthcare practitioners and promoting their use among dermatology patients and the general public could improve the management of certain conditions and overall skin health.

RECOMMENDATIONS

Clinicians and dermatologists in Nigeria and Africa can use this study as a reference when recommending soaps and cleansers for patients, especially those with inflammatory dermatoses. Further research is required to assess public awareness of cleanser pH and to compare the effects of alkaline soaps with pH-balanced cleansers on skin health in Nigeria.

Medical regulatory bodies, public health agencies, and manufacturing industries in Nigeria and other developing countries should acknowledge the importance of skin cleanser pH, as has been done in developed countries. There is a need to review industry standards for cleanser formulations and look into producing more affordable, pH-balanced cleansers that support optimal skin health.

Conflict of Interest - The authors have no conflict of interest to declare.

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Profile of Skin Diseases in Rural Guinea

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Abstract

Background: Skin diseases are diverse and constitute a major public health problem in developing countries, and they are the third most common reason for consultations. Access to dermatological care remains limited in rural communities. The proportion and type of skin pathologies vary from one country to another. This study aimed to determine the profile of skin diseases in Guinean communities.

Methods: This was a descriptive and analytical cross-sectional study in June 2022, carried out in a community setting and included all patients with skin conditions residing in the study area desirous of dermatological care and who could travel to the study site.

Results: 615 respondents were examined for cutaneous morbidities; 582 had a skin disease, i.e. a prevalence of 94.6%. The median age of the patients was 14 years, with a predominance of females (61.7%), mostly single (72.7%) and having attended an organized school (58.5%). Skin pathologies were dominated by infectious dermatoses (54.4%), followed by inflammatory dermatoses (23.0%). Scabies predominated, followed by ringworm, with a statistically significant difference (p-value < 0.05).

Conclusion: Our study shows that the profile of skin diseases in the rural Guinean community is similar to that of the reference service. Scabies and ringworms were the two most common skin diseases. The implementation of teledermatology remains an option for increasing the provision of dermatological care.

Keywords: Skin diseases, community setting, Guinea

Profil des Dermatoses en Guinée Rurale

Résumé

Contexte: Les maladies cutanées sont diverses et constituent un problème de santé publique important dans les pays en développement, et elles constituent le troisième motif de consultation. L'accès aux soins dermatologiques reste limité dans les communautés rurales. La proportion et le type de pathologies cutanées varient d'un pays à l'autre. Cette étude visait à déterminer le profil des maladies cutanées dans les communautés guinéennes.

Méthodes: Il s'agissait d'une étude transversale descriptive et analytique réalisée en juin 2022, en milieu communautaire et incluant tous les patients atteints de maladies cutanées résidant dans la zone d'étude désireux de soins dermatologiques et pouvant se déplacer sur le site d'étude.

Résultats: Au total, 615 répondants ont été examinés dont 582 avaient une maladie cutanée, soit une prévalence de 94,6%. L'âge médian des patients était de 14 ans, avec une prédominance de femmes (61,7%), majoritairement célibataires (72,7%) et ayant fréquenté une école scolaire (58,5%). Les pathologies cutanées étaient dominées par les dermatoses infectieuses (54,4%), suivies des dermatoses inflammatoires (23,0%). La gale prédominait, suivie de la teigne, avec une différence statistiquement significative (p-value < 0,05).

Conclusion: Notre étude montre que le profil des dermatoses dans la communauté rurale guinéenne est similaire à celui du service sanitaire de référence. La gale et la teigne étaient les deux dermatoses les plus fréquentes. La mise

en place de la télédermatologie reste une option pour augmenter l'offre de soins dermatologiques dans les zones éloignées.

Mots clés: dermatoses, milieu communautaire, Guinée

INTRODUCTION

Skin diseases are diverse and constitute a major public health problem in developing countries, where they are the third most common reason for consultations. They have an impact on quality of life, productivity and mental health.[1,2]

However, in rural communities, where access to dermatological care remains limited, the impact of skin pathologies is greater.[2,3] The 2013 Global Burden of Disease (GBD) revealed that skin pathologies are the fourth (non-fatal) cause of disability worldwide.[4] On black skin, the expression of cutaneous affections may differ from that of light skin, depending on their presentation, frequency, and how they present. Certain dermatoses are precipitated by poor hygiene, precariousness and unfavourable weather conditions. The proportion of skin pathologies is often reported, and it varies from one country to another and is sometimes expressed in different ways.[5]

In Southeast Asia, during a consultation campaign in the Laotian community, immuno-allergic dermatoses (eczema) were the most common, followed by dermatophyte infections, then acne and finally scabies.[2] In Africa, inflammatory, immuno-allergic and infectious dermatoses were the most common types of dermatitis to be found in specialized consultations.[6-9]

In the Guinean context, in 2017, infectious pathologies of bacterial origin predominated, followed by inflammatory diseases, drug reactions and then viral diseases in children as the reason for hospitalization in the dermatology department.[3] However, very few data on skin diseases are available in the community. This study aimed to analyze the profile of skin diseases in Guinea.

METHODS

Study Site

The Prefecture of Boffa, also known as the "City of bushes" for the beauty of its landscape, is part of the Boké administrative region. It has 211,063 inhabitants and seven (7) sub-prefectures: Koba, Lisso, Mankountan, Toungnifily, Douprou, Tamita and Boffa City. It is located 150 km from Conakry and enjoys a favourable geographical position for several activities. The main activities are fishing, agriculture and livestock breeding, thanks to its great openness to the Atlantic Ocean and favourable environmental and geological conditions. Boffa boasts several tourist sites, including several seaside resorts and historical and religious sites. Boffa has one prefectural hospital and no dermatology specialists.

Study Design and Population

We carried out a descriptive and analytical cross-sectional study in a community setting on patients with skin pathology from June 16-19, 2022, in the prefecture of Boffa. We targeted all patients with skin diseases residing in the Boffa prefecture, regardless of age, sex, profession, residence and marital status, seeking the dermatological care offered. We included all patients with skin diseases residing in the Boffa prefecture who needed dermatological care and could travel to the study site. All patients who did not agree to participate in the study were excluded. However, these same patients benefited from free consultation and medication.

Data collected

Beforehand, the people of Boffa were informed through the press of the selected site, the free nature of the consultation and the donation of medicines.

The data collection team comprised all 10 dermatologists, spread over eight (8) consultation offices and one drug dispensing point, accompanied

by dermatology residents from the capital. A pre-designed data collection form was filled in for each patient after obtaining consent.

Data were collected using a structured questionnaire administered to all patients meeting our selection criteria. Data included qualitative and quantitative variables relating to epidemiological and clinical data. Cases of common dermatoses were managed on-site. Other dermatoses requiring further investigation were referred to hospital staff for transfer to the Donka National Hospital, which houses the only dermatology department. Interviews were conducted mainly in the local language (Soussou), with a few in French. A toll-free number was made available to patients and staff living in the Boffa prefecture for follow-up.

Statistical analyses

Data were collected on a pre-established survey form and analyzed using R software. Descriptive analyses were performed on a sample of the population. Descriptive analyses included respondent frequencies for age, gender, marital status, occupation, and mean duration of evolution of skin lesions. Pearson's chi-square was also used to determine the relationship between patient characteristics and the occurrence of dermatoses of infectious origin in community areas. Probability values of $p < 0.05$ were considered statistically significant.

Ethical considerations

After validation of the study protocol by the institutional committee of the Faculty of Health Sciences and Techniques (N°: 055/CHDMITR/23), we collected data anonymously. To comply with ethical principles, verbal informed consent was obtained from each patient. For children under 18, we supplemented consent with the assent of a parent or legal guardian. Confidentiality of data collected from participants was ensured during and after the survey.

RESULTS

A total of 615 patients were registered during the consultation, of whom 582 were with skin diseases, representing a frequency of 94.6%. Skin pathologies were dominated by infectious dermatoses (54.4%), followed by inflammatory dermatoses (23.0%), immuno-allergic dermatoses (14.9%), genodermatoses (0.7%), systemic diseases (0.2%), and a few cases of drug-induced skin reactions (0.2%), as well as complications linked to voluntary cosmetic depigmentation (5.3%) and benign tumours (0.7%).

The median age of the patients was 14 years, with a predominance of females in 359 cases (61.7%), mostly single (72.7%), living mainly in the urban centre (93.3%) and having attended a solar school (58.5%). Previous treatment was used by 214 patients (36.76%), and 88 patients (15.1%) had used cosmetic depigmenting products for a median of 12 months.

Among the infectious dermatoses diagnosed, we noted a predominance of dermatoses of fungal origin, 26.6%, followed by dermatoses of parasitic origin at 22.3%, dermatoses of bacterial origin at 3.3% and finally, dermatoses of viral origin at 2.2% (Figure 1: next page).

In our series, patients with dermatoses of infectious origin were predominantly (65.6%) children under 15 years of age, female (56.1%) with a statistically significant difference (p-value < 0.05). Patients who were single (60.5%) and had attended a school (54.8%) were the most likely to be found with a statistically significant association (p-value < 0.001) with the occurrence of dermatoses of infectious origin (Table 1: Page 23).

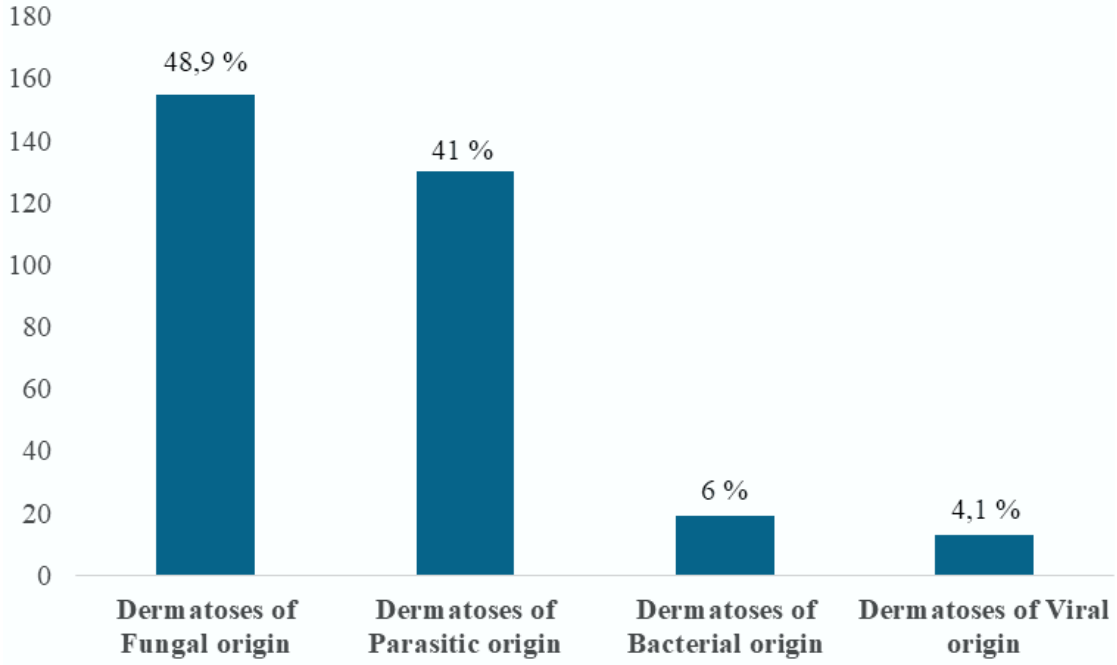

Figure 1: Distribution of patients with infectious dermatosis seen in mobile clinics in the Boffa Prefecture in June 2022 (n=317)

Users of depigmenting products for aesthetic purposes (10.4%) were significantly associated with the occurrence of infectious dermatosis ($p < 0.001$).

Among infectious dermatoses, we noted a predominance of scabies (40.4%), then ringworm (34.7%), dermatophyte (13.2%), folliculitis (3.2%) and finally, molluscum. contagiosum (1.6%) (Table 2).

Inflammatory dermatoses consisted of acne (19.2%), palmoplantar keratoderma (2.0%), lichen planus (0.8%), psoriasis (0.5%) and hypodermatitis (0.3%). Concerning immunoallergic dermatoses, we found contact eczema (6.7%), prurigo (3.4%), atopic dermatitis (3.1%) and urticaria (1.7%).

In the category of genodermatoses, we recorded 3 cases of nevus (0.5%) and 1 case of congenital ichthyosis (0.1%).

DISCUSSION

This study aimed to determine the proportion of demand for dermatological care in Guinean community areas and to describe the types of skin diseases encountered so that corrective measures can be implemented to meet demand in the various localities. The study was conducted in June 2022 in a locality 150 km from the capital.

Our results showed that more than nine out of ten participants consulted during the study had a skin pathology (94.6%). Two studies reported similar results carried out in rural areas of Morocco and Togo in 2016 and 2020, respectively.[6-8] These results suggest the high demand for dermatological care in Guinean community settings. These results could be explained by poor socio-economic conditions and the lack of qualified human resources to provide dermatological care in the community, which is responsible for inadequate management. It should be noted that inappropriate treatment of skin lesions could lead to complications such as impetiginization and worsening of lesions.

More than half of the patients who expressed a desire for dermatological care during this mobile clinic were children, which is similar to the findings of studies carried out in urban settings in Mali in 2016 and Cameroon in 2015; in contrast to a Turkish series where adolescents predominated and the Moroccan series where the 0-9 age group was less represented, with only 5% of patients received.[6,10-12] This could be explained by the fact that this youth group often shares clothes and other personal items.

In our study, the predominance of infectious dermatoses was identical to that of the Conakry and

Characteristics	TYPE OF SKINDISEASE		p-value
	Infectious dermatoses, N = 317 (%)	Non-infectious dermatoses N = 265 (%)	
Age (year)			<0.001
≤15	208 (65.8)	108 (34.2)	
16-30	71 (42.0)	98 (58.0)	
>30	38 (39.2)	59 (60.8)	
Sex			0.003
Female	178 (49.6)	181 (50.4)	
Male	139 (62.3)	84 (37.7)	
Marital status			<0.001
Bachelor	256 (60.5)	167 (39.5)	
Married	61 (38.4)	98 (61.6)	
Type of residence			0.200
Urban centre	300 (55.2)	243 (44.8)	
Periphery	17 (43.6)	22 (56.4)	
Level of study			<0.001
Did not attend school	143 (59.3%)	98 (40.7)	
Primary	126 (58.9%)	88 (41.1)	
Secondary or tertiary	48 (37.8%)	79 (62.2)	
Occupation			<0.001
Official	34 (43.6)	44 (56.4)	
Pupil/Student	132 (56.7)	101 (43.3)	
Housewife	28 (41.8%)	39 (58.2)	
Merchant/Trader	34 (45.3%)	41 (54.7)	
Unemployed	89 (69.0%)	40 (31.0)	
Previous treatment			0.032
No	188 (51.1%)	180 (48.9)	
Yes	129 (60.3%)	85 (39.7)	
Use of depigmenting products			<0.001
No	284 (57.5%)	210 (42.5)	
Yes	33 (37.5%)	55 (62.5)	

Pearson's Chi-squared test

Table 1: Characteristics of patients with skin diseases seen in mobile clinics in the Boffa Prefecture in June 2022 (n=582)

Bamako Dermatology Departments. In contrast, in the studies carried out in Togo and Tanzania, immuno-allergic and inflammatory dermatoses predominated.[3,7,8,12,13] Raising awareness and improving the socio-economic conditions of the population could reduce the frequency of infectious skin diseases.

Among infectious dermatoses, scabies were the most common, followed by ringworm. Similar results have been reported in the literature.[8,11,13,14] Our results could be explained by the poverty in this locality, the promiscuity, the precariousness, the sharing of bedding and beds, and the exchange of personal objects (clothes, hairdressing equipment), thus favouring easy transmission amongst the participants.

Among immuno-allergic dermatoses, contact dermatitis, prurigo and atopic dermatitis were the most common. Our results contrast with those reported in the literature.[12,15–17] Rapid urbanization and confined habitats could explain this profile of immuno-allergic diseases.

Characteristics	Number (N = 317)	Proportion (%)
Fungal dermatoses		
Ringworm	110	34.7
Dermatophytia	42	13.2
Onychomycosis	3	0.9
Parasitic dermatoses		
Scabies	128	40.4
Pediculosis	2	0.6
Bacterial dermatoses		
Folliculitis	10	3.2
Impetigo	6	1.9
Furuncle	2	0.6
Erysipelas	1	0.3
Viral dermatoses		
Molluscum contagiosum	5	1.6
Varicella	4	1.3
Warts	2	0.6
Shingles	1	0.3
Herpes	1	0.3

Table 2: Distribution of patients with a skin disease of infectious origin seen in mobile clinics in the Boffa prefecture in June 2022

The use of depigmenting products over many years and a large surface area exposes the skin to major dermatological complications such as trophic disorders, acne, infectious dermatoses and neoplasia.[18-20] In our series, we recorded cases of exogenous ochronosis and stretch marks as a common complication of the use of de-pigmenting products. Most of these participants had infectious dermatoses. This result could be explained by the disruption of cutaneous flora and the local immune deficiency.

A health promotion program in the Guinean community will be needed to encourage the population to adopt attitudes conducive to early detection and management of skin diseases. In our study, the diagnosis was based on a combination of anamnestic and clinical arguments. Some patients were referred to the university hospital centre for further investigations, particularly skin biopsies and the diagnosis of complications.

CONCLUSION

Skin diseases are still common in sub-Saharan Africa. Despite the distance that separates the consultation site and the Guinean capital, our study shows that the profile of skin diseases in the rural Guinean community is similar to that of the reference service. Scabies and ringworms were the two most common skin diseases. Raising awareness of preventive measures and teledermatology remains an option for reducing the incidence of skin diseases in remote areas.

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CASE REPORT:

Eccrine Angiomatous Hamartoma in A 13-Year-Old Girl

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ABSTRACT

Eccrine angiomatous hamartoma (EAH) is a rare benign malformation characterized by a proliferation of eccrine glands and capillary vessels. Occurrence is mostly congenital and adolescent with few adult presentations. Clinically, it is characterized by plaques and nodules, which could be symptomatic. The diagnosis of EAH is typically made after a histopathological evaluation. Treatment is primarily surgical. We report the case of eccrine angiomatous hamartoma in a thirteen-year-old girl.

Keywords: Eccrine angiomatous hamartoma, haemangioma, dermatopathology, arteriovenous malformation

Cas clinique: Hamartome Angiomateux Eccrine Chez une Fille de 13 ans.

Résumé

L'hamartome angiomateux eccrine (HAE) est une malformation bénigne rare caractérisée par une prolifération de glandes eccrines et de vaisseaux capillaires. La survenue est le plus souvent congénitale et adolescente avec quelques présentations adultes. Cliniquement, il est caractérisé par des plaques et des nodules, qui peuvent être symptomatiques. Le diagnostic d'HAE est généralement posé après une évaluation histopathologique. Le traitement est principalement chirurgical. Nous rapportons le cas d'hamartome angiomateux eccrine chez une fille de treize ans.

Mots clés: hamartome angiomateux eccrine, hémangiome, dermatopathologie, malformation artérioveineuse.

INTRODUCTION

Eccrine angiomatous hamartoma (EAH) is a rare benign malformation characterized by a proliferation of eccrine glands and capillary vessels.[1,2] Although congenital and adolescent occurrence is mostly reported, EAH does occur in adults.[3-5] The diagnosis of EAH is typically made after a histopathological evaluation.[1,2] We report the case of eccrine angiomatous hamartoma in a thirteen-year-old girl.

CASE REPORT

A 13-year-old girl was referred to the dermatology clinic for a skin biopsy. She had been diagnosed at the referral clinic with dystrophic calciphylaxis on account of painful plaques and patches associated with hyperhidrosis on the left leg for a year. There was a progressive increase in the size of the patches and plaques. Hyperhidrosis was spontaneous and limited to the site of the patches and plaques. The patient was reported to have had surgery on the same leg at the age of two years for an unknown indication by the mother. This was followed by poor healing, contracture, limb length discrepancy and the use of crutches for ambulation.

On examination, she had multiple hyperpigmented, firm, tender plagues and patches with an erythematous hue on the left leg (lateral calf region) and sweat droplets. Figure 1. Other examinations were essentially normal. A provisional diagnosis of

a Haemangioma with a differential of an adnexal tumour was made. A skin biopsy was done. Dermatopathology revealed a hyperkeratotic, acanthotic epidermis overlying a dermal proliferation of eccrine glands admixed with blood vessels, haemosiderin, sclerosed dermis and fibroblasts. The eccrine glands were ectatic, thick-walled and the blood vessels were telangiectatic, thin-walled: some were filled with red blood cells. Figures 2A to D. A diagnosis of Eccrine angiomatous hamartoma was made. The patient was referred to the surgeons for excision of the plaques.

DISCUSSION

Eccrine angiomatous hamartoma (EAH) occurs as plaques, patches and macules of various colours (bluish, brownish, yellowish, reddish).[4,6-8] Eccrine angiomatous hamartoma can occur as a single or multiple lesions with no sex predilection.[3,7] Our patient had hyperpigmented plaques with an erythematous hue. In the skin of colour individuals, erythema may appear hyperpigmented. EAH appears to have a predilection for the extremities, although occurrences on the neck and face have been documented.[3,6,8] Common symptoms of EAH are pain and hyperhidrosis.[3,6] The hyperhidrosis is attributed to the increased proliferation of eccrine glands and pain due to the involvement of superficial nerves.[6] Our patient reported hyperhidrosis and pain. Due to its rarity, Eccrine angiomatous hamartoma is frequently misdiagnosed clinically as angiokeratoma, arteriovenous malformation and haemangioma.[3,6] Clinically, our patient was diagnosed to have a haemangioma or an adnexal tumour. Dermoscopy patterns reported in EAH include a white centre surrounded by a purple-brown round lacuna,[4] Spitzoid patterns,[7] and pop-corn appearances.[8]

The pathogenesis of EAH is not known.[3,4,6] Theories of pathogenesis include radiation therapy, frequent trauma, and abnormal interaction of epithelial and mesenchymal elements resulting in the atypical development of eccrine and vascular structures.[4-6] Our patient had surgery at the age of 2 years and walks with crutches with daily micro-trauma. The authors opine that trauma may be a factor in the occurrence of EAH in this patient. The diagnosis of EAH is histopathological and based on the criteria proposed by Pelle *et al*.[1,2] Histopathological features are a dermal proliferation of mature, normal or dilated eccrine glands, intimate relationship of the eccrine structures with benign thin-walled vascular proliferation and varying occurrence of pilar, lipomatous, mucinous, and/or lymphatic structures.[1-4,6] Our patient had all the features (figures 2A-E). Therapeutic options in EAH include Lasers, botulinum toxin injection and surgical excision.[4,7,9]

The prognosis for EAH is good: no malignant transformation, although spontaneous regression does not occur.[10] Our limitations were the inability to follow up with this patient concerning the surgical outcome and the inability to perform immunohistochemistry for reasons of unavailability and finance. We have reported this case for the following reasons. Eccrine angiomatous hamartoma is a rare congenital tumour. It is only correctly diagnosed following histology. This case report highlights the importance of histopathology in diagnosing skin diseases.

Conflict of interest: None

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Declaration

This manuscript is original and has not been submitted to another journal.

Conflict of interest

The authors have no conflict of interest.

Legends

1. Figure 1. Left leg: multiple hyperpigmented plaques and patches, sweat droplets
2. Figure 2A. The proliferation of eccrine glands, thin-walled vessels and haemosiderin. H&E x 10
3. Figure 2B. Ectatic thin-walled vessels, haemosiderin, nested ectatic eccrine glands. H&E x 20
4. Figure 2C. Telangiectatic vessels filled with red blood cells, proliferation of fibroblasts and haemosiderin. H&E x 20
5. Figure 2D. Thick-walled ectatic eccrine glands surrounded by haemosiderin. H&E x 20
6. Figure 2E. Ectatic thick-walled eccrine glands. H&E x 20

Figure 1: Left leg: multiple hyperpigmented plaques and patches, sweat droplets

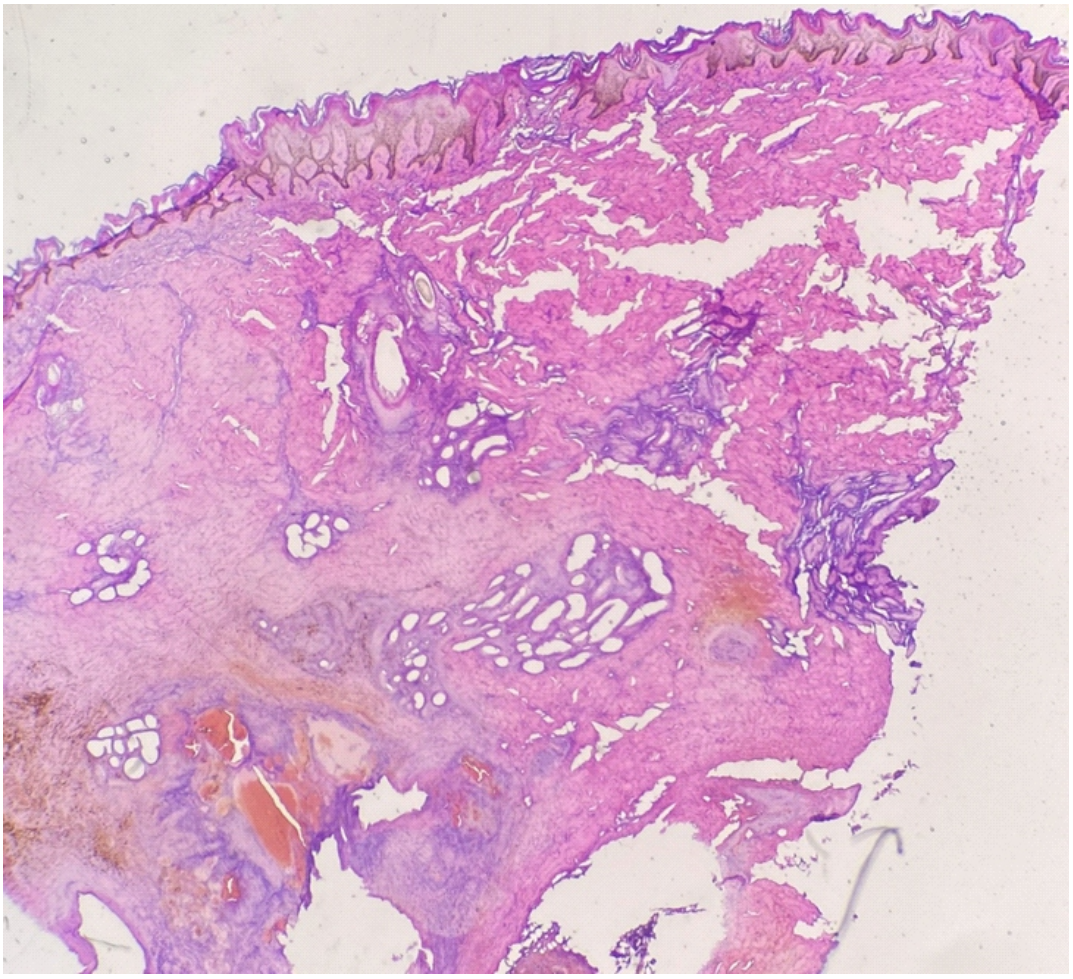

Figure 2A: Proliferation of eccrine glands, thin-walled vessels and haemosiderin. H&E X10

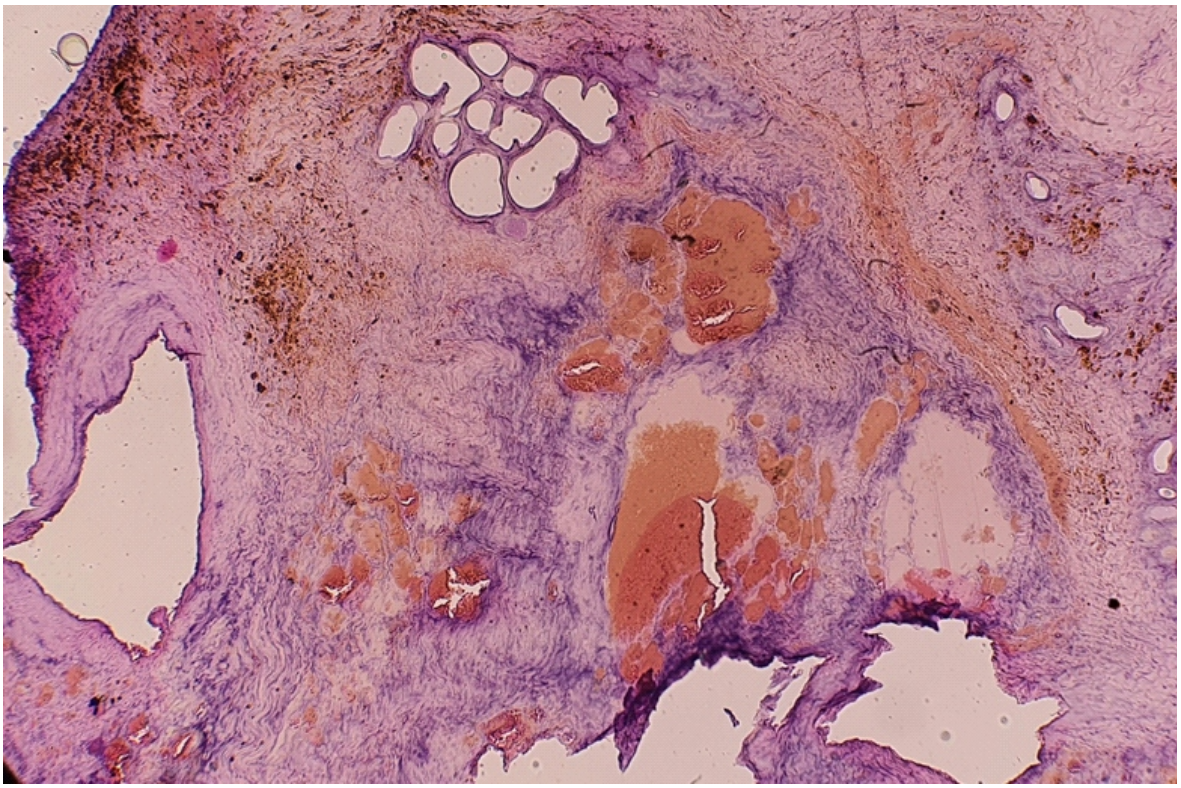

Figure 2B: Ectatic thin-walled vessels, haemosiderin, nested ectatic eccrine glands. H & E X20

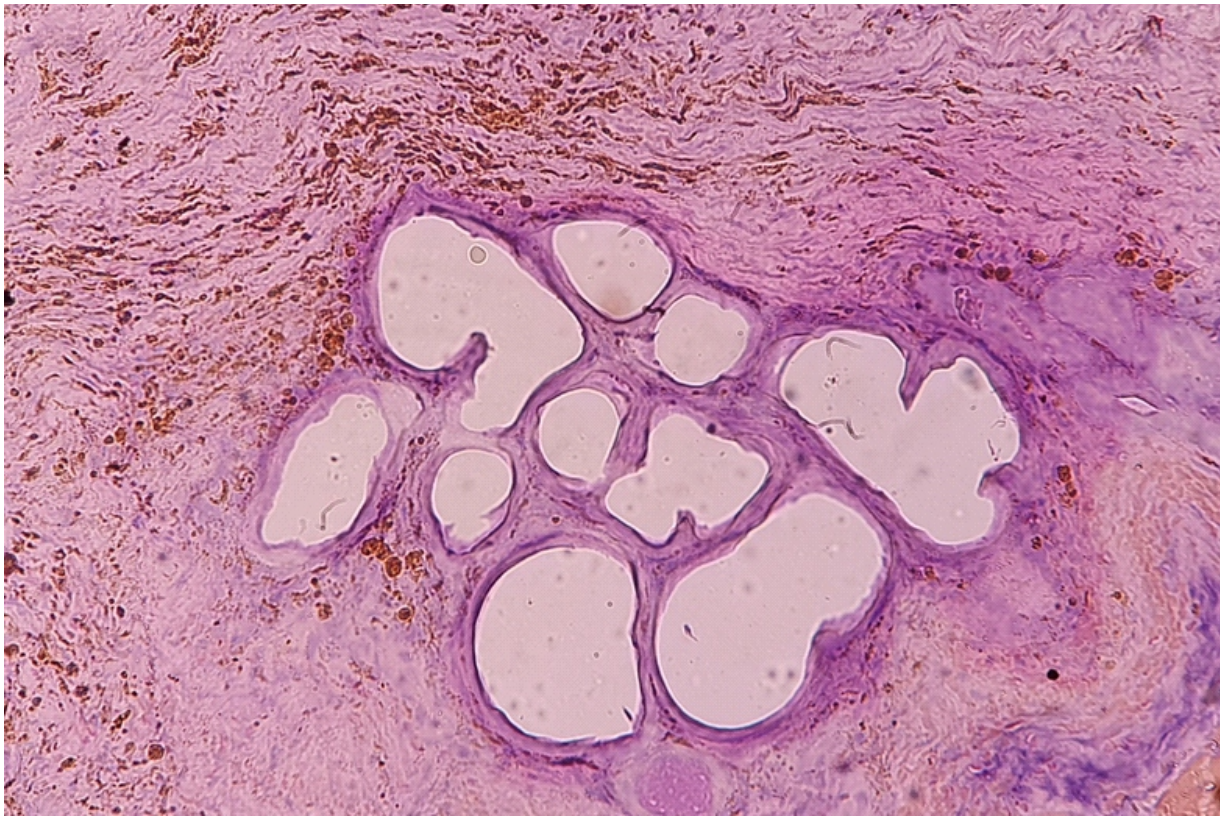

Figure 2C. Thick-walled ectatic eccrine glands surrounded by haemosiderin. H & E X2O

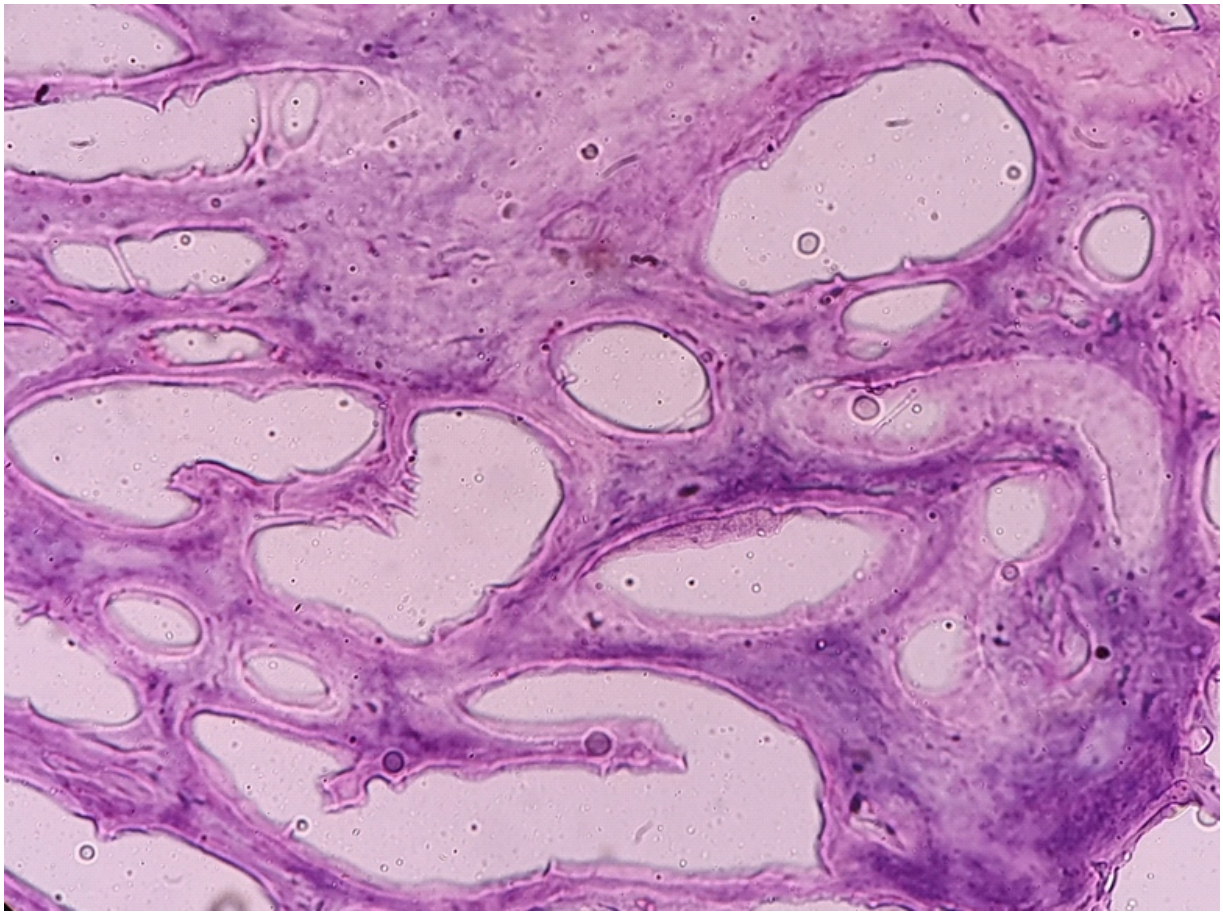

Figure 2D. Ectatic thick-walled eccrine glands

Verrucous Carcinoma of the Penis in a HIV Positive Patient: A Case Report from Nigeria

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Running head: Verrucous cancer of the penis in a Nigerian male

Abstract

Verrucous carcinoma of the penis, a variant of squamous cell carcinoma, is an uncommon urological malignancy. It is characterized by slow growth and presents as exophytic, cauliflower-like masses.

This report describes a case of penile verrucous carcinoma in a 65-year-old HIV-positive male on antiretroviral therapy. He presented with a painful, slow-growing mass on the penile shaft of 9 months duration. Clinical examination showed a cauliflower-like mass on the penile shaft. There was no inguinal lymphadenopathy. Histopathological examination showed epidermal hyperplasia, full–thickness dysplasia, marked hyperkeratosis, and atypical mitotic figures. Surgical excision with the graft was performed, and the patient's condition remained stable.

This case illustrates the potential occurrence of verrucous carcinoma of the penis in the setting of HIV infection, which is a recognized risk factor along with uncircumcised penis, human papillomaviruses, phimosis and others.

Prompt surgical intervention remains the mainstay of treatment for this condition as it offers excellent results. However, given the rarity of this malignancy and the increasing prevalence of HIV, clinicians should maintain a high index of suspicion to facilitate early diagnosis and management, thereby improving patient outcomes.

Keywords: Verrucous carcinoma; Penis; HIV; Nigeria

Carcinome Verruqueux du Pénis chez un Patient Péropositif à Propos d'un cas au Nigéria

Résumé

Le carcinome verruqueux du pénis, une variante du carcinome épidermoïde, est une tumeur maligne urologique rare. Il se caractérise par une croissance lente et se présente sous forme de masses exophytiques en chou-fleur.

Nous rapportons un cas de carcinome verruqueux du pénis chez un homme séropositif de 65 ans sous traitement antirétroviral. Il présentait une masse douloureuse à croissance lente sur la verge depuis 9 mois. L'examen clinique a montré une masse en chou-fleur sur la tige du pénis. Il n'y avait pas d'adénopathie inguinale. L'examen histopathologique a montré une hyperplasie épidermique, une dysplasie de pleine épaisseur, une hyperkératose marquée et des figures mitotiques atypiques. Une excision chirurgicale suivie d'une greffe a été réalisée et l'état du patient est resté stable.

Ce cas illustre la survenue potentielle d'un carcinome verruqueux du pénis dans le cadre d'une infection au VIH, qui est un facteur de risque reconnu au même titre que la non circoncision, les papillomavirus humains, le phimosis etc.

L'exérèse chirurgicale précoce reste le pilier du traitement de cette affection car elle offre d'excellents résultats. Cependant, étant donné la rareté de cette tumeur maligne et la prévalence croissante du VIH, les

cliniciens doivent garder une vigilance élevée pour faciliter un diagnostic et une prise en charge précoces, améliorant ainsi le pronostic des patients.

Mots Clés: carcinome verruqueux ; pénis ; VIH ; Nigéria ; Afrique

INTRODUCTION

Verrucous carcinoma of the penis is a rare urologic malignancy that is slow-growing.[1] The incidence in the United States is less than 1 case per 100,000.[2] However, in Rwanda, the incidence of penile carcinoma was also low at 0.37 per 100,000.[3] In northern Nigeria, specifically Kano, penile cancers accounted for 0.7% of urological cancers.[4] Risk factors for penile cancers are uncircumcised penis, human papillomaviruses (HPV), human immunodeficiency virus (HIV), poor genital hygiene, phimosis, Bowen's disease, obesity, and smoking.[5,6] On the other hand, protective factors include circumcision and HPV vaccination.[5] It presents as a penile mass, which may be painful and rarely metastasizes.

A case of verrucous carcinoma of the penis was reported in the northern part of Nigeria.[7] There are few case reports of verrucous carcinoma of the penis in HIV-positive patients.[8,9] The importance of reporting this case is increasing awareness of this uncommon malignancy, which can be misdiagnosed. Herein, we report a case of verrucous carcinoma of the penis in a HIV-positive man.

CASE SYNOPSIS

A 65-year-old male presented with a slow-growing mass on his penis of 9 months duration. The mass was painful but not itchy. He is HIV-positive and was diagnosed 15 years ago. He is currently on tenofovir, lamivudine and efavirenz tablets. On examination of the penis, there was a solitary tumour which measured 3 cm x 4 cm, on the penile shaft close to the head of the phallus. The tumour had a yellowish cauliflower-like surface with creamy exudates on an erythematous background. (Figure 1). There was no inguinal lymphadenopathy. Laboratory tests were routine. The absolute CD4+ T helper cell count for HIV was 525 cells/mm^3, and the viral load was <20 copies/ ml; however, a polymerase chain reaction test for HPV DNA could not be done in our facility. Histopathology of a biopsied specimen showed hyperplastic epidermis with full-thickness dysplasia, and the composite cells had grade 3 nuclei and moderate cytoplasm. The base of the inflammation was bulbous, with intense chronic inflammation at the superficial dermis and some atypical mitotic figures. The epidermis was papillomatosis with hyperkeratosis (Figures 2A and 2B). The patient was operated on by the plastic surgeon – wide excision surgery. The patient's post-operative condition remains stable.

DISCUSSION

Verrucous carcinoma of the penis is a rare, well-differentiated variant of squamous cell carcinoma with a slow growth rate. It rarely metastasizes.[1] Ackerman made the first description of verrucous carcinoma in the oral cavity.[10] It has been described in other locations of the body like the penis, female genital tract and sole.[11] The prevalence rates of verrucous carcinoma of the penis in Tanzania and Mozambique were 2.1% and 2.4% respectively.[6,12]

The etiopathogenesis is not fully understood.[13] Risk factors for this disease include lack of circumcision, phimosis, human papillomaviruses (HPV), human immunodeficiency virus (HIV), history of balanoposthitis or condyloma, obesity, smoking, poor genital hygiene, Bowen's disease, Marjolin's ulcer.[5,6] Human immunodeficiency virus (HIV) can cause carcinogenesis through the generation of reactive oxygen species, which can induce malignant transformation of epithelial cells.[14] Furthermore, HIV can act synergistically with human papillomavirus (HPV) infection, thereby potentiating carcinogenesis.[14] Interestingly, in this case, the patient had undergone circumcision; however, he was HIV-positive, which is a known risk factor for the development of this malignancy.

Verrucous carcinoma of the penis usually occurs on the glans or foreskin, but it can appear anywhere on the penis.[15] It presents as a cauliflower-like or exophytic mass, which may be malodorous or

ulcerated. It can also present as a cutaneous horn.[16] It tends to develop at sites of chronic inflammation and irritation.[9] Despite its relatively slow growth, it may be locally destructive, infiltrating deep into the skin, fascia and even bone. It can lead to acute urinary retention.[8,15]

Our patient's absolute CD4+ T helper cell count for HIV was 525 cells/mm^3, in contrast to the 20 cells/mm³ reported by Noronha.[9] The relatively preserved immune status indicated by our patient's CD4+ T-helper cell count raises the question of how verrucous carcinoma developed despite adequate immune function. Several factors are worth considering. First, although CD4+ counts are a marker of immune competence, qualitative defects in immune function, including impaired cytotoxic T-cell responses, may contribute to oncogenesis.[17] Additionally, there could be concurrent infection with HPV. This case highlights the importance of monitoring HIV-positive patients on anti-retroviral therapy for the development of malignancies, even in those with relatively stable immune function.

Histopathology of verrucous carcinoma of the penis shows massive hyperplasia of the epidermis with marked hyperkeratosis and parakeratosis, acanthosis and anastomosing papillomatosis.[13] The granular layer is prominent with several vacuolated cells that resemble koilocytes of condyloma acuminatum, and there is the presence of lymphohistiocytic infiltrate.[13]

Differential diagnoses of verrucous carcinoma of the penis are condyloma acuminata, simple verrucous hyperplasia and papillary carcinoma.[18]

The primary treatment approach for penile verrucous carcinoma is surgical intervention, typically involving wide excision. Depending on the location and extent of spread, glansectomy or penectomy may be indicated. Such procedures can have a significant impact on the psychosexual aspect. Adjunctive chemotherapy may also be administered as part of the treatment regimen.[9] Other treatment options are Mohs Surgery, cryosurgery, laser surgery in combination with topical fluorouracil cream and systemic or intralesional interferon and photodynamic therapy.[8,19] However, surgery is the preferred treatment modality as it has excellent outcomes.[20] Disease recurrence is usually rare if treated surgically.[1,8,15]

CONCLUSION

This case report contributes to the limited literature in our region and emphasizes the importance of having a high index of suspicion. It highlights the need for clinicians to maintain a high index of suspicion when encountering penile lesions, especially in the context of the rising prevalence of HIV. Increasing awareness is crucial as it will reduce morbidity and improve the outcomes of patients who are affected.

Declaration of patient consent:

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient consented to his images and other clinical information being reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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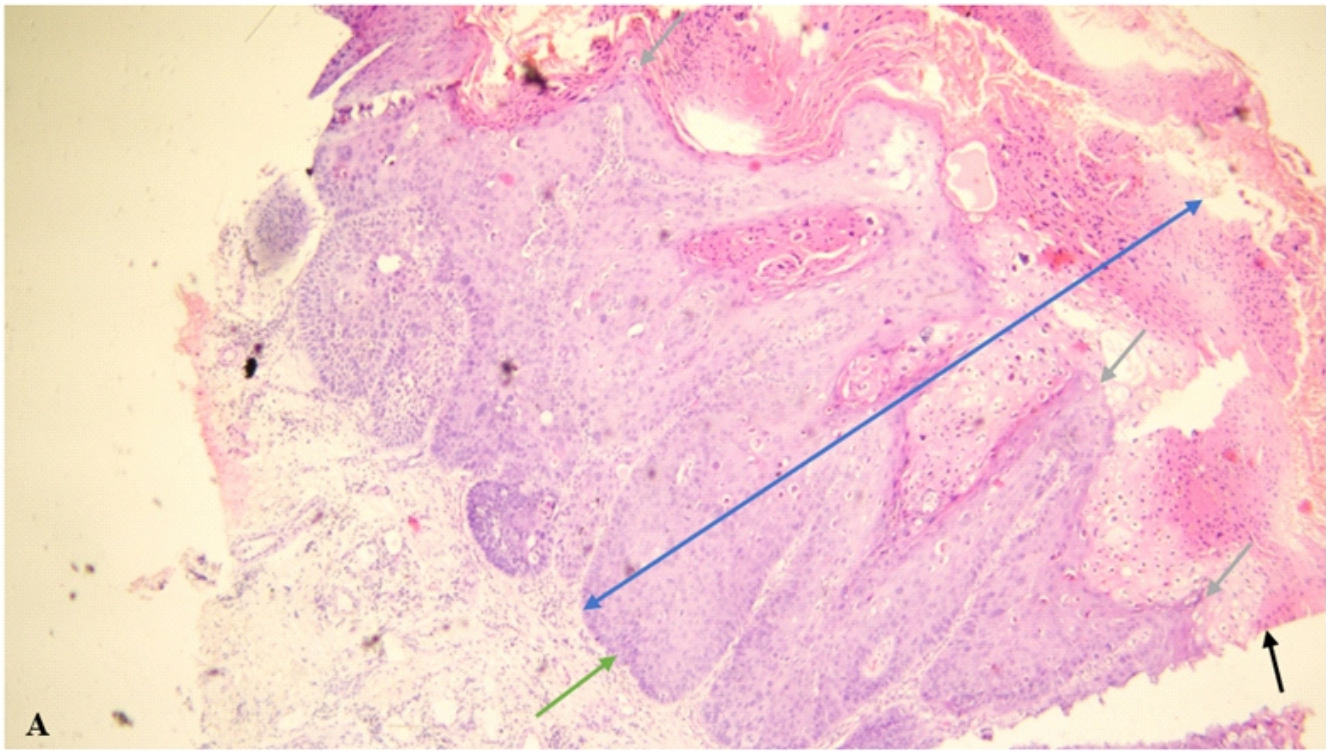
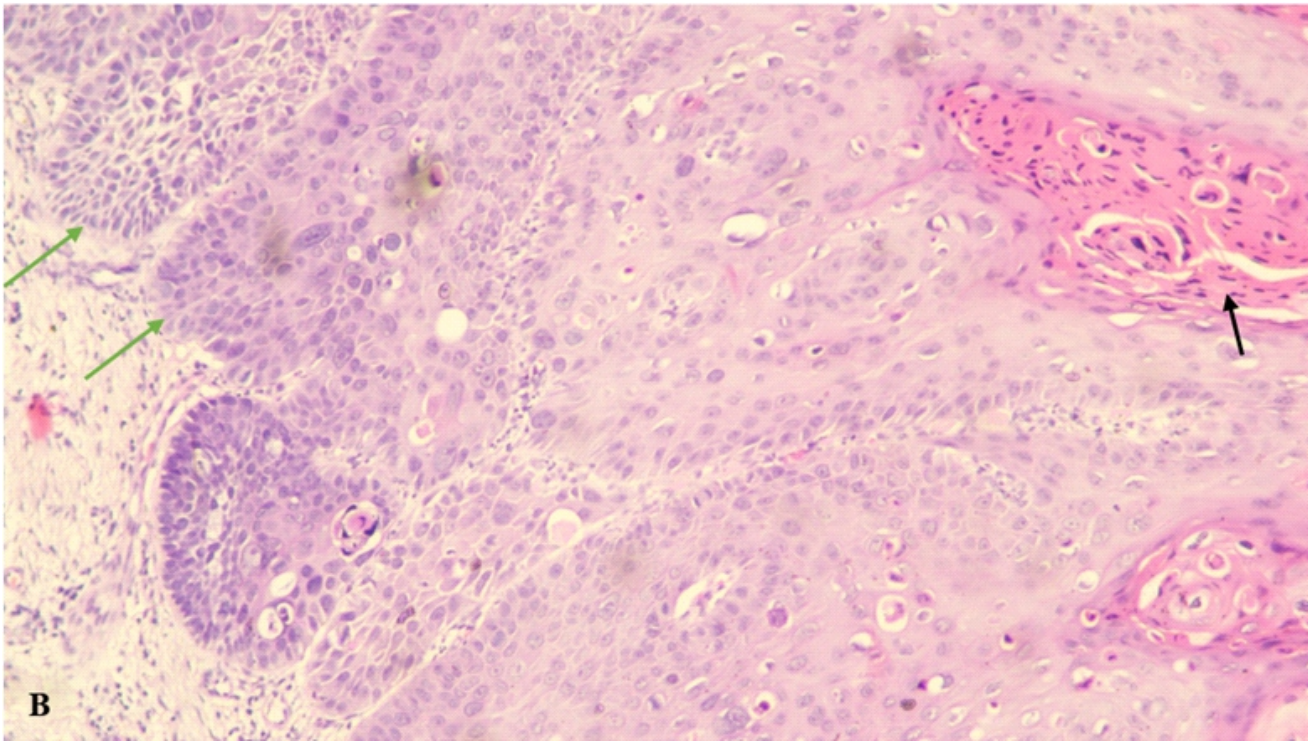
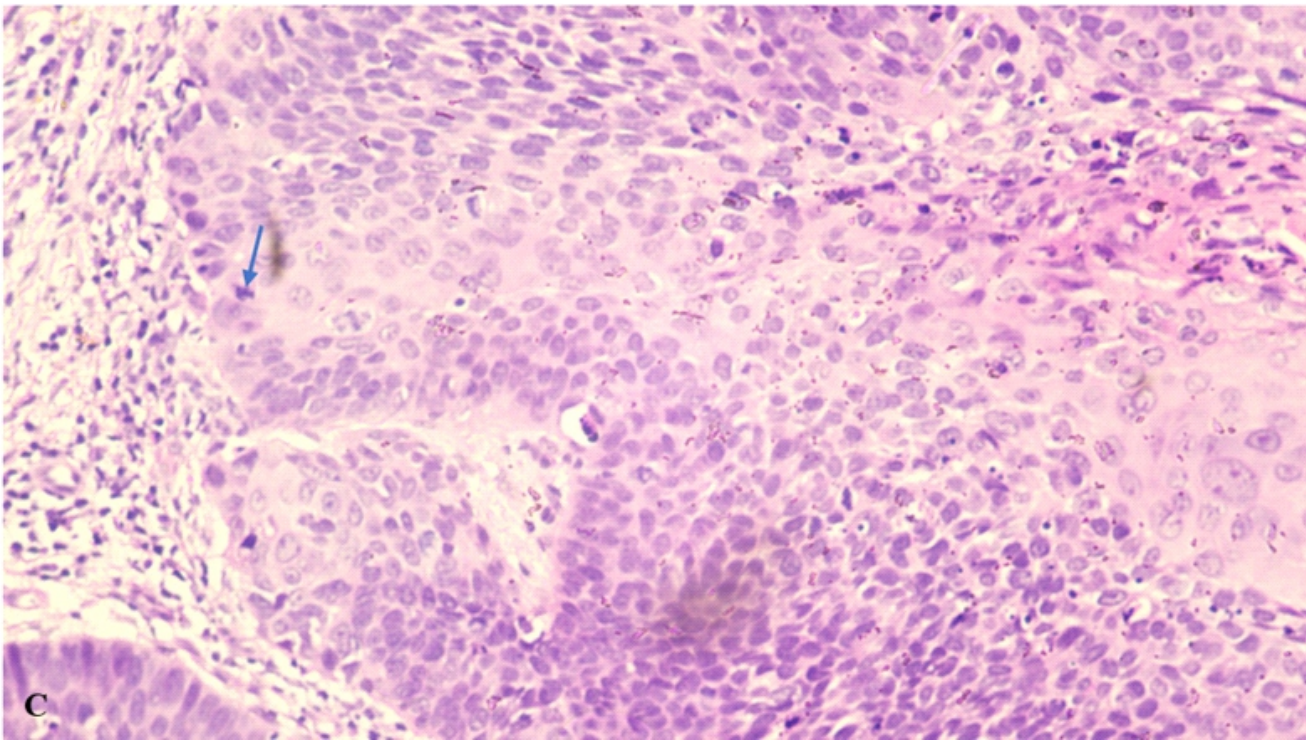
Figure 1: A cauliflower mass on the phallus







Figures 2A-C: Microscopic examination reveals a skin tissue with acanthotic squamous epithelium (double-headed arrow) with full-thickness dysplastic well to moderately differentiated squamous cells having vesicular nuclei and abundant glassy cytoplasm. There are exophytic papillary processes (grey arrows) with overlying hyperkeratosis and parakeratosis (black arrows). Towards the dermis, the dysplastic epithelium shows bulbous pushing borders (green arrows) and superficial dermal chronic inflammation. Some atypical mitotic figures (blue arrow) are observed, but few. (Haematoxylin and Eosin: A=X40; B=X200; C=X400)

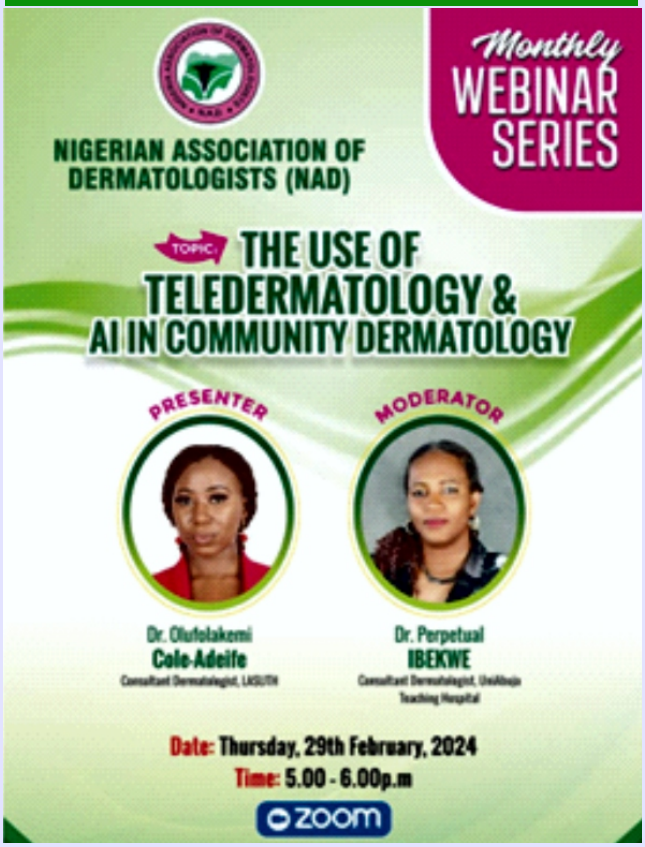
World NTD Day 2024

Members of the Nigerian Association of Dermatologists celebrated World NTD Day, which takes place every year on January 30th, by creating awareness in collaboration with the Nigerian Medical Association with a webinar, as well as radio and social media discussions about Neglected Tropical diseases, particularly skin-related NTDs.

NAD Annual Scientific Conference and AGM [Kano 2024]

The 18th Scientific Conference and Annual General Meeting of NAD was announced! It will take place in Kano from the 5th to the 7th of June, 2024 and promises to be grand! The Theme ***"Dermatology and Mental Health"*** is very timely and aims to explore the psychosocial effects of dermatologic conditions.

NAD monthly webinars



NAD Webinars are held in the first quarter of the year, with discussions on therapeutic agents available to dermatologists and the use of teledermatology and AI in community dermatology. The discussions were insightful and valuable.

AMERICAN ACADEMY OF DERMATOLOGY ANNUAL MEETING

NAD was well-represented at the Annual Meeting of the American Academy of Dermatology, which took place in San Diego, USA, by Dr Ehiaghe Anaba, Dr Erere Otrofanowei and Dr Chisom Ogu. Dr Ogu was awarded the prestigious Strauss and Katz Scholarship to attend the meeting.

Adieu, Prof. Anezi OKORO

With gratitude to God for a glorious life well spent, NAD mourned the demise of Professor Anezi, a foremost dermatologist and renowned writer, who passed away at the ripe old age of 94 years. He was a father of dermatology in Nigeria, having trained many senior dermatologists and authored landmark research publications. He was survived by his wife, children, grandchildren and great-grandchildren.