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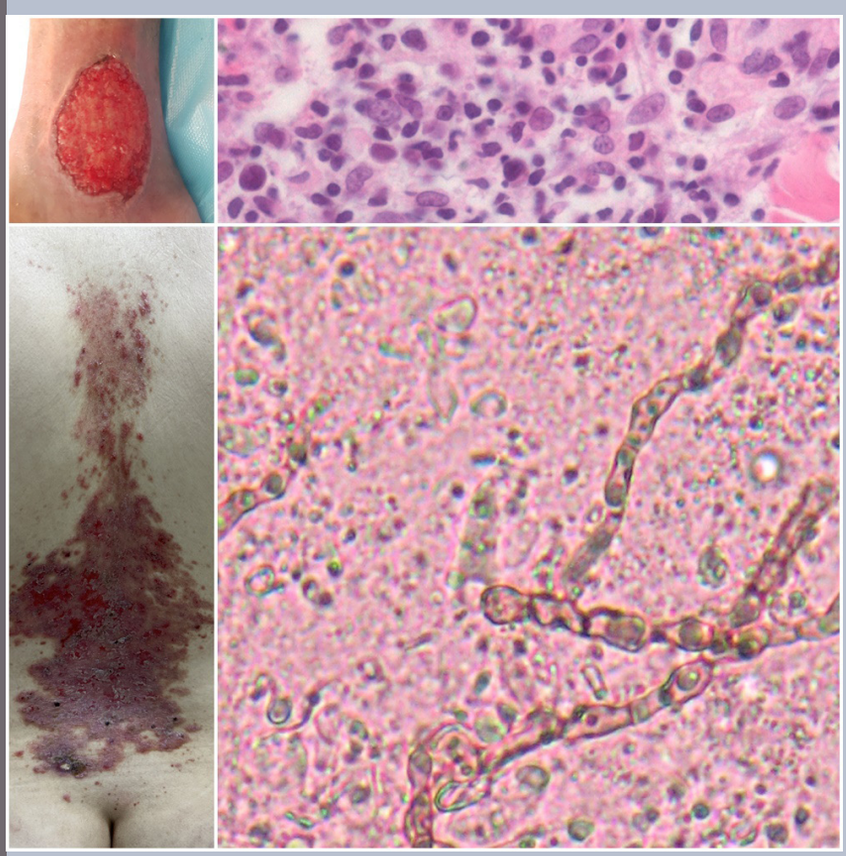

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Original Article

Knowledge, attitudes, and practices of people with albinism about photoprotection and skin cancer prevention in Togo

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ABSTRACT

Objective: The aim of this study was to evaluate the knowledge, attitudes, and practices of people with albinism (PWAs) related to photoprotection and prevention of skin cancers in Togo. **Materials and Method:** A qualitative, cross-sectional study was conducted over a period of three months in the year 2020 among PWAs over eighteen years of age residing in Lomé, Togo. **Results:** A total of 78 PWAs were interviewed. Their mean age was 23.38 ± 15.11 years (extremes: 18 and 63 years), and their sex ratio (M/F) was 0.81. In terms of knowledge, all PWAs declared that photoprotection was essential to prevent skin cancers. Interview data revealed the following strengths: wearing a wide-brimmed hat (n = 77; 98.7%) and using sunscreen cream (n = 75; 96.2%) were the main means/measures of prevention. In terms of attitudes, only 27 PWAs (34.6%) said that a dermatology consultation would be their first reaction to an unusual skin lesion. The main prevention means/measures in their possession were wide-brimmed hats (91.3%), sunscreen creams (85.9%), dark clothes (76.9%), and tinted glasses (70.5%). Regarding the practices, sunscreen creams were used by 88.5% of PWAs (n = 69). About two-thirds (64.1%) of respondents used tinted glasses to protect themselves from the sun. Finally, less than a quarter of the respondents (17.9%) consulted a dermatologist for a skin lesion in the last twelve months. **Conclusion:** The results of this study indicated that PWAs in Togo have fairly good knowledge about photoprotection and prevention of skin cancers. Attitudes and practices were generally positive but some behaviors such as dermatological follow-up still require improvement.

Key words: Albinism, Sun protection, Skin cancers, Togo

INTRODUCTION

Oculocutaneous albinism (OCA) is a group of hereditary conditions linked to gene defects in melanin biosynthesis [1]. The absence or reduction of melanin in the skin in albinism is associated with increased sensitivity to UV radiation and predisposition to skin cancers [1,2]. Carcinomas are by far the most common histological variety [3], and most develop by the age of 20–30 years. The risk for people with albinism (PWA) in Africa to develop skin cancers is one thousand times higher than in the general population [4]. Skin photoprotection refers to all natural and/or artificial measures aimed at limiting the skin's exposure to UV

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rays, in order to protect it from deleterious effects. These measures are essentially individual behaviors recommended to all PWAs in order to prevent skin cancers [5].

In Togo, PWAs are grouped together under the National Association of PWAs (ANAT), which currently has over 500 members [6], for a general population of 8.443 million in 2020 [7]. To our knowledge, no study has been conducted in Togo to highlight the knowledge, attitudes, and practices (KAP) of PWAs about photoprotection and prevention of skin cancers. It was, therefore, necessary to conduct this study to evaluate the knowledge, attitudes, and practices of PWAs related to photoprotection and prevention of skin cancers in Togo in 2020.

MATERIALS AND METHODS

A qualitative, cross-sectional study was conducted over a three-month period from March to May 2020 among PWAs who are members of ANAT and residing in Lomé, Togo. The sample was exhaustive. All PWAs aged 18 years or older seen at the time of the consultation and having given their consent to participate in the study were included. For data collection, we employed a pre-established form. The data collected was sociodemographic (age, sex), knowledge about photoprotection, a link between skin cancers and sun exposure, means/measures of preventing skin cancers, a notion of dermatology consultation in the last twelve months, reasons for appointments at the hospital or the association's head office, the use of sunscreen creams or their lack, sunglasses, and information tools on albinism.

Ethics Statement

The study was approved by the Bioethics Committee for Health Research (Reference N°015/2019/CBRS). Previous agreement of PWAs was obtained. Informed consent was obtained from the participants before the questionnaires were filled out. The purpose of the study was explained to them.

RESULTS

A total of 78 PWAs, with a mean age of 23.38 ± 15.11 years (extremes: 18 and 63 years) and a sex ratio (M/F) of 0.81 were interviewed. Among these, 73 (93.6%) belonged to PWA's association. Among the 78 PWAs, 27 (34.6%) received a health education manual on albinism, with ANAT as the main donor. PWAs' sources of information on albinism were PWA associations (51.3%), health professionals (33.3%), the Internet (19.2%), parents (12.8%), books (12.8%), and radio (2.6%). A PWA may have one or more sources of information.

In terms of knowledge, all PWAs reported that photoprotection was essential to prevent skin cancers. Among them, 84.6% ($n = 66$) affirmed that there was a risk of skin cancers linked to sun exposure. Sun-exposed occupations ($n = 74$; 94.9%) were the occupations most commonly considered not recommended to PWAs. Sixty-two PWAs (79.5%) claimed to have been talked to/informed/aware of skin cancers and 64 (82.2%) attested that it was possible to avoid them (Table 1). Among the means/measures of prevention, PWAs mainly mentioned wearing wide-brimmed hats ($n = 77$; 98.7%) and using sunscreen ($n = 75$; 96.2%) (Table 1).

In terms of attitudes, only 27 (34.6%) said that a dermatology consultation would be their first reaction to an unusual lesion on their skin. The main means of prevention in their possession were wide-brimmed hats (91.3%), sunscreen creams (85.9%), dark clothing (76.9%), and tinted glasses (70.5%) (Table 2).

Regarding the practices, less than a quarter of the PWAs ($n = 14$; 17.9%) consulted a dermatologist in the last twelve months. The presence of skin lesions was the most frequently mentioned reason for this consultation ($n = 8$; 57.1%). Sunscreen creams were used by 88.5% ($n = 69$) of PWAs, mainly in the morning (88.4%).

Table 1: Knowledge about photoprotection and its means/measures.

	n	%
Knowledge about the relationship between sun exposure and skin cancers		
Yes	66	84.6
Unknown	6	7.7
No	6	7.7
Knowledge about skin cancer prevention		
Yes	64	82.2
Unknown	7	8.9
No	7	8.9
Means/measures of sun protection		
Wide-brimmed hats	77	98.7
Sunscreen creams	75	96.2
Dark glasses	75	96.2
Dark clothes	74	94.9
Umbrellas	73	93.6
Long sleeves	35	44.9
Trousers	2	2.6
Socks	2	2.6

Table 2: PWAs' photoprotection attitudes.

	n	%
Means/measures of protection in the possession of PWAs		
Wide-brimmed hats	71	91.3
Sunscreen creams	67	85.9
Dark dresses	60	76.9
Tinted glasses	55	70.5
Umbrellas	27	34.6
Long-sleeved clothing	15	19.2
Scarves	1	1.3
No protective measures	3	3.9

About two-thirds (64.1%) of the PWAs used sunglasses to protect themselves from the sun, especially at midday (66%) (Table 3).

DISCUSSION

The main strength of our study was related to the relatively large number of PWAs included. Its main limitation was related to the fact that it was limited to PWAs residing in Lomé (urban area) and, therefore, concerned only one-fifth of PWAs in Togo. Furthermore, rural patients with albinism may have a different rate of awareness of photoprotection, which deserves further study.

The results of this study indicated that PWAs have fairly good knowledge about photoprotection and prevention of skin cancers. Furthermore, attitudes and practices were generally positive. The mean age of our PWAs was 23.38 years, comparable to that found by Madubuko et al. in Benin [8] and by Inena et al. in the Democratic Republic of Congo (DRC) [9], who found a mean age of 24.1 and 26.5 years, respectively. In contrast, Picard et al. [10] in France reported a mean age of 43.98 years, probably due to life expectancy (PWAs in Africa die earlier of skin cancers) and because of the difficulty of access to care for many). A health education manual on albinism was received by 34.6% of our surveyed PWAs, and the main sources of information on albinism were a PWA association, health professionals, and the Internet. Ouédraogo et al. [11] showed that the main source of information for their PWAs was health professionals (65.6%). We noted that these sources are diverse and that the main ones are PWA associations, organizations, and health professionals. In addition, the WHO, having recognized albinism as an important public health issue in sub-Saharan Africa, also established the INTERSUN Programme, which provides information on the harmful effects of UV radiation and may, therefore, serve as the main basic communication tool for raising awareness [12,13].

Table 3: PWAs' photoprotection practices.

	n	%
Reasons for consulting the dermatologist		
Presence of unusual skin lesion	8	57.1
Systematic skin examination	4	28.6
Third party advice	2	14.3
Use of sunscreen creams	69	88.5
Use frequency		
2 times/day	24	34.8
3 times/day	23	33.3
1 time/day	21	30.4
5 times/day	1	1.5
Cream use timing		
Morning	61	88.4
Noon	51	73.9
Evening	31	44.9
Cream application areas		
Parts exposed to the sun	63	91.3
Entire body	6	8.7
Places where creams are procured		
PWA association	60	86.9
Diaspora parents	9	13.0
Drugstores	7	10.1
Use of eyeglasses	50	64.1
Time of use of the glasses		
Noon	33	66
At any time	18	36
Morning	13	26
Places where glasses are procured		
PWA association	27	54
Diaspora parents	2	4
Drugstores	1	2
Photoprotective Clothing		
Yes	57	73.1
No	21	26.9
Reasons for not wearing photoprotective clothing		
Unavailable	8	38.1
Too hot	7	33.3
Ignorance	4	19.0
No to fashion	2	9.5
Wearing wide-brimmed hats		
Yes	57	73.1
No	21	26.9
Reasons for not using wide-brimmed hats		
Mockery of a third party	8	38.1
Not available	7	33.3
Not fashionable	6	28.6

All our PWAs declared that photoprotection was essential, as did those in the study by Ouédraogo et al. [11] in Burkina Faso. The majority of our respondents ($n = 66$; 84.6%) affirmed that there was a link between sun exposure and skin cancers and that it was possible to prevent it through sun avoidance. Ouédraogo et al. [11] also mentioned a strong link between sun exposure and the risk of developing skin cancer in 91.5% of their PWAs. This unanimity may be explained by the fact that both surveys were conducted in associations of PWAs who are regularly told about the dangers of sun exposure for

their skin and, therefore, the need for photoprotection. Chu et al. [14] in Botswana found that PWAs strongly believed that skin cancers were preventable and treatable in 94% and 74% of cases, respectively, and that sunscreen could prevent them (77%). Furthermore, among the 78 PWAs, 79.5% had been talked to/informed/aware about skin cancers. This result was comparable to that in the study by Ouédraogo et al. [11], in which 68.3% of the PWAs said they had already been screened for skin cancer because of the sensitization.

Regarding attitudes, the main means/measures of prevention in possession of our PWAs were wide-brimmed hats (91.3%) and sunscreen creams (85.9%). Only 34.6% of the PWAs stated that a dermatology consultation would be their first reaction to an unusual lesion on their skin. Among the respondents in the study by Ouédraogo et al. [11], 42.7% stated that systematic screening every three months by a dermatologist was also a practical attitude to adopt. Although the PWAs in these different studies used photoprotection methods, a minority systematically consulted a dermatologist, who should normally be the one to coordinate and direct their multidisciplinary management in general and particularly the detection of precancerous lesions [15]. This shows the inadequacy of awareness of systematic screening for skin cancer. The creation of a dermatological hospital dedicated to PWAs and discussion groups may be strategies to improve self-referral of patients to dermatologists for the diagnosis of lesions or routine skin examinations.

In terms of practices, sunscreen creams were used by 88.5% of our PWAs. In Malawi, Gilaberte et al. [16] noted 80% using sunscreen. About two-thirds (64.1%) of the respondents in our study used sunglasses to protect themselves from the sun. Ouédraogo et al. [11] reported that the primary means of prevention were sun avoidance, the use of sunscreen creams, and the use of protective clothing in 84%, 41.5%, and 51.2% of the PWAs, respectively. In Botswana [14], 88% of PWAs applied sunscreen to their face and photo-exposed areas and 94% wore sun-protective clothing such as wide-brimmed hats and long-sleeved shirts (92%). Thus, the adoption of full protective clothing (long sleeves and wide-brimmed hats) increased from 80–90% to 99–100% in Malawi [16].

CONCLUSION

This study showed a fairly good notion of sun avoidance as the main means/measures of preventing skin cancers in PWAs in Lomé, Togo. Furthermore, attitudes and practices toward photoprotection and prevention of skin cancer were generally positive, yet some behaviors such as dermatological follow-up still require improvement because only a quarter of them have regular dermatological follow-up. Continued awareness of photoprotection is essential to minimize the occurrence of skin cancer in this vulnerable population, even if it does not always translate into behavior.

ACKNOWLEDGMENTS

We would like to thank the Pierre Fabre Foundation for fully funding this dermatological consultation project for PWAs in Togo. We also thank the National Association of PWAs of Togo (ANAT) for coordinating the PWA consultation campaigns in Togo.

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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Original Article

Revitalizing the hair ends: Formulation and evaluation of the elderflower (*Sambucus nigra*) hair mask for enhanced hair health

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ABSTRACT

Background: Elderflower (*Sambucus nigra*) is esteemed for its historical use in traditional medicine and culinary applications, attributed to its rich content of bioactive compounds, including flavonoids, phenolic compounds, and essential oils. Recognizing its potential benefits for skin and hair health, elderflower has found its place in the cosmetic industry. This study ventured into developing and evaluating the elderflower hair mask, an innovative product tailored to nourish and rejuvenate hair ends. **Materials and Methods:** The formulation of the elderflower hair mask incorporates a blend of lemon and cedar hydrosols, BTMS (behentrimonium methosulfate, cetearyl alcohol), broccoli oil, elderflower powder, grapefruit essential oil, and laurel essential oil. The research encompasses the detailed preparation process and emphasizes the significance of equipment cleansing and disinfection protocols. A notable aspect is the use of freshly milled elderflower powder, ensuring the preservation of its potency. Comprehensive traceability worksheets are employed to meticulously record ingredients, batch numbers, and due dates, thereby ensuring product quality and traceability. The pH of the elderflower hair mask is at 6, harmonizing with the natural pH of healthy hair, thus facilitating effective conditioning without disrupting the structural integrity of the hair. **Results:** This study illuminated the distinctive attributes of each ingredient within the formulation. Lemon hydrosol contributes cleansing and clarifying properties, while cedar hydrosol offers soothing effects. BTMS demonstrates its prowess in hair conditioning, while broccoli oil aids in moisture retention. Grapefruit essential oil contributes an invigorating aroma, and laurel essential oil is recognized for its potential to promote hair strength and scalp health. **Discussion:** The elderflower hair mask embodies a holistic approach to hair care by carefully selecting and formulating these ingredients. The pH alignment with the hair's natural pH underscores its effectiveness in conditioning. This innovative product has the potential to revitalize and nourish hair ends, offering a fusion of traditional wisdom and modern cosmetic science. Further research may delve into the mask's specific benefits, supporting its role in enhancing hair health and overall well-being.

Key words: Elderflower, Cosmetics, Natural ingredients, Hair mask

INTRODUCTION

Elderflower (*Sambucus nigra*) has a longstanding tradition of use in traditional medicine and culinary practices, attributed to its bioactive constituents such as flavonoids, phenolic compounds, and essential oils [1,2]. Beyond its historical uses, elderflower has gained attention in the cosmetic industry due to its potential benefits for skin health and beauty [3,4]. The diverse phytochemical profile of elderflower suggests its capacity to offer antioxidant, anti-inflammatory, and moisturizing effects [5]. As consumer preference shifts toward natural and sustainable cosmetic ingredients, exploring elderflower's cosmetic potential becomes increasingly relevant [6,7]. Elderflower also have excellent antigenotoxic properties (repairing damage to genetic material) that has been linked to anti-aging properties [6,8–11]. Overall, the cosmetic properties of

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the elderflower make it a valuable natural ingredient for use in skincare and haircare products [12].

Elderflower's excellence as a hair product ingredient is attributed to its rich content of bioactive compounds, notably flavonoids, antioxidants, and essential oils. Flavonoids, such as quercetin and rutin, contribute to elderflower's anti-inflammatory and soothing properties [13], effectively addressing scalp irritations and itchiness. Moreover, the high concentration of antioxidants present in elderflower combats oxidative stress, protecting hair from environmental damage and promoting overall hair health [14]. These compounds collectively contribute to elderflower's nourishing, hydrating, and fortifying effects on hair strands, resulting in a hair product ingredient that revitalizes, strengthens, and promotes a healthier and more vibrant hair appearance.

This study aimed to develop and evaluate the effectiveness of the elderflower hair mask, a specially formulated product designed to nourish and revitalize hair ends. The study aimed to provide a comprehensive understanding of the hair mask's application process, the selection of key ingredients, and their individual and combined contributions to enhancing hair health. Through a detailed exploration of each ingredient's properties, the study sought to showcase the mask's benefits in promoting softer, smoother, and more revitalized hair ends. Ultimately, the study aimed to offer a holistic approach to hair care by offering users an effective and enjoyable solution for addressing common hair end concerns and elevating their overall hair care routine.

MATERIALS AND METHODS

Ingredients

Lemon hydrosol (INCI: Citrus limonum (lemon) hydrosol water; CAS: 8020-19-7), Cedar hydrosol (INCI: Cedrus atlantica bark water; CAS: 92201-55-3), BTMS (INCI: Behentrimonium Methosulfate (and) Cetearyl Alcohol; CAS: 81646-13-1/241148-11-0) and Laurel essential oil (INCI: Laurus nobilis leaf oil; CAS: 8007-48-5/84603-73-6) were purchased at Aromazone (Paris, France).

Broccoli oil (INCI: Brassica oleracea italica seed oil; CAS: 223749-36-8), and Grapefruit essential oil (INCI: Citrus paradisi seed oil; CAS: 90045-43-5) were purchased at Plena Natura (Amadora, Portugal).

Elderflower Harvest and Preparation

In May 2023, elderflowers were harvested from Vila Real, Portugal (41°17'51.6"N 7°44'15.3"W) and air-dried for three weeks at room temperature (20–25°C) in a dark and dry place to prevent direct sunlight exposure. The desiccated elderflowers were meticulously preserved within an airtight glass receptacle pending subsequent analysis [11].

Elderflower Powder

It is imperative to acknowledge that the storage of materials in a powdered state might exert a detrimental influence on their longevity. This is attributable to escalated fragility, which yields a larger surface area, engendering heightened susceptibility to oxidation and the dissipation of volatile entities. This phenomenon is particularly pronounced in botanical specimens encompassing essential oils, tannins, and bitter constituents [5]. Consequently, to avert such potential deterioration, elderflowers were methodically milled into powder form using a coffee mill immediately before each experimental undertaking (Fig. 1).

The versatility of elderflower extends to its preparation for cosmetic formulations, offering the flexibility to customize its texture according to specific product requirements. Elderflowers may be meticulously powdered into various particle sizes, allowing for tailored formulations across a spectrum of cosmetic applications. Depending on the intended cosmetic product, the elderflower may be ground into finer or coarser powders, each possessing distinct properties that contribute to the final product's desired texture, appearance, and functionality. This adaptability

Figure 1: Elderflower powder.

underscores the remarkable potential of elderflower as an ingredient, enabling cosmetic formulators to harness its benefits in diverse formulations, from finely textured lotions to coarser exfoliating scrubs, thus enriching the creative possibilities within the realm of natural cosmetics.

Equipment Cleaning and Disinfection

Equipment cleansing and disinfection are indispensable practices within the realm of product manufacturing and process control. Thorough and systematic cleaning and disinfection of equipment ensure the removal of contaminants, residues, and microbial populations that could compromise product quality and safety. By meticulously following established protocols, equipment is effectively sanitized, mitigating the risk of cross-contamination and microbial growth. The cleansing phase involves the removal of physical debris and substances, while disinfection eradicates potentially harmful microorganisms. These procedures uphold stringent hygiene standards and contribute to equipment longevity and optimal performance. A well-executed regimen of equipment cleansing and disinfection safeguards the integrity of products, enhances process reliability, and aligns with regulatory requirements, fostering a controlled and safe manufacturing environment.

Home-Made Cosmetics Cleaning and Disinfection Protocol

Maintaining proper cleanliness and hygiene while creating home-made cosmetics is essential to ensure the safety and quality of the products. Follow this cleaning and disinfection protocol to mitigate contamination risks and produce safe cosmetics:

1. Preparation:
   - Before beginning, all the necessary equipment, ingredients, and packaging materials should be gathered.
   - Before handling any ingredients or equipment, hands should be washed thoroughly with soap and water.
2. Work Surface:
   - The work should begin with a clean and sanitized work surface. The area should be wiped down with a household disinfectant, water mixture, and food-safe sanitizer.
   - Disposable or freshly cleaned cloths or paper towels for wiping surfaces should be used.
3. Equipment Cleaning:
   - Before using any equipment, washing them with warm water and soap to remove dirt and residue is necessary.
   - The equipment should be rinsed thoroughly to remove soap and then air-dried or pat-dried with clean paper towels.
4. Equipment Disinfection:
   - A sanitizing solution for non-porous equipment (stainless steel, glass) should be used. Equipment surfaces should be wiped down with this solution and air-dried. The equipment should be rinsed thoroughly with water after disinfection.
   - For porous equipment (wooden utensils), separate, dedicated cosmetic-making equipment should be used to avoid contamination.
5. Ingredient Handling:
   - Clean and sanitized measuring tools and containers for ingredients should always be used.
   - Ingredients should be avoided touching directly with the hands; using clean utensils or disposable gloves is necessary.
6. Packaging:
   - The packaging containers that will be used for the cosmetics should be clean and disinfected.
   - Finished products should be stored in a cool, dry place away from direct sunlight to prevent spoilage.
7. Hygiene:
   - Wearing a clean apron or clothing designated for cosmetic-making to prevent cross-contamination is fundamental.
   - Cosmetics should not be made if the formulator is sick or has open wounds to prevent contamination.
8. Cleaning After Use:
   - Once one has finished making the cosmetics, the work area and equipment should immediately be cleaned.
   - Utensils and equipment should be washed with warm water and soap and disinfected as outlined earlier.
   - The work surface should be cleaned with a household disinfectant or a mixture of water and food-safe sanitizer.

Following these cleaning and disinfection steps ensures that the home-made cosmetics are produced in a safe and hygienic environment, minimizing the risk of contamination and ensuring the quality of the products. The protocol should be reviewed and updated to align with best practices and relevant guidelines.

Records

A traceability worksheet was created for each preparation (Table 1). This fundamental record-keeping tool captures crucial data to ensure accountability and transparency within the product lifecycle. It succinctly documents essential information, including the International Nomenclature of Cosmetic Ingredients (INCI) name, batch number, quantity utilized, and the due date of each ingredient. This concise yet vital record not only facilitates efficient tracking of ingredient usage yet also aids in quality control, regulatory compliance, and swift response to any potential concerns. By systematically logging these key details, the traceability worksheet empowers businesses to swiftly assess ingredient usage, verify product integrity, and guarantee timely adherence to due dates. In its simplicity, this worksheet reinforces the foundation of a reliable and well-managed supply chain, safeguarding the quality and safety of products while maintaining an organized and efficient production process [15].

Elderflower Hair Mask

The exact formulation is described in Table 2. The determination of specific ingredient percentages in the formulation was guided by a comprehensive approach that balanced scientific knowledge, empirical experimentation, and formulation expertise. Each ingredient's functional role, inherent properties, and potential benefits were meticulously considered during the formulation design. Before formulating the elderflower hair mask, an extensive review of existing literature, research studies, and established formulations involving similar ingredients was conducted. This served as a foundation to establish initial concentration ranges. Empirical testing played a pivotal role, involving the creation of various small-scale batches with incremental adjustments to ingredient concentrations. Rigorous sensory evaluations accompanied these iterations to assess texture, scent, and application ease.

Furthermore, efficacy testing was conducted to gauge the impact of ingredient variations on desired hair health outcomes, including softness, shine, and manageability. Compatibility and stability tests were also performed to ensure that the ingredients interacted harmoniously and maintained the desired properties over time. The formulation underwent multiple refinements, informed by both empirical data and formulation expertise, to achieve a harmonious balance of ingredients that deliver optimal hair care benefits and align with safety, stability, and sensory expectations. These systematic approaches culminated in establishing the specific percentages for each ingredient, offering a scientifically grounded and effective formulation for the elderflower hair mask.

The preparation of these cosmetic ingredients was as follows:

1. The process was initiated by sterilizing all equipment, containers, and utensils to ensure a clean and hygienic environment for formulation.
2. Separate containers were prepared for each phase (Stainless steel bowls, Aromazone), with the ingredients accurately weighed using a digital scale (Plena Natura, 200 g/0.01 g).
3. In a heat-resistant container, the ingredients of Phase A (Cedar and Lemon Hydrosols) were combined (Fig. 2a).
4. In a heat-resistant container, the ingredients of Phase B (BTMS and Broccoli Oil) were combined (Fig. 2b).
5. The Phase B mixture was heated to 75°C using a double boiler until the BTMS had melted completely. The mixture was stirred well to ensure uniform blending of the ingredients (Electric Mini Mixer, GranVelada).
6. Phase B (melted BTMS and Broccoli Oil) was mixed thoroughly with Phase A (hydrosol blend) for 3 minutes.
7. The mixture was allowed to cool down to a suitable temperature (around 40–45°C) (Fig. 2c).
8. Phase C (enriching botanicals and fragrance) ingredients were added one by one to the mixture

Table 1: Traceability worksheet.

Date: 22/05/2023		**Final quantity: 100 g**		
Ingredient	**INCI Name**	**Quantity (g)**	**Batch No.**	**Due Date**
Lemon hydrosol	Citrus limonum (lemon) hydrosol water	32	21HY0185/2	10/2023
Cedar hydrosol	Cedrus atlantica bark water	46.6	21HY0095/5	01/2024
BTMS	Behentrimonium Methosulfate (and) Cetearyl Alcohol	8	22EMU0002/	07/2024
Broccoli oil	Brassica oleracea italica seed oil	10.4	0011780R	06/2023
Elderflower powder	N/A	2	N/A	N/A
Grapefruit essential oil	Citrus paradisi seed oil	0.5	008731	10/2023
Laurel essential oil	Laurus nobilis leaf oil	0.5	21HE0075/5	09/2024

and stirred for 2 minutes to ensure even distribution (Fig. 2d).

9. Stirring was continued periodically as the mixture cooled to prevent any separation or settling of the ingredients (Fig. 2e).
10. Once the mixture had cooled significantly (around 30°C), it was carefully poured into a sterilized amber jar.
11. The jar was sealed, and the hair mist was stored in a cool, dark place to preserve its quality.

Labeling

Home-made cosmetic labelling is integral to creating and sharing personal care products. Accurate and thoughtful labelling remains crucial while not bound by the same regulatory standards as commercial products. A home-made cosmetic label should include essential details such as the product name, list of ingredients, and clear usage instructions. Transparency is paramount, indicating any allergens or potential sensitizers to ensure consumer safety. Additionally, including the creation date or batch number offers a sense of traceability. While the design may reflect the creator's personal style, ensuring legibility and clarity is vital. Though home-made cosmetics lack regulatory mandates, a well-crafted label demonstrates a commitment to responsibility and respect for those who use the products.

Table 2: Elderflower hair mask formulation.

Phase	Ingredient	%
A	Lemon hydrosol	32
A	Cedar hydrosol	46.6
B	BTMS	10
B	Broccoli oil	4.4
C	Elderflower powder	6
C	Grapefruit essential oil	0.5
C	Laurel essential oil	0.5

RESULTS

The pH of the elderflower hair mask was determined using pH stripes and was in the range of 6. The pH level of cosmetic formulations is a critical parameter that profoundly influences their compatibility with the skin and hair. In the context of hair care products, maintaining an optimal pH range is imperative to

Figure 2: Steps of the preparation: a) Phase A mixture; b) Phase B mixture; c) mixture of Phase A into Phase B; d) addition of Phase C ingredients; e) final result.

ensure the health and integrity of the hair strands and the scalp. With a pH level of 6, the elderberry hair mask falls within the slightly acidic to neutral range, closely mirroring the natural pH of healthy Hair. This pH level is strategically chosen to provide effective conditioning and revitalization without causing disruption to the hair's cuticle structure or disturbing the scalp's equilibrium.

The texture assessment revealed that the mask had a creamy and smooth consistency that was easy to apply evenly onto the hair ends. The mask had a non-greasy and lightweight feel and did not leave any residue on their hair. Aroma evaluation highlighted the mask's aromatic appeal and the invigorating and citrusy scent derived from the grapefruit essential oil. After using the mask, the hair ends felt noticeably softer and smoother after a single application.

To assess the stability of the elderflower hair mask over time, a comprehensive study was conducted to monitor potential changes in texture and scent commonly associated with natural formulations. The hair mask was stored under controlled conditions, including varying temperature and humidity levels, to simulate real-world storage conditions. Texture evaluations were conducted periodically, with results consistently demonstrating that the hair mask maintained its creamy consistency and smooth texture throughout the entire study duration. No significant alterations in texture, such as phase separation or thickening, were observed. Additionally, sensory assessments of the aroma revealed that the characteristic citrusy and invigorating scent derived from grapefruit essential oil remained stable and appealing throughout the storage period. These findings collectively attest to the robust stability of the elderflower hair mask, dispelling concerns regarding potential changes in texture or scent commonly associated with natural formulations. The careful selection of ingredients and formulation techniques, in conjunction with appropriate preservation strategies, contributes to the long-term stability and quality of the hair mask, reinforcing its potential as a reliable and effective natural hair care product.

DISCUSSION

The hair care routine may be elevated with the rejuvenating properties of the elderflower hair mask, specially formulated to nourish and revitalize the hair ends. These steps should be followed for optimal application:

- Preparation: After shampooing and conditioning the hair, the hair should be gently dry pat with a towel, leaving the ends slightly damp.
- Application: The container of the elderflower hair mask should be open, and a small amount of the creamy mask should be taken and rubbed between the palms to distribute it evenly.
- Focus on Ends: The mask should be primarily applied to the ends of the hair, where it tends to be most fragile and prone to dryness. The mask should be worked into the ends using the fingers, gently massaging it to ensure thorough coverage.
- Treatment Time: The hair mask must penetrate and nourish the hair ends for 5–10 minutes. For a more profound treatment, we advise wrapping the hair ends with a warm, damp towel to enhance the mask's absorption.
- Rinse: After the treatment period, the hair should be rinsed thoroughly with lukewarm water to remove the mask. The hair ends will feel noticeably softer and smoother, even during rinsing.
- Frequency: For optimal results, the hair mask should be incorporated into the beauty routine once a week or as needed, focusing on providing the hair ends with the nourishment they deserve.

Lemon hydrosol is an excellent choice for this formulation due to its array of beneficial properties that contribute to hair care. Lemon hydrosol is known for its refreshing and cleansing properties. It may help remove excess oil, dirt, and impurities from the hair, leaving it feeling revitalized and clean. It has a natural astringent effect that may help balance oil production on the scalp and clarify the hair strands. This may be especially beneficial for those with oily or greasy hair. It also contains natural compounds that may promote a healthy scalp environment. It may assist in maintaining a balanced pH and reducing the likelihood of issues such as dandruff or scalp irritation. It may impart a natural shine to the hair, enhancing its overall appearance and luster. The invigorating citrus aroma of lemon hydrosol adds a sensory element to the hair care experience, providing a refreshing and uplifting feeling. Lemon hydrosol contains antioxidants that help protect the hair from environmental stressors and oxidative damage, promoting healthier-looking hair. It is generally considered gentle and suitable for various hair types, making it a versatile choice for your formulation. In this formulation, the lemon hydrosol's

cleansing, clarifying, and refreshing properties may complement other ingredients, creating a well-rounded hair mask that aims to revitalize and nourish the hair ends.

Cedar hydrosol is a well-suited ingredient for this hair mask formulation due to its unique properties that may contribute to hair health and overall cosmetic benefits. Cedar hydrosol possesses natural soothing properties, which may help alleviate scalp irritations, redness, and itchiness. This makes it beneficial for individuals with sensitive or irritated scalps. The anti-inflammatory compounds present in cedar hydrosol may assist in reducing inflammation on the scalp, potentially relieving discomfort and promoting a healthier scalp environment. It has a balancing effect on sebum production, making it suitable for both oily and dry scalps. It may help regulate oiliness and promote a harmonious scalp balance. Cedar hydrosol is believed to have properties that may strengthen hair follicles and promote healthy hair growth. This may contribute to overall hair vitality and resilience. The woody and earthy aroma of cedar hydrosol provides a grounding and aromatherapeutic aspect to your hair mask, creating a sensory experience during use. With its inherent antimicrobial properties, Cedar hydrosol may contribute to the natural preservation of your hair mask, helping maintain its freshness over time. Cedar hydrosol imparts gentle hydration to the hair strands, helping to maintain moisture balance and prevent dryness, particularly in the hair ends. Cedar hydrosol complements the other ingredients in this hair mask formulation, especially when paired with lemon hydrosol. Together, they provide a harmonious blend of properties that cleanse, clarify, soothe, and nourish the hair ends.

BTMS is a commonly chosen ingredient for hair care formulations, including hair masks, due to its excellent conditioning and emulsifying properties. BTMS is renowned for its exceptional conditioning capabilities. It helps detangle the hair, improve manageability, and impart a soft, silky texture to the hair strands. This is particularly beneficial for dry or damaged hair ends. It acts as an emulsifying agent that assists in blending water-based and oil-based ingredients together, creating a stable and well-mixed formulation. This ensures that the hair mask maintains a consistent texture and appearance. BTMS carries a positive charge, which enables it to bond with negatively charged hair fibers. This positive interaction helps improve the hair's overall smoothness, reduces static, and enhances shine. Unlike other conditioning agents, BTMS is known for its easy rinsing, leaving minimal residue while providing practical conditioning benefits. BTMS is considered mild and gentle on the hair and scalp, making it suitable for various hair types, including sensitive scalps. It is compatible with numerous ingredients, making it versatile for formulating multiple hair care products. BTMS imparts conditioning without a heavy or greasy feeling, making it suitable for leave-in or rinse-off applications like a hair mask. In the context of this formulation, BTMS contributes to the mask's overall texture, conditioning, and emulsification, ensuring that the enriching botanicals are evenly distributed and easily applied to the hair ends.

Broccoli oil, derived from broccoli seeds, is a thoughtful and beneficial choice for this hair mask formulation due to its unique composition and potential hair-enhancing properties. Broccoli oil is rich in essential fatty acids, vitamins (such as vitamin C and vitamin K), and antioxidants, which may contribute to nourishing and revitalizing hair strands. It is a lightweight oil that provides moisture to the hair without weighing it down, making it an ideal choice for hair mask formulations that aim to nourish hair ends without causing greasiness. The natural sheen-enhancing properties of broccoli oil may add a healthy and radiant appearance to the hair strands, helping to combat dullness and promote vitality. Broccoli oil's vitamin-rich profile may help support overall hair health, potentially contributing to hair strength and resilience. The antioxidants in broccoli oil may offer some level of protection against environmental stressors, including heat damage from styling tools. Broccoli oil's moisturizing properties may help improve hair texture, making it smoother and more manageable. Broccoli oil is known for absorbing quickly into the hair, providing moisture and nutrients without leaving a heavy or greasy residue. In this hair mask formulation, broccoli oil adds an enriching element that promotes hydration, shine, and overall hair well-being. Its lightweight nature and nutrient content make it a versatile choice, especially for targeting hair ends and preventing dryness.

Grapefruit essential oil is a beneficial choice for this hair mask formulation due to its array of properties that may enhance the product's overall effectiveness and sensory experience. When used in hair care products, grapefruit essential oil has a naturally uplifting and invigorating aroma that provides a refreshing and energizing sensation. It helps awaken the senses and promote a positive mood. It is known for its cleansing

properties, which may assist in removing excess oil, dirt, and product buildup from the hair and scalp. This makes it suitable for individuals with oily or congested scalps. It also contains antioxidants that help protect the hair from oxidative stress caused by environmental factors. This contributes to maintaining healthier-looking hair. The antiseptic properties of grapefruit essential oil can help maintain a clean and healthy scalp, potentially reducing the risk of microbial imbalances and scalp issues. Some compounds found in grapefruit essential oil are believed to support blood circulation to the scalp, which may, in turn, support healthy hair growth and follicle health. The invigorating and citrusy scent of grapefruit essential oil creates a spa-like experience during hair mask application, promoting relaxation and well-being. Grapefruit essential oil has natural antimicrobial properties that contribute to the preservation of your hair mask formulation, helping to extend its shelf life. In this formulation, grapefruit essential oil enhances the hair mask's overall sensory experience while contributing to its cleansing, revitalizing, and antioxidant properties.

Laurel essential oil, also known as bay laurel essential oil, is a valuable addition to this hair mask formulation due to its unique properties that contribute to hair health and overall sensory experience. Laurel essential oil has a stimulating aroma that invigorates the senses and provide a refreshing experience during hair mask application. It is believed to have natural antiseptic and antimicrobial properties, which help maintain a clean and healthy scalp by addressing potential microbial imbalances. The unique blend of compounds in laurel essential oil may help promote hair strength and resilience, contributing to overall hair health and minimizing breakage. Laurel essential oil is thought to support blood circulation to the scalp, promoting better nutrient delivery to hair follicles, and potentially supporting healthy hair growth. It may assist in balancing sebum production on the scalp, making it a good choice for those with varying scalp types. The invigorating aroma of laurel essential oil adds an aromatherapeutic dimension to your hair care routine, promoting relaxation and a sense of well-being. Like other essential oils, laurel essential oil has inherent antimicrobial properties that may contribute to the natural preservation of your hair mask formulation. In this formulation, laurel essential oil complements the other ingredients by offering a unique aroma and potential benefits for scalp health and hair strength.

CONCLUSION

The elderflower hair mask, formulated with a meticulous selection of ingredients, offers a comprehensive solution for nourishing and revitalizing hair ends. Through its application and the integration of synergistic ingredients, the mask provides a revitalizing experience that contributes to healthier and more vibrant hair ends. This study underscores the importance of thoughtful ingredient choices in formulating effective hair care products.

While this study has provided valuable insights into the formulation and efficacy of the elderflower hair mask for nourishing and revitalizing hair ends, several avenues for further research are worth exploring. First, investigating the effects of the hair mask on different hair types, such as straight, curly, or textured hair, would enhance our understanding of its versatility and suitability across diverse populations. Variations in hair structure, porosity, and needs could yield valuable insights into the mask's adaptability and potential for addressing specific hair concerns. Additionally, conducting long-term studies to assess the extended benefits of regular hair mask use could provide valuable data on its cumulative effects on hair health and appearance. Investigating the potential for enhanced hair strength, reduced breakage, and improved manageability over an extended period would strengthen the evidence for the mask's long-term efficacy.

Furthermore, exploring the mask's effects on other hair-related factors, such as scalp health and sebum regulation, could broaden its scope of application. Lastly, given the growing consumer interest in sustainable practices, an investigation into the mask's environmental impact and sustainability, including the sourcing and biodegradability of its ingredients and packaging, would contribute to the overall assessment of its suitability within the context of modern cosmetic preferences. By addressing these research gaps, a more comprehensive and nuanced understanding of the elderflower hair mask's potential benefits may be achieved, offering both consumers and the scientific community a well-rounded perspective on its utility in holistic hair care regimens.

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.

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Our Dermatology Online

Original Article

Cutaneous tuberculosis: A series of 10 cases collected at the Dermatology-Venereology Department of the Treichville University Hospital Center

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ABSTRACT

Background: Cutaneous tuberculosis is a rare and under-diagnosed localization of tuberculosis due to its anatomo-clinical polymorphism and the infrequent isolation of mycobacteria. The general objective of our study was to identify its epidemiological, clinical, paraclinical, and evolutive particularities in our working environment. **Methods:** We conducted a prospective study of case series from January 2019 to July 2022. Any patient presenting suggestive clinical signs of cutaneous tuberculosis, as well as a histological and/or biological confirmation, was included. **Results:** Out of 26024 patients consulted, 10 cases of cutaneous tuberculosis were identified (0.03%), with a male predominance (M/F ratio of 9). The average age of the patients was 24 years, with an interquartile range of 23 years and extremes of 5 and 57 years. The main clinical forms identified were scrofulodermas (7 cases). We noted three exceptional cases in which several clinical forms were associated: gummas and verrucous tuberculosis, scrofulodermas and gummas, and scrofulodermas, gummas, and verrucous tuberculosis. Histopathology of skin fragments showed tuberculoid granuloma associated with caseous necrosis in 100% of the cases. Auramine staining found AFB in 67% while PCR revealed *Mycobacterium tuberculosis* in 85.71%. HIV serology was negative in all patients. **Conclusion:** Cutaneous tuberculosis in Abidjan is dominated by multibacillary forms, namely gums and scrofuloderma such as other series in the West African subregion. The negativity of HIV serology in all our patients raises the question of the link between cutaneous tuberculosis and HIV as well as the favoring factors of cutaneous tuberculosis in our context.

Key words: Abidjan, Ivory coast, Epidemiology, Cutaneous tuberculosis

INTRODUCTION

Tuberculosis is an infectious, chronic, and contagious disease of primarily human-to-human transmission caused by *Mycobacterium tuberculosis* or Koch's bacillus (BK) [1]. It is the second most common infectious disease in the world after HIV infection and the leading cause of death. In 2019, its global incidence was estimated at 10 million people and the number of related deaths was 1.2 million [2]. In Ivory Coast, 36,000 cases of cutaneous tuberculosis (cTB) were reported in 2014, and in a meta-analysis of hospital-based studies, the proportion of extra-pulmonary tuberculosis (EPT) ranged from 16% to 50% with lymph node and pleural forms predominating [3]. However, the cutaneous location of the disease remains rare and difficult to diagnose due to its anatomical-clinical polymorphism, which is the source of a multitude of differential diagnoses and patient wandering [4-7]. Based on this observation, we conducted this study with the aim of studying the epidemiological, clinical, paraclinical, and evolutionary particularities of cutaneous tuberculosis in Abidjan.

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METHODOLOGY

This was a prospective case series study of all cases of cTB diagnosed in patients who consulted the Dermatology-Venerology Department of the University Hospital Center of Treichville between January 2019 and July 2022. Our study included patients presenting clinical signs suggestive of cTB associated with a paraclinical confirmation performed on a skin sample. The elements that allowed for this paraclinical confirmation were the presence of *Mycobacterium tuberculosis* on GEN XPERT® MTB/RIF skin samples (ulceration or pus) and/or the visualization of acid-fast bacilli (AFB) after staining with Auramine and/or the presence of a tuberculoid gigantocellular granuloma on histopathological examination. For each patient, epidemiological (age, sex), clinical (time to disease progression, clinical form), paraclinical (results of tuberculin tests, bacteriological skin samples, skin histology, chest X-ray, abdominal ultrasound), therapeutic (treatment protocol), and evolutionary (cure, failure and loss of sight) variables were specified. Depending on the context, other assessments (bacteriological samples outside the skin and other radiological examinations) were also performed.

RESULTS

Prevalence and Socio-Demographic Characteristics

During the study period, 26.024 patients were consulted and 10 cases of cTB diagnosed, representing a prevalence of 0.03% and a hospital incidence of 2.93 cases per year. The median age was 24 years, with an interquartile range of 23 years and extremes of 5 to 57 years. The 20–30-year age group accounted for 40% of the patients, while the 5–10-year age group accounted for 30%. Forty percent of our patients had a secondary education; all resided in the city of Abidjan or its suburbs with 30% and 20%, respectively, in the communes of Yopougon and Abobo.

Clinical Features

The duration of the disease before the first consultation varied between five months and ten years, with a median of one year. Eight patients had been vaccinated with BCG and only one had previous contact with tuberculosis.

The main dermatological lesions were firm nodules present in 70% of the patients, or fistulized (40%), ulcerations (70%), retractile scars (40%), fluctuating tumors (30%), and verrucous plaques (20%) (Table 1). Ten cases of scrofuloderms or écrouelles were observed (70%), and we noted three cases of the association of several clinical forms. Associated visceral localizations were found in all ten patients: lymph node localization in eight cases and pulmonary in two.

Paraclinical Characteristics

The tuberculin or PPD standard test performed in six patients (Table 2) was positive in all (100%). Histological examination in seven patients (Table 2) showed tuberculoid granuloma with caseous necrosis in all (100%). A search for AFB by auramine staining in three patients was positive in two (66.7%) and the detection of *Mycobacterium tuberculosis* by gene amplification in purulent secretions was positive in six out of seven cases (85.7%), all of which were sensitive to rifampicin (Table 3). All our patients had negative HIV serology.

Treatment and Progress

The treatment regimen according to the National Tuberculosis Control Programme in Ivory Coast was

Table 1: Clinical forms and paraclinical examinations.

Clinical Form	SFD	SFD + Gummas	Gummas + VT	SFD + Gummas+VT	Total
Number of patients	7	1	1	1	10

SFD: scrofuloderma, VT: verrucous tuberculosis

Table 2: Results of PPD and skin histology.

Clinical Form	Number	PPD		Histology	
		made	positive	made	conclusive aspect
SFD	7 cases	4	4	5	5
SFD + Gummas	1 case	0	0	0	0
Gummas + VT	1 case	1	1	1	1
SFD + Gommes + TV	1 case	1	1	1	1
Total	10 cases	6	6	7	7

SFD: scrofuloderma, VT: verrucous tuberculosis

Table 3: Auramine staining microscopy and PCR results.

Clinical Form	Number	Auramine staining		PCR	
		made	positive	made	Positive
SFD	7 cases	2	1	5	4
SFD + Gummas	1 case	0	0	1	1
Gummas + VT	1 case	0	0	0	0
SFD + Gummas + VT	1 case	1	1	1	1
Total	10 cases	3	2	7	6

PCR: polymerase chain reaction, SFD: scrofuloderma, VT: verrucous tuberculosis

2RHZE/4RH in seven patients and 2RHZ/4RH in the three others, depending on their weight. However, in one patient suffering from scrofuloderma, due to the persistence of nodular lesions that remained fistulized despite an improvement in general condition, the protocol was extended to seven months for the maintenance phase to obtain healing.

Healing was achieved in nine of the patients at the cost of numerous retractile scars, and one patient was lost to follow-up.

DISCUSSION

cTB is a rare extrapulmonary localization of BK, even in highly endemic countries such as Ivory Coast [4-9]. In our series, the annual hospital incidence of cTB was 2.93 cases. This was consistent with a series from the Maghreb [10,11], yet it was lower in counterparts in the West African subregion: 3.38 cases/year in Mali [7] and 4.57 cases/year in Senegal [6]. This could be explained by the fact that our study coincided with the onset and peak of the COVID-19 pandemic, which was marked by a decline in hospital attendance. The relatively young age of onset in our study is typical of cTB in sub-Saharan regions [6,7]. We note the ubiquitous nature of the disease marked by a distribution that does not distinguish between the age of the patients, their level of education, or their area of residence.

Clinically, the richness of symptoms observed in our study testifies to the anatomical-clinical polymorphism of TB and constitutes a diagnostic difficulty for practitioners. Only lesions of true cutaneous tuberculosis were collected in our series, as in other studies conducted in West Africa [6-8] with a scrofuloderma and gumma predominance. This predominance was observed in all regions of the world (Europe [12], South America [13], Maghreb [9,11,14], and sub-Saharan Africa [6,7]) with the exception of Asia, where there was a clear predominance of lupus tuberculosis [15,16].

No patient was HIV positive in our series. The same observation was also made in France and Morocco [9,12]. However, Ossalé Abacka et al., in a retrospective study comparing EPT and pulmonary tuberculosis (PT), found an HIV positivity rate of

Patient 1 (iconographies of University Teaching Hospital of Treichville)

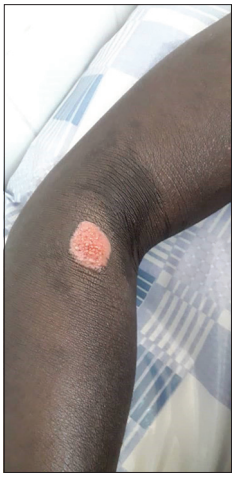

Figure 2: Verrucous lesions on the right forearm.

Patient 1 (iconographies of University Teaching Hospital of Treichville)

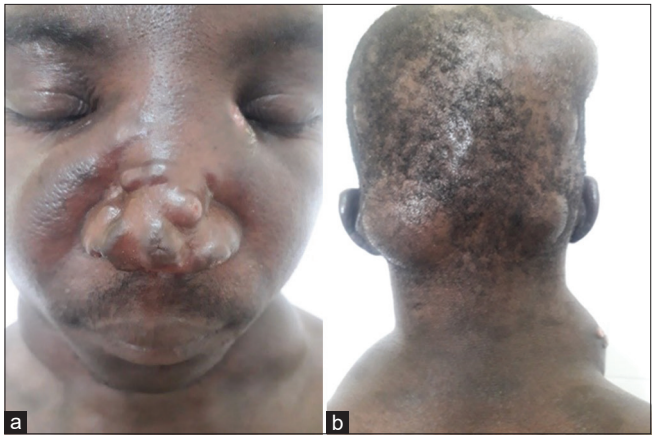

Figure 1: (a and b) Painless and renitent subcutaneous nodules on the face and scalp (tubercular gummas).

Patient 2 (iconographies of University Teaching Hospital of Treichville)

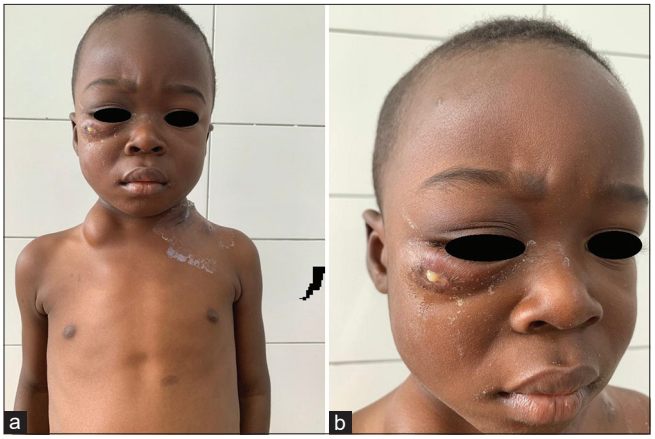

Figure 3: : (a and b) Fluctuating, painless tumor in the right cervical region (tubercular gumma) and scrofuloderma of the right eyelid.

Patient 2 (iconographies of University Teaching Hospital of Treichville)

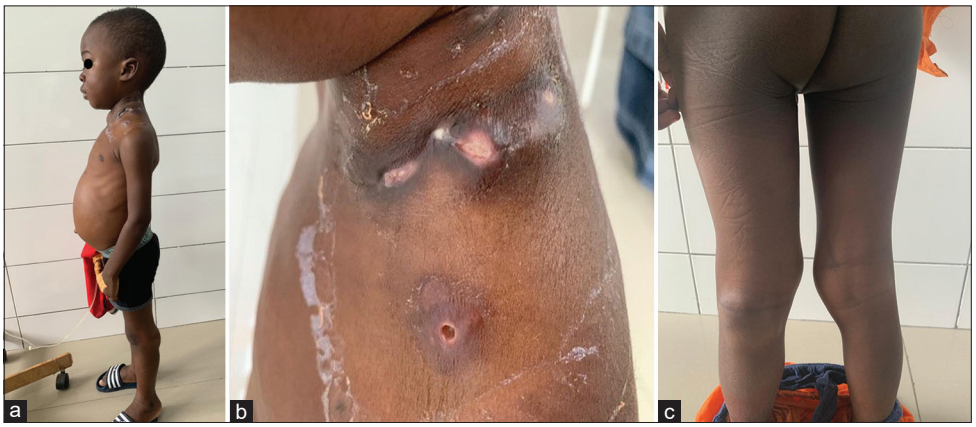

Figure 4: (a-c) Fluctuating tumor of the left popliteal fold (tubercular gumma) and scrofuloderma of the left supra-clavicular region.

Patient 3 (iconographies of University Teaching Hospital of Treichville)

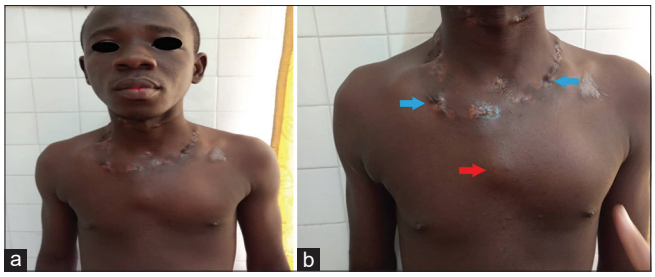

Figure 5: (a b) Scrofuloderma and gumma. ➔ (*blue arrow*) Scrofulodermas in the cervical region in a collar arrangement. ➔ (*red arrow*) Gumma in the sternal region.

37.34% for EPT and concluded that the latter was the prerogative of subjects with weak immune defense [17]. However, the latter did not record any cases of cTB. This concrete difference between the cTB and the other EPT on HIV co-infection raises the question of whether HIV, or even immunodepression in general, has a real, direct or indirect link in the development of cutaneous tuberculosis.

The PPD performed on six patients had a 100% positivity rate. These patients all had scrofuloderma and/or gumma, two clinical forms known as multibacillary. Knowing that the pauci/multibacillary classification in cTB is based on the same principle as that of Ridley and Jopling in leprosy, one would expect a negative PPD, which is not the case and once again calls into question the impact of immunodepression in this disease. PCR had a positivity rate of 85.7% with a sensitivity to rifampicin in all cases and the efficacy of the first-line antituberculosis treatment was noted. This efficacy was found in almost all

Patient 3 (iconographies of University Teaching Hospital of Treichville)

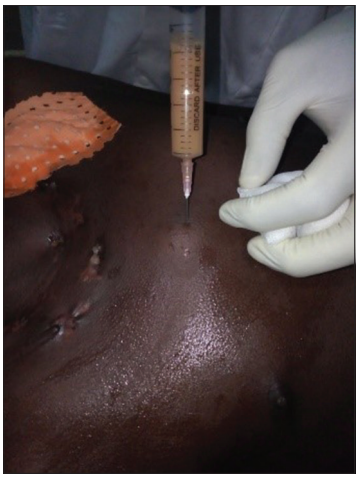

Figure 6: Pus puncture of the gumma at the sternum.

Patient 3 (iconographies of University Teaching Hospital of Treichville)

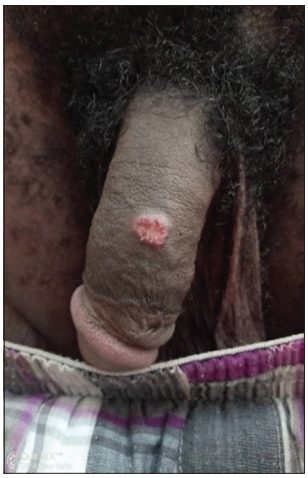

Figure 7: Verrucous lesion.

studies, although there were variations in the duration of treatment [6,7,9,10,14].

The particularity of our study was that 3 out of our 10 patients had several clinical forms of cTB simultaneously, namely, gummas and verrucous tuberculosis (patient 1, Figs. 1 – 2), scrofuloderma and gummas (patient 2, Figs. 3 – 4), and especially scrofuloderma, gummas and verrucous tuberculosis (patient 3, Figs. 5 – 6). Combinations of two clinical forms have been frequently observed in the last decade [9,11,18,19], yet a combination of three clinical forms remained rare, even exceptional. As with other authors, we were unable to establish a link between all these patients that could explain this phenomenon, and no immunodepression factor was found. However, the frequent coexistence of several clinical forms of cTB in the same patient would indicate a preferential attack of cTB in specific areas that remain to be identified.

CONCLUSION

Our series illustrates the anatomical-clinical polymorphism of cTB marked by the predominance of the so-called multibacillary forms with scrofuloderms and gummies. The first-line anti-tuberculosis treatment remains effective. We did not find any association with immunodepression in general, or HIV in particular, and it would be advisable in our context to look for favoring factors of the occurrence of cTB.

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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Our Dermatology Online

Original Article

Body hair removal: A cross-sectional survey among women in the north of Morocco

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ABSTRACT

Objectives: Our study aimed to determine the prevalence and techniques of body hair removal. In addition, we also looked at the various complications that had arisen in our patient group. **Materials and Methods:** An online, anonymous, cross-sectional survey was conducted in the north region of Morocco to collect data that was sent to participants who live in one of the cities of northern Morocco. IBM SPSS, version 25, was employed to analyze the data with descriptive and inferential statistics. **Results:** A total of 660 randomly selected women responded to the questionnaire. The mean age was 31.02 ± 8.89 (SD). Pubic and axillary hair were the most often depilated areas (90–94%). The main reason was hygiene (46.9%). Age, income, family situation, and social status were significantly associated with body hair removal areas and methods. The complications that occurred in different parts of the body were minimal and similar to those already reported in the literature for pubic grooming. They were mainly associated with the technique of removal. **Conclusion:** Younger women were more likely to remove hair from the face, forearms, and legs when compared to the older. Traditional techniques such as waxing and shaving were still the most often employed.

Key words: Body areas, Complications, Hair removal, Regional survey, Techniques

What is known about this subject in regard to women and their families?

- Hair removal is above all a women's issue.
- Although the practice is highly popular, there are still complications related to various hair removal methods.

What is new from this article as messages for women and their families?

- There is no previously published data on the prevalence, techniques, and complications of body hair removal among women in our region.
- More effort is needed to educate women to choose the most appropriate technique with fewer complications.

INTRODUCTION

Pubic hair removal is a common practice that several university centers have studied, especially, in the U.S., Germany, Brazil, the U.K., New Zealand, Saudi Arabia, and Lebanon [1-10]. Its prevalence and characteristics in women are more reviewed; in fact, grooming is associated with younger age, light phototype, higher educational level, being under or normal weight, and high-income employment [2,11-13]. In an American study, being a current and complete groomer was more associated with sexual activity and having multiple partners, which involves better sex life satisfaction [2]. Shaving remains the most widely used method [6], and the most often reported injuries are related to this technique [11,14]. Recently, there has been an increase in the occurrence of sexually transmitted infections

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from contaminated tools in beauty salons and of pubic grooming injuries, among which the most common type was laceration [14,15].

Over the past several years, total body hair removal has become a trend, so much that popular nomenclature has changed from "normal body hair" to "unwanted hair"; it is an increasingly common practice, especially among young women, to conform to modern norms. The role of social media, models, and advertisements is non-negligible in the establishment of standard concepts of beauty and attractiveness, to which hairless skin is an important criterion. Although widespread, there is no data concerning socio-demographic correlates, reasons, methods, and of course, complications of body hair removal among women living in northern Morocco. Our study aimed to determine the prevalence, techniques, and complications of personal hair removal practices and search for the sociodemographic characteristics of this region.

MATERIALS AND METHODS

Survey

An anonymous online survey was established in Google Forms. Before beginning the questions, a short paragraph informed the participants about the objectives of the study, confirming anonymity and obtaining their consent to use the data for scientific purposes. Fifteen minutes was sufficient to complete the entire questionnaire. Multiple or short choice responses were proposed with some photos to make answers easier. The first section of the questionnaire contained demographic data such as age, social status, income, region and city of residence, family situation, and medical history, for instance, hirsutism and age at menarche, and also contained a question about advice received on hair removal. The second section consisted of specific information such as age of initiation, reasons, use of an anesthetic cream before and soothing cream after the procedure, and self-hair removal or recourse to professionals. Then, each part of the body was dealt separately—which part to depilate (face: eyebrow, upper lip, and chin; armpit and pubic area, forearms and legs, other parts), which technique (threading, laser, razor, wax, cream, sugaring, pulsed light, other methods), what frequency of hair removal (once a week, once per month, or more rarely), and what complications (contact dermatitis, herpes, pruritus, folliculitis, hyperpigmentation, ingrown hair, ecchymosis, cuts, and superficial burn)—before ending with a question about consulting a doctor (dermatologist or generalist) in the case of complications.

Statistical Analysis

Statistical analysis was conducted by the team at the epidemiology and public health department of Tangier University Hospital Center. The collected data was analyzed by SPSS, version 25. Chi-squared and Fisher's exact tests were employed to compare categorical variables. The p value was considered significant if it was below 0.05.

RESULTS

General Characteristics

The target population of the study was women living in northern Morocco. A total of 660 women responded to the questionnaire, aged between 15 and 72 years. The mean age was 31.02 ± 8.89 (SD). The age at menarche was 13.06 ± 1.57 (median ± SD). Age at beginning hair removal was 16.16 ± 3.63 (mean ± SD) (Table 1).

Nineteen percent of the women suffered from hirsutism. 63.9% removed their hair themselves, while 36.1% appealed to a professional staff: 4.8% in medical practices or clinics and 31.2% in beauty salons. Before hair removal, only 2.1% of the participants used an anesthetic cream, yet after, 46.6% of them used a soothing cream. Reasons for depilation were as follows: hygiene (46.9%), aesthetic and appearance (9.3%), medical (2.9%), and a combination of reasons (40.9%) (religion and hygiene in the armpits and pubic area, aesthetic in other parts of the body). The frequency of hair removal was once per week in 28.9%, once a month in 62.1%, and less frequently in 8.9%.

Body Areas

94.2% of all women participants removed axillary hair, 90% pubic hair, 82.7% from the legs, 65.3% from the upper lip, 42.3% from the forearms, 39.5% from the eyebrows, 19.2% from the chin, and 13% from other regions of the body.

The age effect was significantly associated with the depilated body parts. Younger women aged between 21 and 40 years (age group A2 in Table 1) were more likely to remove hair from the upper lip ($n = 374$, $p < 0.001$), from the forearms ($n = 254$, $p < 0.001$), and from the

Table 1: Characteristics of the study population.

Characteristics	N	%
Age group (yrs.)		
A1 = 14–20	37	5.6
A2 = 21–40	536	81.2
A3 = > 40	87	13.2
Family situation		
Non-married	297	45
Married with children	279	42.3
Married without children	84	12.7
Social status		
Student	118	17.9
Unemployed	29	4.4
Housewife	103	15.6
Professional activity	410	62.1
Income (DH/month)		
I0 = 0–2000	230	34.8
I1 = 2000–5000	114	17.3
I2 = 5000–10000	233	35.3
I3 = 10000–20000	59	8.9
I4 = > 20000	24	3.6
Region		
Urban	615	93.2
Rural area	45	6.8
City		
Tangier	330	50
Tetouan	52	7.87
Al hoceima	244	36.9
Larache	7	1.06
Ouazane	11	1.66
Ksar El-Kébir	8	1.21
Assila	5	0.75
Chefchaouen	3	0.45
Advice		
No advice received	339	51.4
From doctor	16	2.4
Publicity	15	2.3
Surroundings	263	39.8
Beauty salons	27	4.1
Complications		
Contact dermatitis	2	0.3
Herpes	9	1.4
Pruritus	102	15.5
Folliculitis	95	14.4
Hyperpigmented scars	137	20.8
Ingrown hair	269	40.8
Bruises	32	4.8
Superficial burns	85	12.9
No complications	198	30

legs ($n = 456$, $p = 0.002$), while women over the age of 40 (age group A3) were the least likely to remove hair from the forearms ($n = 11$, $p < 0.001$).

Techniques

Several techniques were used for each part with different frequencies, yet a combination of various methods was also reported (Table 2). In fact, for the face, threading was the most frequently employed technique ($n = 265$, 40.2%), followed by laser ($n = 256$, 38.8%). For the axillary and pubic hair, it was rather hot waxing ($n = 305$, 46.2%), followed by the razor ($n = 299$, 45.3%). Hot waxing ($n = 308$, 46.7%) and

Table 2: Methods of body hair removal.

Techniques	Body Area (%)		
	Face	Axillary and pubic area	Forearms and legs
Cream	3.3	4.8	5.2
Razor	5.3	45.3	25.9
Electric razor	4.1	11.4	9.7
Hot waxing	14.1	46.2	46.7
Cold waxing	19.1	-	5.2
Threading	40.2	-	-
Laser*	38.8	4.2	3.5
Pulsed light	2.6	2.9	2.9
Sugaring	6.5	5.5	5.2
Other technique	-	3.6	2.7
None**	1.4	0.2	14.1

*Alexandrite: 5.5%; diode: 5.9%; Nd: YAG: 1.4%; unknown: 87.3%.
**Women who did not depilate this area.

the razor ($n = 171$, 25.9%) were used also for the legs and forearms yet with a different prevalence.

For axillary and pubic hair removal, participants of age group A2 did not use the razor ($p < 0.001$) but rather waxing ($p < 0.001$), same for the legs and forearms ($p < 0.001$). Other techniques were most frequently used by younger women (A2) living in urban regions to depilate their axillary and pubic hair ($p = 0.019$).

Regarding medical history, women with hirsutism chose to remove excess hair by laser ($p = 0.033$). According to them, the latter ensured better results and a long-lasting effect.

Monthly income was strongly associated with the technique used in different body areas. Group I.0 was significantly associated with the use of the razor ($p = 0.015$), group I.2 with hot waxing ($p = 0.013$), and group I.3 with laser ($p = 0.01$) (Tables 3, 4, and 5). In the same way, non-married women were more likely to remove their hair from the axillary and pubic areas and the forearms and legs with hot waxing ($p < 0.001$ and $p = 0.01$, respectively) and from the face with threading ($p = 0.011$). Employment was statistically related to the choice of technique: workers tended to remove their axillary and pubic hair with the razor ($p < 0.001$) while using waxing for the face, forearms, and legs ($p < 0.001$).

Complications

The participants reported several complications, sometimes combined: ingrown hair ($n = 269$, 40.8%), hyperpigmented scars ($n = 137$, 20.8%), cuts ($n = 111$, 16.8%), itching ($n = 102$, 15.5%), and folliculitis (14.4%), while 198 of the participants

Table 3: Removal of face hair (multivariable analysis of factors associated with the techniques).

Factor	Technique	*p* value
Age group	Not applicable	-
Urban region	Not applicable	-
Monthly income	-	-
Family situation: non-married	Threading	0.011
Social status: workers	Waxing	< 0.001
Hirsutism	Laser	0.033
Complications	Razor	0.33

Table 4: Removal of axillary – pubic hair: multivariable analysis of factors associated with the techniques).

Factor	Technique	*p* value
Age group: A2	Waxing	< 0.001
Urban region	Several methods (combination)	0.019
Monthly income: G0	Razor	0.015
G2	Waxing	0.01
Family situation: non-married	Waxing	< 0.001
Social status: workers	Waxing	< 0.001
Hirsutism	-	-
Complications:		
Cuts	Razor	< 0.001
Pruritus	Waxing	< 0.001
Hyperpigmented scars		0.003
Ingrown hair		
Superficial burns		

Table 5: Removal of forearm and leg hair (multivariable analysis of factors associated with the techniques)

Factor	Technique	*p* value
Age group: A2	Waxing	< 0.001
Urban region	-	-
Monthly income: G2	Waxing	0.013
Family situation: non-married	Waxing	0.01
Social status: workers	Waxing	< 0.001
Hirsutism	-	-
Occurrence of Complications		0.018
Bruises	Waxing	0.03
Ingrown hair		< 0.001
Superficial burns		< 0.001

reported no complications (30%) (Table 1). 6.2% of these complications occurred on the face, 32.3% in the axilla and pubic area, and 23% on the legs and forearms (Tables 3, 4, and 5). Only 24.8% of the women had resorted to consulting the physician (142 the dermatologist vs. 22 the general practitioner in the case of complications).

DISCUSSION

Hair removal is one of the most requested services in aesthetics. It is a question of trend with the desire to remain beautiful and soft. Women remove body hair for numerous reasons. Hygiene was the most often reported reason in our study population, with a frequency of once a month in 62.2% (n = 499) in the axillary and pubic regions. In an American survey, Gaither et al. found that women also remove their pubic hair for social events as well as when they consult a health professional [5]. The present study sought to examine personal hair removal behaviors, determine the prevalence of complications, and specify the sociodemographic characteristics in a representative sample of women living in northern Morocco. Although this practice is common and popular, no data is found in our country, with most studies focusing on women (some on both women and men) in the U.S. and Europe.

Labre reported in his manuscript in 2002 that, after the end of the Second World War, pubic hair removal became standardized, and this is for some reasons, such as womanliness, good hygiene, and sexuality [16]. However, we believe that that study was intended for the American population (even Europeans), since it is known that Islamic legislation specifies that pubic and axillary hair removal must be initiated at the age of menarche and performed at least once every forty days [17,18]. In our study, we found that not all participants removed their axillary and pubic hair, and this was probably because the earliest age of hair removal was higher than that of menarche or the fact that terminal hair at puberty does not become denser until stage 4 of the Tanner classification [19]. In a Saudi survey of pubic hair removal among women, all removed pubic hair, and this practice began at the age of menarche [1]. However, another study found a higher age of initiation for pubic hair removal, which varied from 16.40 ± 3.87 to 18.35 ± 4.34 years depending on ethnic origin [2].

Almost half (51.4%) of the participants in our questionnaire had never received advice on body hair removal, while for 39.8% of the women, the main source of information was their mothers, sisters, and friends; which demonstrated that, despite the current trend and the availability of several sources of information, the role of the family remains irreplaceable regarding education and outreach. In line with this founding, two studies confirmed that the participant's mothers remained the preferred source of knowledge and advice [1,20].

Being hairy has become a real scourge and a symbol of self-neglect, which is why young women are more likely to shave their forearms, legs, and facial hair. Borkenhagen et al. [3] conducted a survey among men and women in Germany and concluded that the female sex and young age were significant determinants for pubic hair removal. The same results have been reported in other research [4,5]. According

to Borkenhagen et al. [3], there was a significant association between hair removal customs and body experience measured by FBeK. Incredibly, insecurity and discomfort are more expressed by removers of pubic and axillary hair, and they showed a lower level of attractiveness and self-confidence when compared to non-removers. This may be the result of a stronger focus on body standards.

This survey showed that younger women, workers, non-married, and women who earn between 5000 and 10000 DH/month were the most likely to wax other parts of their body, especially the forearms and legs. Consequently, the complications that have occurred were related to this method. For axillary and pubic hair, the two most often depilated parts of body hair, women still preferred traditional techniques, such as shaving and waxing, and these selected methods were significantly associated with monthly income (group I.0 with shaving $p = 0.015$ and group I.2 with waxing $p = 0.01$). Muallaaziz et al., in a Turkish survey [20], reported the same results.

Our results corroborated previous studies in terms of complications [6,7]. These were minor, such as ingrown hair, hyperpigmentation, itching, and minor cuts. Nevertheless, certain cases (24.8%) did require treatment. Interestingly, a significant association was found between laser and the absence of herpes ($p = 0.022$), and this may be explained by the systematic prevention of herpes after each laser session. However, serious complications have been reported in the literature, such as cuts, lacerations, molluscum contagiosum, staphylococcal infections, and abscesses, which were caused mostly by razor and waxing [8]. The risk of contracting sexually transmitted diseases from contaminated tools in beauty salons has also been reported, which are uncommon cases of primary genital herpes [21]. Nevertheless, all these reported complications were related to pubic hair removal since this area of the body remains the most studied. Although similar, to our knowledge, this was the first study to report body hair removal complications. Borkenhagen et al. were more interested in body image and experience [3].

As in all surveys, ours had its limits and strengths. The majority of the participants were young workers. However, the sample was random. To our knowledge, this was the only study to examine total body hair removal practices and complications in our country. Thus, to achieve definitive conclusions, it would be helpful to perform a similar study in other regions of Morocco and compare results.

Studies on women's body hair removal enrich our knowledge about the motivation, methods, and problems of depilation. Nevertheless, we should not overlook that such issues are subject to numerous factors and considerations that influence women's choices. Chief among them are religious and cultural beliefs. Thus, we cannot compare two different cultures or generalize findings from studies conducted in American or European populations to Muslim women.

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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Our Dermatology Online

Original Article

Characterization of isolated and integrated clinical and dermoscopic features of topical steroid-dependent/damaged face: A study from central India

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ABSTRACT

Background: Topical steroid-dependent/damaged face (TSDF) is defined as semi-permanent or permanent damage to the skin of the face due to unsupervised or prolonged application of topical corticosteroids to the face. Dermoscopy is widely practiced as a non-invasive, effective technique to analyze the immediate or delayed features of TSDF. **Objectives:** The objective was to evaluate the clinical profile along with dermoscopic features of clinically diagnosed cases of TSDF. **Materials and Methods:** The study was conducted on seventy-five patients attending the Department of Dermatology, Venereology, and Leprosy between April 2021 and September 2022 with clinical symptoms and signs suggestive of TSDF. Thorough history taking, clinical evaluation, and dermoscopic examination were performed, and data was recorded in a structured proforma with a sixteen-point questionnaire. **Results:** Sixty-eight percent of the patients were females, yielding a female-to-male ratio of 2.1:1. The most frequently affected age group was 26–35 years (48%), with a mean age of 31.8 years. The most common topical steroid employed was beclomethasone dipropionate 0.25% (33.33%), followed by clobetasol propionate 0.05% (29.33%). The most common clinical findings observed were erythema with hyperpigmentation (74.66%), followed by erythema with telangiectasia (34.66%). The most often observed dermoscopic findings were red, diffuse areas with vessels (61.33%), red, diffuse areas with an exaggerated pigment network (52%), and clustered vellus hairs with white vellus hair (44%). **Conclusion:** Topical corticosteroids are commonly abused drugs seen in modern clinical practice, resulting in a plethora of symptoms and creating a paramount dermatological concern. Dermoscopy plays a cardinal evaluating role in the early discernment and establishment of TSDF besides determining the gravity of damage.

Key words: Topical steroid-dependent/damaged face (TSDF), Topical corticosteroids, Dermoscopy

INTRODUCTION

The landmark of the modern era of dermatotherapy was set in 1952 with the revelation of the first topical corticosteroids (TCs) by Sulzberger and Witten [1]. Topical corticosteroids have beneficial anti-inflammatory, immunosuppressive, anti-pruritic, and vasoconstrictive actions; on the other hand, their melanopenic and atrophogenic actions have proved to be a double-edged sword. The face is the most common site of TC use for various equitable and illicit indications, hence becomes the most common site of misuse. Prolonged and recurrent TC application to the face results in steroid addiction, causing a phenomenon of cutaneous damage known as *topical steroid-dependent/damaged face* (TSDF) [2].

TSDF is defined as permanent or semi-permanent damage to the facial skin caused by unsupervised, prolonged, indiscriminate, and irrational use of topical corticosteroids on the face for a multitude of ailments, pertaining to its potent and rapid anti-inflammatory action on the skin [3].

The use of TCs on the face produces a constellation of signs and symptoms, such as acneiform eruption, facial

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hypertrichosis, cutaneous atrophy, and demodicosis, whose treatment becomes a battle for both the patient and the dermatologist. Although, early subtle changes of steroid-induced damage to the face may not be visible initially with the bare eye, yet there is a need for the early identification of the marked signs of TSDF before they become clinically apparent and eventually progress reversibly or irreversibly.

Dermoscopy or epiluminescence microscopy is a non-invasive imagining technique that was first used by Lean Goldman in the 1950s to evaluate melanocytic nevi and melanomas. It is a rapid and effective technique of analyzing various dermatological conditions and helps to visualize various layered and subsurface skin structure changes comprehensively. Dermoscopy may also be employed for the visual identification of immediate and delayed features of TSDF by observing characteristic dermoscopic features, such as polygonal vessels and telangiectasias, erythema, structureless, white areas, hypertrichosis, and scales, as well to monitor the patient's compliance to treatment with serial evaluation [4].

The present study was conducted due to limited previous studies despite tremendous injudicious use of topical corticosteroids among the general population, to gain proficiency in detecting the earliest changes of TSDF, and to bring awareness regarding the mishaps of unrestricted availability and consumption of over-the-counter topical steroids.

OBJECTIVES

The present study was conducted to assess the clinical profile of patients presenting with TSDF, encompassing the indications and potency of TCs, and to evaluate and correlate the dermoscopic features of TSDF.

MATERIALS AND METHODS

A hospital-based, observational, cross-sectional study was conducted on seventy-five patients attending the Department of Dermatology, Venereology, and Leprosy between April 2021 and September 2022 after taking approval from the institutional ethical committee. After taking written informed consent, patients aged eighteen years and above with clinical symptoms and signs suggestive of TSDF, including redness, burning, itching, photosensitivity, atrophy, and pigmentation, and with a history of the application of topical corticosteroids to the face for a period of more than one month were enrolled in the study. Patients taking oral corticosteroids and with pre-existing comorbidities such as polycystic ovarian syndrome, Cushing's syndrome, and pregnancy were excluded from the study.

Demographic details including age, sex, occupation, education, marital status, and details of TC application, including duration, frequency, cause of application, and source of recommendation, were documented in a preformed questionnaire containing sixteen questions. After elaborate clinical history taking, cutaneous examination was done on all patients. Dermoscopic examination was done by DINO-LITE™ Premier Digital Microscope (AM4113/AD4113) with polarized light, and findings were captured by Dinocapture 2.0 and analyzed. The collected data was tabulated and described in terms of descriptive statistics and frequency with SPSS and Microsoft Excel.

RESULTS

A total of seventy-five patients with TSDF were enrolled, with 24 (32%) males and 51 (68%) females, giving a female-to-male ratio of 2.1:1. Young and middle-aged adults comprised the most common age groups affected (77.33%), with a mean age of 31.8 years (Fig. 1).

A majority of the patients were educated (81.3%) and aware of their condition and the related possible reasons. Thirty-five percent knew that the withdrawal of such causative agents/topical agents would improve their current problem. A majority of the enrolled patients were housewives (45.33%), while fieldworkers constituted 18.66%, skilled workers 13.33%, manual laborers 12%, and students 10.66%. A significant number of the patients presented with redness

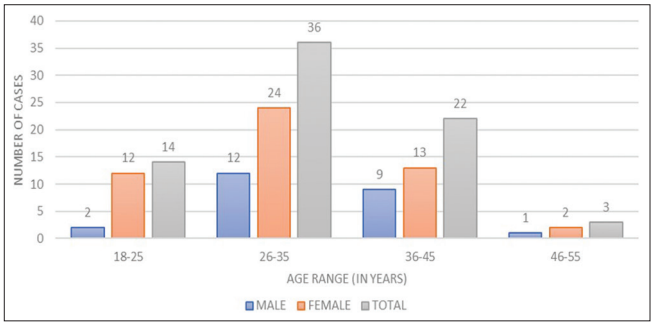

Figure 1: Age and sex distribution of the patients affected by TSDF.

(62.66%), followed by burning (52%), itching (44%), pigmentation (36%), acne (38.66%), photosensitivity (25.33%), dryness (16%), and increased facial hair (10.66%). These isolated complaints were exclusively recorded with the subsequent inclusion of features in the individual as well as a combination basis with the exclusion of the previous indication of use.

Almost all patients employed a combination formulation of TCs with other agents (96%), while few (4%) employed TCs as monotherapy, most probably due to the easy and affordable over-the-counter availability. The most frequently used combination therapy was betamethasone valerate 0.1% and neomycin sulphate 0.5% in 17.33% of the cases. Around 70% of the patients stuck to one TC for the whole duration of the application, whereas the rest of the patients switched to more than one type of TC. The TC switch was interestingly observed from high to low potency, and it was betamethasone valerate to mometasone furoate (9.33%), followed by clobetasol propionate to beclomethasone dipropionate (6.66%).

The most common topical steroid used was beclomethasone dipropionate 0.25% (33.33%), followed by clobetasol propionate 0.05% (29.33%). These were used because of their frequent occupancy among the topmost combination corticosteroid formulations on the market and the relatively higher potency that eases isolated or combined induced ailments on the face. The most frequent indication for which steroids were used by the patients was hyperpigmentation (48%), followed by fairness cream (22.66%). This was usually due to an increased aesthetic concern among the affected age group (Table 1). A majority of the patients (37.33%) used TCs for 3–6 months and the source of recommendation for TC use was the pharmacist (40%). Surprisingly, social media played an imperceptible role (1.33%), contrary to preconceived notions about its role in the existing times (Table 1).

Clinical Features of TSDF

The most common clinical findings in TSDF were erythema with hyperpigmentation (74.66%), followed by erythema with telangiectasia (34.66%) (Fig. 2), acneiform lesions (Figs. 3 and 4) with hypertrichosis (25.33%) (Fig. 5), and hypopigmentation with hyperpigmentation (21.33%) (Fig. 3). These features were a blend of diverse, correlated presenting complaints and use indications as unaided afflictions were thin on grounds in the real-time scenario.

Table 1: Details of various TCs used by the study population

Parameter	Number (%)
TCs used by the study population	
Beclomethasone dipropionate 0.25%	25 (33.33%)
Clobetasol propionate 0.05%	22 (29.33%)
Betamethasone valerate 0.1%	13 (17.33%)
Mometasone furoate 0.1%	12 (16%)
Fluticasone propionate 0.05%	2 (2.66%)
Desoximetasone	1 (1.33%)
Cause of TC application	
Hyperpigmentation	36, (48%)
Fairness and anti-aging	17, (22.66%)
Acne	13, (17.33%)
Dermatophytosis	8, (10.66%)
Routine skin-care cream	1, (1.33%)
Duration of TCs applied by the patient	
1–3 months	8 (10.66%)
3–6 months	28 (37.33%)
6–9 months	18 (24%)
> 9 months	21 (28%)
Source of recommendation	
Pharmacist	30 (40%)
Practitioners from an alternative system of medicine	21 (28%)
Friends and relatives	14 (18.66%)
General physician	8 (10.66%)
Dermatologist	1 (1.33%)
Social media	1 (1.33%)

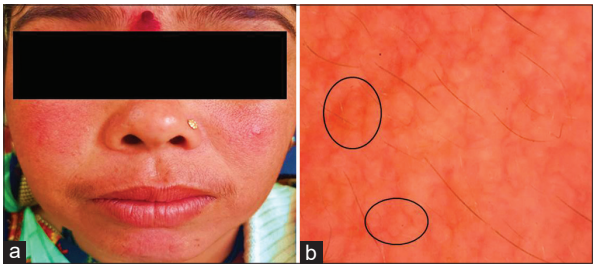

Figure 2: (a) Erythema with telangiectasia present on the bilateral cheeks and chin. (b) Red, diffuse areas with polygonal vessels (*black circle*).

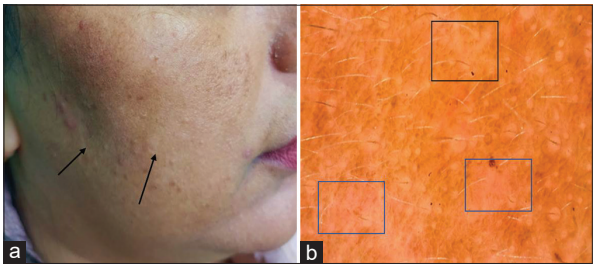

Figure 3: (a) Hypopigmentation (*black arrows*), hyperpigmentation with atrophy, and some acneiform lesions. (b) Pink, structureless areas (*blue square*), white, structureless areas (*black square*), and white vellus hairs.

Dermoscopic Features of TSDF

The most common dermoscopic findings were red, diffuse areas with an exaggerated pigment network (61.33%), red, diffuse areas with vessels (52%)

(Fig. 2b), and clustered vellus hairs with white vellus hair (44%) (Fig. 5), followed by clustered vellus hair with desquamation (33.33%) observed in a statistically higher proportion of cases dermoscopically. The most frequently observed vessels were polygonal (40%) (Fig.2b), serpentine (29.62%), branched (27.77%), and linear (1.85%). The appearance of white vellus hair on dermoscopy was seen in patients using topical steroids mainly for melasma (30%). The visibility of vellus hair was increased twofold upon dermoscopy; in contrast, the peculiar dermoscopic features of acneiform eruption were reduced to 60%. The corresponding dermoscopic features were out of proportion with the majority of individual morphological features, such as erythema, telangiectasia, and hyperpigmentation, while they were equivocal in ochronosis and hypopigmentation and smaller in acneiform lesions. This disparity was shortened to a remarkable scale by analyzing these features in an integrated approach. Thus, we were able to comprehend the real-time ailments of the patients in a problem-solving manner and on an authentic framework. Table 2 sums the isolated clinical and dermoscopic features, while Figs. 2 – 5 show clinical images with corresponding dermoscopic images.

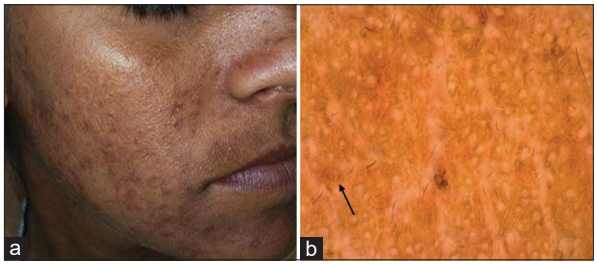

Figure 4: (a) Hyperpigmentation with acneiform eruptions. (b) Brown globules (*black arrow*) with an exaggerated pigment network.

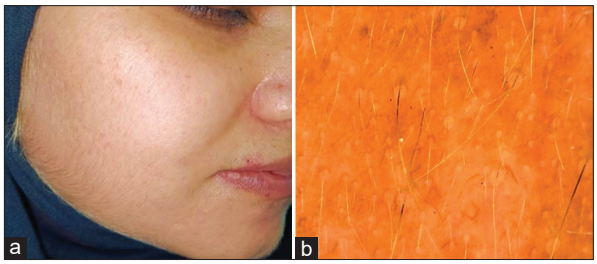

Figure 5: (a) Hypertrichosis after TC application. (b) Clustered vellus and white vellus hairs.

DISCUSSION

The face is the most visible subunit of the human body, making it the most prominent part aesthetically. Environmental factors such as UV rays, dust, pollution, and injudicious use of a multitude of cosmetics and medicated topicals make facial skin more vulnerable to these detrimental effects. Any minor change makes the patient anxious, and they frequently seek for a cure. Topical corticosteroid misuse is a daunting concern globally as multiple countries face the same nuisance [5]. A majority of people have a common perception that the pharmacist has knowledge about most of the ailments. On top of it, the rampant sale of over-the-counter medications leads to the expanding contingencies of such formulations. This never-ending chain of demand and supply with the apprehensive nature of facial concern and reluctancy on the patient's part to realize the adverse effects of TCs has led to the vicious cycle.

TC abuse produces complex symptoms of copious side effects, that is, steroid acne, steroid atrophy, and telangiectasia, occurring due to unrestrained use of TCs, leading to an increased molecular threshold, eventually leading to drug dependence. When initially TCs are applied, they cause vasoconstriction, which

Table 2: Clinical and dermoscopic features among the study population

Clinical findings	Number of patients (%)	Corresponding dermoscopic findings	Number of patients (%)
Erythema	57 (76%)	Red diffuse area	64 (85.33%)
Telangiectasia	19 (25.33%)	Polygonal	22 (29.33%)
		Serpentine	16 (21.33%)
		Branched	15 (20%)
		Linear	1 (1.33%)
Hyperpigmentation	56 (74.66%)	Exaggerated pigment network	32 (42.66%)
		Brown globules	54 (72%)
Hypopigmentation	16 (21.33%)	Pink structureless zones	27 (36%)
Acneiform lesions with pustules	48 (64%)	Starburst pattern with central plug	29 (38.66%)
Hypertrichosis	26 (34.66%)	Clustered vellus hairs	58 (77.33%)
Atrophy	11 (14.66%)	White structureless zone	25 (33.33%)
White hairs	11 (14.66%)	White vellus hairs	44 (58.66%)
Scaling	19 (25.33%)	Desquamation	42 (56%)
Ochronosis	5 (6.66%)	Worm like pattern	6 (8%)

on withdrawal, leads to fixed vasodilatation, being responsible for the rebound effect seen after TC withdrawal [3]. According to Rapaport, the constant application of TCs inhibits the effect of nitric oxide causing chronic vasoconstriction, which on withdrawal, leads to the release of endothelial nitric oxide, inducing vasodilatation with subsequent erythema [6], and abnormal dilatation of capillaries ensues the formation of telangiectasias.

In the age distribution pattern, we found that almost half of the studied population was in the age group of 26–35 years (48%) and 36–45 years (29.33%). A similar age-specific representation was reflected in a study by Nyati et al. on 670 patients, in which 48.20% were in the 21–30 year age range, followed by 31–40 years (25.22%) [7]. The possible reason might have been their consciousness toward appearance due to the acquisition of marriageable age, beginning a career, and participation in society and social media much more actively.

A female predominance (68%) was noted in our study, which was in concordance with the study by Manchanda et al. in which 70% of 100 patients were females [8], which may be explained by a higher cosmetic concern as well as the societal stigma of ideal presentation among females.

In the present study, 81% of the cases were educated, which coincided with the study by Surya et al. in which 78% of patients were educated [9]. This contradicted their ideal representation among society vs. the time-based altered perception of cosmetic use and concern. The most common presenting complaints after TC abuse were redness (62.66%), followed by burning (52%), itching (44%), pigmentation (36%), and acne (38.66%). Meanwhile, Dey observed acne (37.99%), followed by plethoric face, and telangiectasia (18.99%) as the most frequent adverse effects after TC abuse [10].

The most commonly abused TC was beclomethasone dipropionate 0.25% (33.33%), followed by clobetasol propionate 0.05% (29.33%), which was in collision with the study conducted by Surya et al. on 189 patients, among whom betamethasone valerate (34%) was found to be the most common topical steroid used, followed by mometasone furoate (28%) [9]. The discordance could be attributed to the area-specific availability and unregulated dispense of preparations with subjective reference to the particular agent.

The longest duration for which topical steroids were used in our study was less than six months (47.99%), followed by more than nine months (28%). These findings were mirrored in an Indian study by Ambika et al., in which 55% of patients used topical steroids for less than six months [11]. These co-occurrences were not merely destined yet to designate the peak point of acceptability with the eventual emergence of symptoms afterward.

Topical steroids have transpired as major skin lighteners owing to their bleaching action and possibly due to their anti-inflammatory activity, which curtails the risk of dermatitis [12]. We found pigmentation (48%), followed by fairness and anti-aging creams (22.66%), as the most frequent indication for which steroids were used and these findings differed from the study by Saraswat et al., in which 249 out of 433 patients used TCs for acne alone [13].

We found that pharmacists (40%) constituted the largest number of sources of prescription followed by practitioners from an alternative system of medicine (28%), which was in unanimity with a study by Pal et al. in which 39.85% of patients had the pharmacist as their most common source of recommendation, followed by friends or relatives (30.25%) [14].

Erythema (76%), followed by hyperpigmentation (74.66%) and acneiform lesions with pustules (64%), were the most common clinical findings in the present study. On dermoscopic evaluation, red, diffuse areas (85.33%) were the most consistent finding, followed by clustered vellus hairs (77.33%), with an equal number of vessels and brown globules in 72%. This was in harmony with a study by Sethi et al., in which erythema (81.1%), followed by hyperpigmentation (80.3%) and hypertrichosis (68.2%), were the common clinical findings, whereas dermoscopically, it was brown globules (96.2%), followed by red, diffuse areas (92.4%) and vessels (87.1%) [15].

In our study, we also witnessed the unique observation that erythema (33%), followed by hypopigmentation (21%), were the first to recede on dermoscopic examination while withdrawing steroids.

We employed a questionnaire containing sixteen questions to assess the prior knowledge of the patient about the effects due to misuse of TCs and their attitude toward its further use after learning about the adverse effects. We observed that 66.66% of the patients did not have previous knowledge about the

adverse effects of the misuse of TCs. However, after the implementation of a questionnaire with added education and counseling, 98.6% of the patients became well-versed with the mishaps of TCs, while 96% showed a positive attitude toward avoiding such topical preparations, and 94.6% were disinclined to the use of the culprit TCs in the future and committed to follow good practices that we offered.

We believe that the impairments and late sequels owing to TC abuse are not merely meager innoxious manifestations yet complex series of activities being sequentially expressed on the facial surface and subsurface in accordance to the precise timespan of contact to specific TCs with idiosyncratic potencies.

The present study provided isolated and consolidated clinical and dermoscopic features, and such compendious information has not been published earlier. We experienced that integrated clinical and dermoscopic findings were more pivotal as the patients presented with more than one complaint at any particular given point in time. Also, the combined features, although superimposed, were elementarily recognized both clinically and dermoscopically. With an adequate regimen, a decrease in prominent vessels, scaling, hypertrichosis, white hair, and red, diffuse areas would be expected, and the analogous dermoscopic changes may also be serially analyzed.

CONCLUSION

Topical corticosteroids are misused on the face for numerous dermatological conditions such as acne, hyperpigmentation, and even for the purpose of general fairness creams and bleaching agents. Our study highlighted the onus of facial topical steroid misapplication and the elements contributing to the poor attitude toward TCs. Dermoscopy of TSDF may help in a multitude of ways, from validating the diagnosis to predicting the stretch of TC abuse. Furthermore, it may also help in forecasting disease severity, thus explaining abysmal consequences to the patient in all possible ways. As medical professionals, we may further develop multifaceted therapeutic options available on the basis of the integrated clinical and dermoscopic findings. The education of the general population by increasing awareness and providing pamphlets on the adverse effects of TC misuse may also be an important step to prevent this hazard. The enforcement of strict laws on the sale of over-the-counter topical corticosteroids and prescribing physicians to put forth such molecules for further prevention of this epidemic is the need of today's time. In the future, the substantial exploration of corresponding studies is vindicated to increase the confrere's knowledge on this intense subject considering its huge impact on dermatologists as responsible citizens.

Study Limitations

Histopathological correlation of the present subjects along with a series of follow-up evaluations could not have been done. Also, the clinical and dermoscopic assessment of the individual potency based topical corticosteroid molecule was deficient in our study.

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

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Our Dermatology Online

Brief Report

Chronic leg ulcers in Senegal: Epidemiological and etiological study on 154 cases

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ABSTRACT

Introduction: Our aim was to establish the epidemiological and etiological profile of chronic leg ulcers (CLUs) in Senegal. **Methodology**: We conducted a retrospective, descriptive, analytical study at the Dermatology Department of Aristide Le Dantec University Hospital Center (HALD) in Dakar from January 2008 to January 2018 (10 years). Data was entered in Excel and analyzed with Epi Info 7. **Results:** We recorded 154 cases. The sex ratio was 1.75. The main causes were vascular in 69 cases (44.8%), infectious in 29 (18.8%), and sickle cell disease in 15 (9.7%). Etiology has not been identified in 23 patients (15.1%). Vascular origin was venous in 64 cases (92% of vascular causes) without any statistical link with sex ($p = 0.408$), arterial in 3 (4%), and mixed in 2 (3%). **Conclusion:** In Senegal, LCUs are predominantly observed in young males. Causes are dominated by venous insufficiency, followed by infection.

Key words: Chronic leg ulcer, Venous insufficiency, Senegal

INTRODUCTION

Chronic leg ulcer (CLU) is a major concern for dermatologists because of its frequency and difficulty in management [1,2]. In Europe, it affects older women, in contrast to younger patients in Africa, who are predominantly male [2-4].

In addition to causing a considerable deterioration of the quality of life, treatment is expensive, estimated on average at 10,000 EUR per person per year in direct and indirect costs [5]. Its causes are multiple and dominated by venous insufficiency in the European population and recently in Africa [1-5]. In the context of a change in the etiological profile of CLUs in this area [2-4], we considered it appropriate to pursue the aim of determining the new epidemiological and etiological profiles of CLU in Senegal.

METHODOLOGY

We conducted a retrospective, descriptive, analytical study at the Dermatology Department of Aristide Le Dantec University Hospital Center (HALD) in Dakar from January 2008 to January 2018 (10 years). This service is the reference structure for skin pathologies in Senegal. We included all records of patients followed for chronic ulcers between the knee and ankle progressing for at least six weeks [6]. Investigations for etiological purposes were oriented by the clinic. Data was entered in Excel and analyzed with Epi Info 7.

RESULTS

Epidemiological and Clinical Aspects

We recorded 154 cases, with an annual frequency of 15.4 cases. These represented 0.2% of consultants and 3.8% of hospitalized patients during the period. The sex ratio (male-to-female) was 1.75. Fifty cases (32.4%) were sellers, 17 were housewives (11%), and 16 were teachers (10%). The other most represented professions were workers in 6 cases (3.89%), and military and agricultural professions in 4 cases (2.59%) each. The average duration of ulcer development was

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thirty months (2 months to 28 years). The ulcer was in the right leg in 53 patients (33%) and in the left leg in 75 patients (49%). It was bilateral in 26 patients (18%). Regarding number, the ulcer was single in 101 patients (64%) and multiple in 53 patients (35%), including 26 unilateral cases (17%).

Etiology of Ulcers

Causes were vascular in 69 cases (44.8%), infectious in 29 (18.8%), and sickle cell disease in 15 (9.7%). Pyoderma gangrenosum was observed in seven patients (4.5%) and neoplasia in eight (5.2%). Antiphospholipid syndrome (APS) was found in two patients (1.3%) and vasculitis in one female (0.6%). Etiology was not identified in 23 patients (15.1%) (Fig. 1).

Vascular ulcers were observed predominantly in males (69%), with a mean age of 44 years and living in urban areas. Vascular origin was dominated by venous insufficiency in 64 cases (92% of vascular causes), which was unrelated to sex ($p = 0.408$). Arterial disease was the cause in three patients (4%). Origin was mixed in two patients (3%).

Venous ulcers occurred in all sellers in the sample ($n = 50$), six housewives, four from the military personnel, three workers, and one farmer (Figs. 2a and 2b). The ulcer was located on the left leg in 21 patients (32%), and bilaterally in 18 (25%). Ulcers were mostly single (61%). Ochre dermatitis was found in 20 patients (31%). Varicose veins and edema of the lower extremities were found in 19 (29%) and 15 (23%) patients, respectively. Doppler ultrasonography, performed in 68 patients, detected superficial and deep venous damage in 42 patients (65%) and 4 patients (6%), respectively. The two territories were affected in 7 patients (10%).

Sickle cell disease was the cause in 15 patients (12%), among whom 11 cases were the homozygous form (SS). The sex ratio was 1.1. The 16–40 age group was the most represented (80%). The ulcer was the circumstance of discovery of sickle cell disease in nine cases.

Infectious causes were represented by necrotizing bacterial dermo-hypodermatitis (NBHD) in 22 cases, ecthyma in three, ecthyma gangrenosum in two. Other causes were one case of a Buruli ulcer in an eighteen-year-old male and one case of leishmaniasis.

Neoplastic ulcers were due to squamous cell carcinoma in 6 patients (75% of neoplastic causes). We noted one case of leg-type B lymphoma in a 71-year-old patient and extra-nasal TNK lymphoma of the leg in a 47-year-old patient.

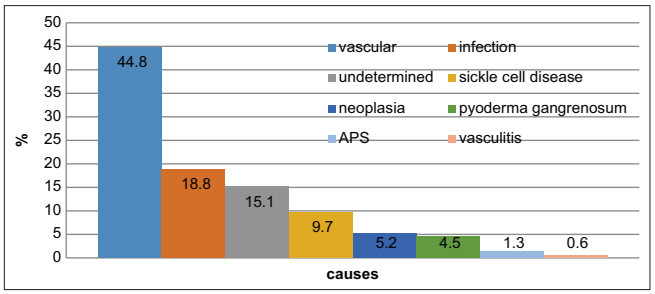

Figure 1: Distribution of CLU causes in Senegal.

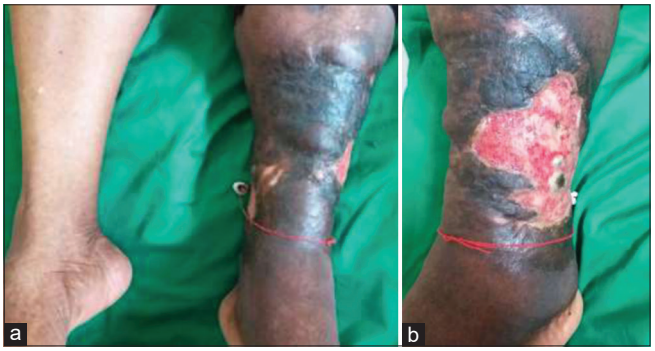

Figure 2: (a) Ulcers with characteristics of venous origin: lower extremity location, ocher dermatitis, lipodermatosclerosis. (b) Large, lateral, supramalleolar venous ulcer on a fibrinous background.

DISCUSSION

We reported a series of 154 cases of CLU over a ten-year period. It provided information on the frequent occurrence in young patients, mostly male, and the predominance of vascular causes dominated by venous insufficiency.

In Africa, the occurrence of CLU is usually reported in young males. A series in sub-Saharan Africa and the Maghreb noted a preferential occurrence in males (60–64%) aged between 33 and 38 years [2,7-9]. This was in contradiction with results in the European population, in which the disease was the exclusive domain of older women. Several European studies have shown an increasing frequency of CLU with age [10]. In London, the prevalence is estimated at 0.045% in the general population, while it is 0.33% in subjects aged 65–74 years, 0.52% in subjects between 75–84 years of age, and 1.64% in subjects older than 85 years [10]. The same was noted in Spain, Australia, where the peak frequency was observed at 75 years old [11,12]. In the United Kingdom and Brazil, CLU occurs in females aged between 73 and 64 years, respectively [10,13].

The early occurrence of the disease in Africa could be explained by the youth of the population and the frequency of the hemoglobin disease, unlike in the European series [9,11,12]. Moreover, the delay in managing the risk factors of CLUs secondary to poverty and the lack of medical coverage is one of the reasons for its early occurrence in Africa.

In Senegal, CLUs are predominantly of vascular origin (44.8%) and dominated by venous insufficiency. This is similar to the etiologic profile in industrial countries.

In the Maghreb and in most series from sub-Saharan Africa, the predominance of vascular causes was clearly established [4,8,11,13,14], except in Mali, where CLUs were mainly due to infectious origin (67.8%) and dominated by necrotizing bacterial dermo-hypodermatitis. They were also the main infectious causes in our series yet corresponded to the second etiological group [9].

Unknown causes were noted in 15.1%. Neoplastic origin was dominated by squamous cell carcinoma, which is the first skin cancer of phototype VI with a preferential location on the leg [15].

CONCLUSION

CLUs are common reasons for hospitalization in dermatology in Senegal, where they predominate among young males. Causes are dominated by venous insufficiency, followed by necrotizing bacterial dermo-hypodermatitis.

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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Our Dermatology Online

Brief Report

Exploring medical students' perceptions of dermatology and dermatologists

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ABSTRACT

Background: Recent survey results highlight the need for increased awareness and recognition of dermatology as a medical specialty within the broader medical community. **Methods:** A survey was conducted among 852 Polish medical students using Google Documents, modelled after a similar study conducted in Germany. **Results:** The survey identified significant findings: many respondents lacked awareness and understanding of dermatology's scope and significance, often associating it primarily with cosmetic procedures. Dermatology was perceived as less prestigious and intellectually challenging, leading to its underrepresentation in medical school curricula and career preferences. **Conclusions:** There is a pressing need for advocacy and awareness campaigns to showcase the depth and complexity of dermatology as a medical field.

Key words: Education, Medical, Undergraduate, Career choice, Dermatologists

INTRODUCTION

In recent decades, dermatology has undergone substantial changes, resulting in advancements in medical practice [1]. Modern biological therapies have notably improved dermatological treatments [2]. Additionally, aesthetic medicine has expanded, and more dermatologists are integrating it into clinical practice. As a result, dermatology has gained prominence among postgraduate medical specialties. However, it's worth noting that dermatology's perception within the wider medical community is sometimes limited [3].

THE AIM OF THE STUDY

The aim of this study was to evaluate the perspectives and attitudes of medical students towards dermatology as a distinct medical specialty.

MATERIAL AND METHODS

For this study, a customized questionnaire was created using Google Documents. The questionnaire design was influenced by a similar study involving German medical students [4]. To ensure broad participation, the survey was distributed through online platforms and forums frequented by medical students across various cities in Poland. The questionnaire comprised 19 items, including two questions with a 5-point Likert scale, three open-ended questions, and five single-choice questions. The Likert scale ranged from "strongly agree" to "strongly disagree" and was employed to assess participants' perceptions in three key areas: (i) understanding of skin disorders, (ii) attitudes toward dermatologists, and (iii) views on the dermatological curriculum. Data collection occurred from May 4th to May 10th, 2020. Incomplete responses were automatically excluded, and comprehensive analysis was performed on all completed questionnaires.

The statistical analysis was performed using the IBM SPSS Statistics v. 26 (SPSS INC., Chicago, IL, USA) software. Firstly, the data was assessed for normality with the use of the Shapiro-Wilk normality test. Subsequently, the minimum, maximum, mean, median, standard deviations, and quartiles were

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calculated. The comparison between groups in qualitative data was performed using the chi2 test. For quantitative data, depending on normality, the T-student test or the Mann-Whitney U test was used. A two-sided p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 852 students (679 females, 173 males) participated in the survey, with a median age of 22.5 years (ranging from 18 to 32). Among the participants, 578 (67.8%) resided in cities with over 100,000 inhabitants, 109 (12.8%) lived in rural areas, 95 (11.2%) in cities with 50,000 to 100,000 inhabitants, and 70 (8.2%) in cities with less than 50,000 inhabitants. No statistically significant association was observed between the students' place of residence and their inclination towards specialising in dermatology ($p > 0.001$).

Among the respondents, 526 (61.7%) had completed a dermatology course, while 326 (38.3%) had not. Completion of dermatology classes did not show a statistically significant impact on the choice of dermatology as a specialisation ($p > 0.001$). Within the study group, 329 students (38.6%; 295 females, 34 males) expressed an interest in pursuing dermatology as their future specialisation. Among them, 191 (58%) had already completed the dermatology course. The students considering dermatology as a potential specialisation cited attractive working conditions as their primary motivation. These included a perceived low-stress work environment with minimal emergencies (280; 32.9%), the prospect of high income (194; 22.8%), and a holistic approach to patient care (85; 10.0%). Notably, there was a statistically significant association ($p < 0.001$) between gender and the choice of dermatology. Females were more inclined to select dermatology due to its perceived calmness, with 252 women compared to 28 men considering this factor as a benefit.

Among the 523 respondents (61.4%; 384 females, 139 males) who were not interested in dermatology, 287 (54.9%) had completed the dermatology course, while 236 (45.1%) had not. The main reasons cited against pursuing dermatology were discomfort associated with the clinical presentation of skin lesions (134; 25.6%) and the requirement of high scores in final exams for specialty applications (105; 20.1%).

Regarding the perception of skin diseases, all participants either agreed or strongly agreed that dermatological disorders are prevalent. The majority of respondents found them to be aesthetically displeasing (739; 86.7%), detrimental to the patient (670; 78.6%), and psychologically burdensome (821; 96.4%). Only 259 individuals (30.4%) considered skin diseases to be contagious (Fig. 1).

Concerning treatment modalities, 599 respondents (70.3%) acknowledged that skin disorders are treatable, with 465 (54.6%) indicating that dermatologists primarily employ topical medications in their treatment approaches. A significant portion of students (627; 73.6%) believed that dermatologists focus more on performing aesthetic procedures rather than providing medical treatment (Table 1).

In terms of the specialty's perception, 518 students (60.8%) expressed the belief that dermatology receives limited respect within the general physician community. Additionally, 744 respondents (87.3%) believed that dermatologists do not bear significant professional responsibility. However, 283 individuals (33.2%) recognized the wide range of development opportunities available within dermatology. Furthermore, 425 participants (49.9%) believed that dermatologists allocate more time to each patient compared to doctors in other specialties, while 517 students (60.7%) perceived dermatologists to have more leisure time than their counterparts in other medical fields.

Regarding the societal perspective, 380 respondents (44.6%) agreed or strongly agreed that dermatology is considered a prestigious specialty among the general public. Moreover, 618 students (72.5%) believed that dermatology offers a higher income compared to other specialisations (Fig. 2). Notably, there was a statistically significant difference ($p = 0.001$) in the gender distribution of individuals who regarded high

Table 1: Dermatologists' scope beyond skin diseases according to students

What do dermatologists treat apart from skin diseases?	Number and percentage of surveyed (%)
sexually transmitted diseases	721 (84.6%)
autoimmune diseases	649 (76.2%)
allergies	551 (64.7%)
leg ulcers	574 (67.4%)
angiology diseases	207 (24.3%)
genital organs diseases	579 (68.0%)
surgically treatment	371 (43.5%)
cosmetology 496 (58.2%)	496 (58.2%)

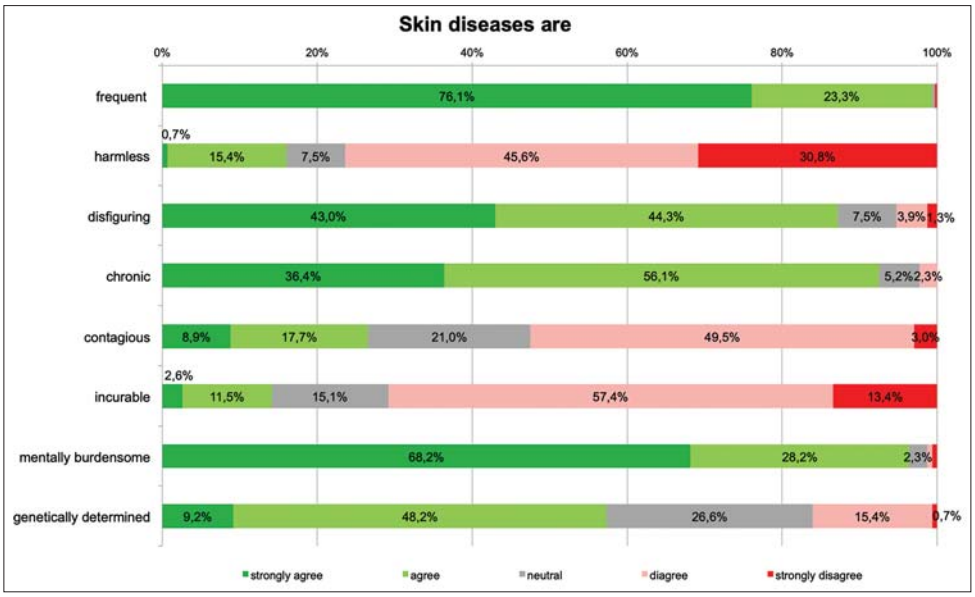

Figure 1: Dermatological diseases: Overview according to students.

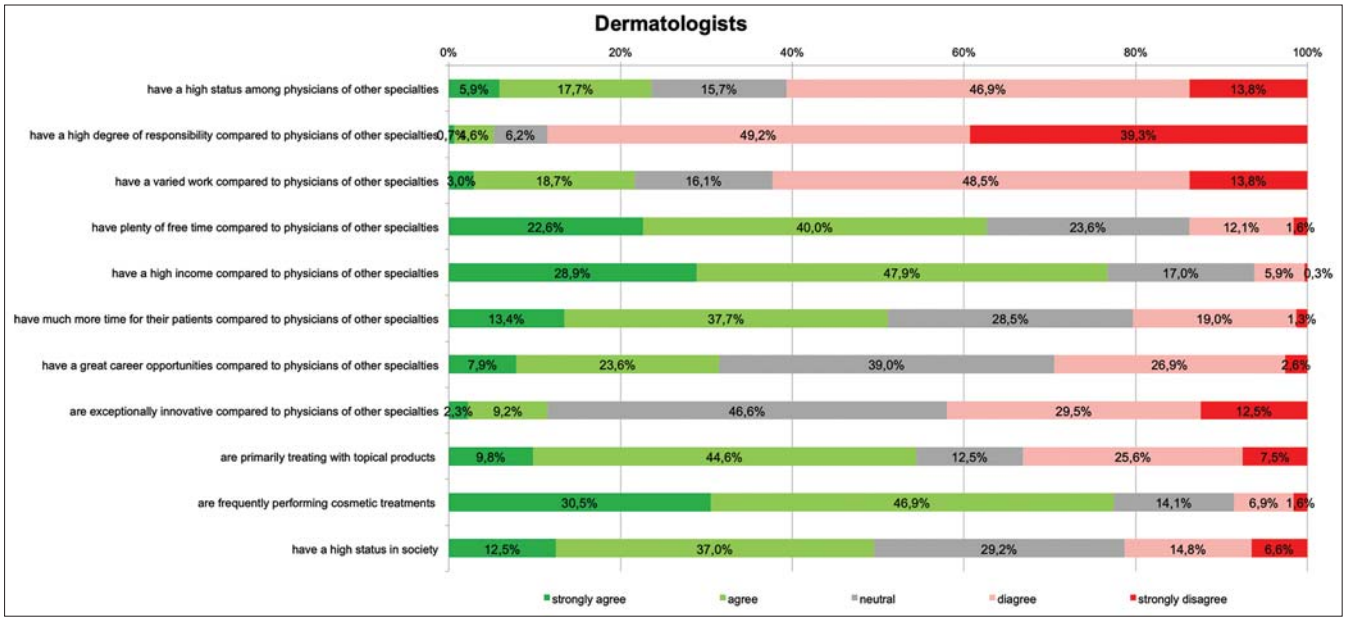

Figure 2: Evaluation of dermatologists relative to physicians from diverse specialisations: A student perspective.

income as an advantage of dermatology. This aspect was more important to women (171; 20%) than to men (23; 1.5%).

DISCUSSION

Dermatology has elicited mixed opinions among medical students, with contrasting perspectives observed [1,5]. A significant number of students described dermatological diseases as being common, causing disfigurement, and being chronic in nature. This perception may be attributed to the predominantly non-acute and non-lethal nature of most dermatological conditions. Similar findings were reported among medical students in Germany [4].

Dermatology is widely recognized as a highly competitive and prestigious medical specialisation, known for its potential for high scores, societal prestige, generous remuneration, and favourable work-life balance [6], findings which align with our own study results. This trend is observed not only in our study but also in studies carried out in Latin America [7].

Both students at a medical school in Germany [4], United Kingdom [8] and a medical school in the United States [9] identified common barriers when considering a dermatology residency. These barriers included the difficulty of securing a placement in dermatology, a high demand for research involvement during the application process and concerns about academic performance.

CONCLUSIONS

In conclusion, tackling the perception challenges within dermatology necessitates a holistic strategy that encompasses education, awareness campaigns, and interdisciplinary collaboration. By accentuating the medical and scientific aspects of the field, we can rectify misconceptions, elevate its reputation, and ensure a strong trajectory for dermatological care.

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.

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Our Dermatology Online

Case Report

Cutaneous verrucose phaeohyphomycosis due to *Exophiala oligosperma* in an immunocompetent host

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ABSTRACT

Herein, we report a case of subcutaneous infection caused by *Exophiala oligosperma*. A verrucous plaque was the major clinical feature. A histopathological examination revealed features of suppurative granuloma. Mycological and molecular identification revealed *E. oligosperma* as the etiologic agent. After eight months of treatment, the lesion showed worsening due to the use of self-medication with topical hydrocortisone. A second biopsy was performed with direct examination (KOH 10%) showing dark pigmented septate hyphae, yeast and multiple dark hyphae were highlighted in biopsy with Gomori methenamine silver (GMS) staining. We report this case to show the rise of this infection in an immunocompetent patient and the effects of steroids. The patient was treated with itraconazole and cryosurgery.

Key words: Phaeohyphomycosis, Cutaneous, Verrucose, *Exophiala oligosperma*, Melanized fungi, Immunocompetent host, Itraconazole, Cryosurgery, Chromoblastomycosis

INTRODUCTION

The term *phaeohyphomycosis* encompasses a heterogeneous group of cutaneous, subcutaneous, and systemic diseases caused by dematiaceous or pigmented fungi detected in the tissue as yeast-like bodies, pseudohyphae-like elements, or moniliform hyphae [1]. The melanized fungi are a heterogeneous group with more than 150 species and 70 genera implicated in human and animal diseases. Most of the species involved are members of the four genera: *Cladophialophora*, *Exophiala*, *Alternaria*, and *Bipolaris*. They are ubiquitous saprobes inhabiting living and dead plant material and, for the most part, residing in the soil in extreme environments on rock, on smooth inert surfaces, or in hypersaline waters [2]. In recent decades, the frequency and biodiversity of melanized fungi as a cause of human or animal infection has increased dramatically. This correlates with the increased average age, a large number of people with treatable chronic diseases, and the growing population of immunocompromised individuals, although immunocompetent individuals may also be affected by the subcutaneous route, which is the most commonly reported form of the disease [3]. Infection occurs primarily due to traumatic inoculation of a saprobic fungus into subcutaneous tissue. In immunocompetent individuals, the disease progresses slowly from an encapsulated cyst to a swelling without ulceration [4,5].

Exophiala is a genus of anamorphic fungi of the family *Herpotrichiellaceae*. The main species causing human disease is *Exophiala dermatitidis*. Isolates exhibit marked neurotropism and are rare agents of severe, life-threatening cerebral phaeohyphomycosis, primarily in Southeast Asia [6]. The species is most frequently recovered from respiratory, cutaneous, and subcutaneous sites, and occasionally from other deep

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infections. However, other species recently noted as recovered from clinical samples are *Exophiala oligosperma* and *Exophiala xenobiotica* [7]. We describe a case of *E. oligosperma*-induced soft tissue infection.

CASE REPORT

A 58-year-old male, native and resident of Tultitlan, State of Mexico (35.2 km from Mexico City), presented chronic dermatosis on his left wrist, which appeared six months earlier. The lesion slowly became verrucose and increased in size (Fig. 1). The patient had been managed at various centers with multiple medications, including oral itraconazole therapy at 100 mg/day with little relief. He had no relevant medical history and denied any contact with chemicals, arthropod bites, a family history, or contact with a person with similar injuries. He said that this hand was injured when he was playing soccer after a fall that caused a laceration. Later, he developed the swelling with a small nodular lesion on the dorsal surface of the left wrist. He had a history of traveling through several states of Mexico, including Guerrero, Morelos, and Veracruz (three humid tropical areas).

He was examined at the dermatology service. The clinical impression suggested verrucous cutaneous tuberculosis. Thorax X-ray was negative for pleuropulmonary and bone disease. Intradermal tuberculin reaction and sporotrichin skin test for sporotrichosis were negative. Initial dermoscopy examination found erythema, scaly areas, and black spots (hemorrhagic crusts), suggestive of chromoblastomycosis or verrucous tuberculosis. An incisional biopsy was performed on the first day that he consulted, with the histopathologic features of suppurative granuloma. Direct microscopic examinations (KOH 10%) and culture were performed on the same day of the biopsy. A black, slow-growing colony developed on Sabouraud dextrose agar (15 days, 28°C). Growth was slow first as a slightly yeast-like membranous black colony and later giving a hyphae shape (Figs. 2 and 3). After fifteen days of incubation (28°C) in Sabouraud dextrose agar, direct examination of the colony showed multiple, brown hyphae with long conidiophores that formed annelloconidia from medium length annellides, which was classified as probable *Exophiala* sp. Molecular identification of the isolate was done by sequencing ITS1 and ITS4 regions corresponding to *Exophiala oligosperma* (Figs. 4a and 4b). Chromoblastomycosis was clinically diagnosed, and treatment with terbinafine

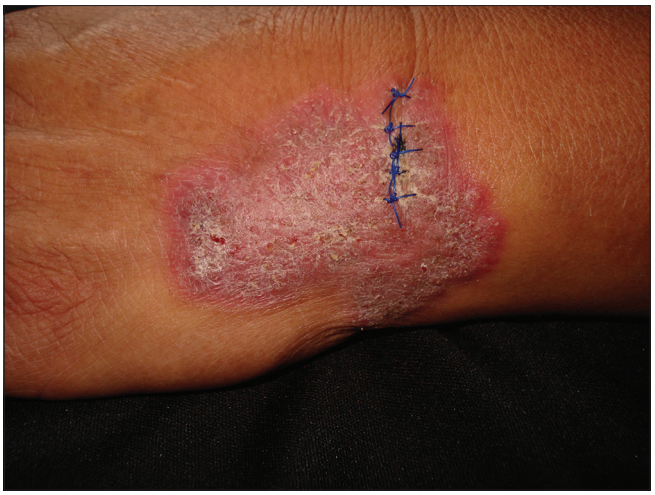

Figure 1: Initial lesion with a verrucous plaque.

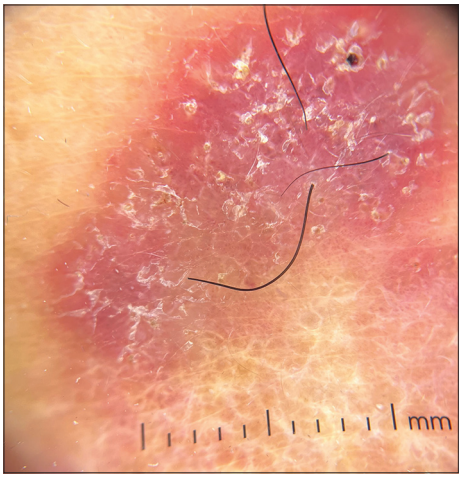

Figure 2: Dermoscopy: a base with erythema, scales, and some black dots.

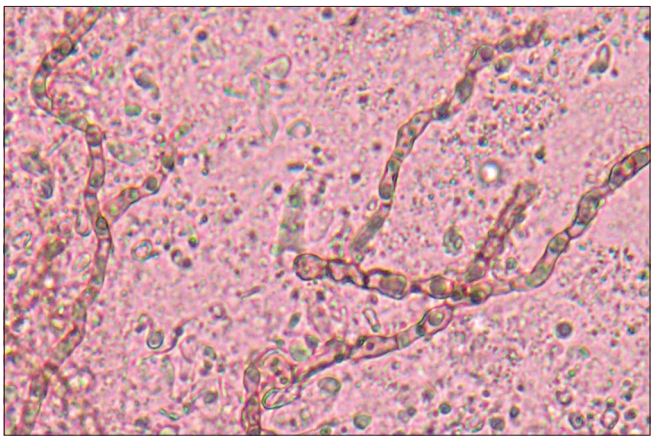

Figure 3: Direct examination with broad dark septate hyphae (KOH, 10%, 40x).

500 mg/day was started, with clinical improvement after six months of treatment. During the eight months of treatment, the patient decided on self-medication with topical hydrocortisone. After that, the lesions showed

exacerbation and worsening, and a new biopsy was performed. Direct examination (KOH 10%) revealed dark, pigmented septate hyphae, and multiple dark hyphae were highlighted with Gomori methenamine silver (GMS) staining. We decided to change the treatment for itraconazole 400 mg/day. Three cryosurgery sessions were performed, one every two months. He is currently clinically and mycologically cured and under clinical observation every three months (Fig. 5).

DISCUSSION

Dematiaceous or melanized fungi are polymorphic organisms. Due to their plasticity and adaptability to several environments, they may present a great diversity in their morphology and clinical expression [2,3].

The clinical presentation of infections caused by pigmented fungi affecting the skin and subcutaneous tissues is characterized by verrucous nodules or plaques [5]. These lesions are indistinguishable from other etiologies and mimic cases such as verrucous tuberculosis vs. verrucous sporotrichosis. Therefore, they represent a diagnostic challenge.

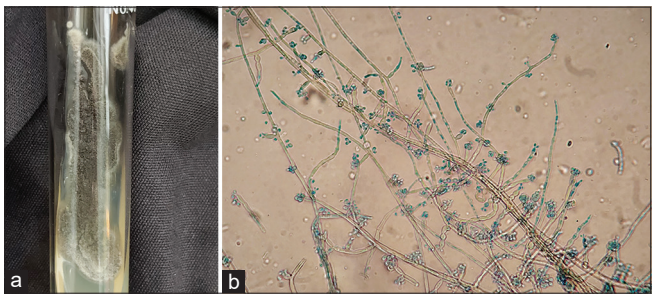

Figure 4: (a) Colony of *Exophiala oligosperma* in Sabouraud-dextrose agar. (b) Microscopic view of *E. oligosperma* with short conidiophores and multiple microconidia (Cotton-blue, 10x).

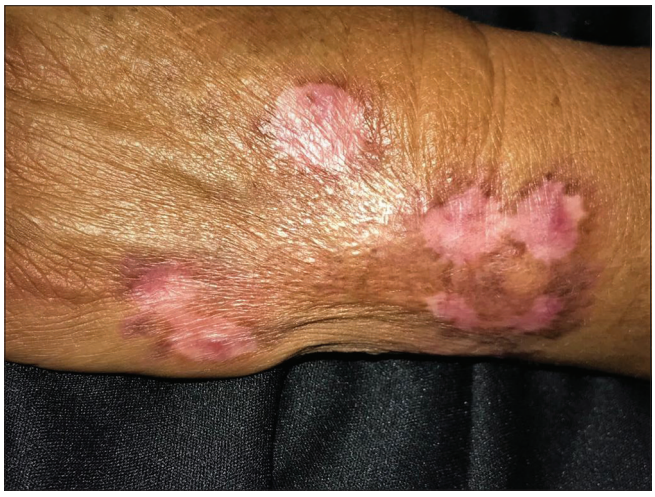

Figure 5: Hypopigmented plaque after treatment with itraconazole and cryosurgery.

All conditions appearing with plaques, nodules, or ulcers are included in the tropical verrucous syndrome. It includes forms of chromoblastomycosis, sporotrichosis, lobomycosis, non-tuberculosis mycobacterial infections, leishmaniasis, tuberculosis verrucosa cutis, and noninfectious causes [8]. It is important to differentiate phaeohyphomycosis from other endemic diseases occurring in different geographic areas, especially in humid and tropical areas.

The expression of the disease depends on numerous factors, such as virulence and pathogenicity of the etiological agents and the immune system of the host against fungal infection. In patients without impaired immunity, studies have demonstrated that both innate and adaptive immune responses are necessary to clear the infection. Among the innate immune cells, macrophages and neutrophils are the first lines of defense through phagocytosis, direct elimination of pathogen, and secretion of pro-inflammatory factors. Dendritic cells (Das) are powerful antigen-presenting cells (APCs), which trigger adaptive T-cell responses against fungal infection. Patients with depletion of the *CARD9* gene, which activates the protein of the same name that is necessary for the activation of T lymphocytes, show susceptibility to serious fungal infection. Chromoblastomycosis and phaeohyphomycosis represent two poles of a wide spectrum of diseases caused by distinct species of melanized fungi. Clinically, the boundaries of the spectrum are imprecise. Chromoblastomycosis and phaeohyphomycosis may be found in both immunocompetent or immunosuppressed hosts, yet phaeohyphomycosis is more frequent in immunosuppressed patients. This expression of the disease is probably related to impaired immunity. Patients with a lack of CARD 9 showed highly destructive, deep, and disseminated phaeohyphomycosis [9,10]. In most cases, samples from immunocompetent patients do not show fungal elements, and the diagnosis is obtained by growth in culture, as in our patient, who in his first biopsy only showed characteristics of a suppurative granuloma without fungus elements.

There are numerous ways in which the immune system may be affected, for instance, due to a disease such as HIV, in which the infection and depletion of CD4+T cells represent the most fundamental event in the

pathogenesis of HIV-1 infection [11], or by the use of drugs such as steroids, which have effects on the immune system, for instance, hydrocortisone, which like other corticosteroids, has immunosuppressive and anti-inflammatory actions. In high concentrations, hydrocortisone attenuates the cells of defense and delays the migration of phagocytic cells to the traumatized area by reducing vasodilatation and the subsequent vascular permeability. Other effects of steroids on fungi are growth stimulating, change in morphology favoring the change from yeast to hyphae, and resistance to antimycotics, making the fungus less vulnerable to osmotic stress in the presence of the antimycotic [12,13]. With all these described effects, the steroid may aggravate the clinical course of the infection. Our patient, after the use topical of hydrocortisone, showed exacerbation and worsening of the lesions, and a new biopsy was performed.

Exophiala spp. are dematiaceous yeast-fungi acquired through accidental penetrating wounds with contaminated material. The species most frequently causing human infection are *Exophiala jeanselmei*, *Exophiala spinifera*, *Exophiala dermatitidis*, and other species less frequently [2,6,14]. It is of paramount importance to differentiate species of *Exophiala* because of their clinical, therapeutic, and epidemiological importance; they have preferred sites of infection and are associated with distinct clinical syndromes. For instance, *E. jeanselmei* has been reported to cause eumycetoma and, on the other hand, *E. dermatitis* has been associated with neurotropic infections in young immunocompetent individuals, yet these rare cases are restricted to Asia. Some species, such as the recently described *Exophiala asiatica*, may cause fatal disseminated cerebral phaeohyphomycosis [15].

The molecular biology method is becoming the diagnostic standard for sequencing ITS regions of the rRNA clinical isolates of *Exophiala* spp. Most cases of *E. oligosperma* cases have been reported in immunocompromised individuals. In 2003, the first English literature report of this species occurred in the Netherlands. A 62-year-old male patient with granulomatosis with polyangiitis (GPA) suffered from olecranon inflammation. The patient received amphotericin B treatment after diagnosis and was cured after ten months. Another eight cases of *E. oligosperma* infection were reported between 2007 and 2016 and showed global distribution, including Japan, Spain, India, and Taiwan [4,13-16]. Most of the patients had immunosuppression status. In our case, there was no evidence that the patient had impaired immune function, considering the patient had trauma before the appearance of the lesion, which we speculated could be the site of entry. There are no standardized therapies, and the treatment will be based on the extension of the disease and the immune status of the patients. This case was erroneously diagnosed as chromoblastomycosis and not as phaeohyphomycosis. However, both etiologies are covered by the same treatment. He was initially treated with subtherapeutic doses; by weight, he should have received between 300 and 400 mg/day.

Azoles are frequently used in the treatment and prevention of mycoses due to their broad-spectrum activity. Itraconazole is the most used drug for dark fungi infections. However, there is very little data available regarding the MICs [17]. *In vitro* studies demonstrated that posaconazole and itraconazole had the highest antifungal activity against *E. jeanselmei* and *E. oligosperma*, for which high MICs were found for caspofungin [17].

Voriconazole and posaconazole, the newly introduced third-generation drugs affecting ergosterol biosynthesis, have been used more frequently in clinical settings in recent years in some reports [18]. A Japan study summarized 32 cases of cutaneous and subcutaneous phaeohyphomycosis caused by *Exophiala* species and described empiric therapy with antifungals, including itraconazole, terbinafine, voriconazole, and fosravuconazole, and the treatment success rates of these monotherapies were 77% (17/22), 67% (8/12), 100% (5/5), and 50% (1/2), respectively [18]. Another study compared was YeastOne® colorimetric antifungal panels with Laboratory Standards Institute (CLSI) M38-A2 reference broth microdilution method for nine antifungals against 67 dematiaceous fungi. In this study, all azoles except fluconazole displayed low MICs, indicating these azoles may have good therapeutic effects on infections caused by dematiaceous fungi [19]. In our case, the patient was successfully treated with itraconazole for a long time. This was a case with a verrucous presentation, such as chromoblastomycosis. Cryosurgery may be an adjuvant in the treatment of resistant disease yet not only because of the possibility of lymphatic spread and to prevent a relapse.

CONCLUSION

Herein, we have reported a lesion caused by *E. oligosperma*. We have described that this species may produce

subcutaneous infection in an induvial with normal immune status exacerbated by topical steroid management (self-medication) and with a good response to itraconazole for a long time.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

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Our Dermatology Online

Case Report

Persistent purple erythematous rash: Langerhans cell histiocytosis

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ABSTRACT

Langerhans cell histiocytosis (LCH) is an uncommon yet serious inflammatory neoplasia that frequently affects children. Skin and bone manifestations are frequent and may be isolated or associated with visceral or systemic disorders. Diagnosis is clinicopathologic, established upon typical clinical findings and immunohistochemical and histological analyses of a biopsy taken from the lesions. Prognosis depends on onset age and the quantity of affected organs. Treatment is often necessary for LCH if systemic involvement exists. Herein, we report a rare case of multifocal LCH of late onset.

Key words: Histiocytosis, Langerhans cell histiocytosis, Inflammation, Systemic manifestations

INTRODUCTION

Langerhans cell histiocytosis (LCH) is a rare disease from the histiocytosis group whose pathogenesis is unknown [1]. It is commonly reported in children, rarely in adults [2]. It ranges from a mildly asymptomatic form to a severe form involving multiple organs and is responsible for multiple visceral failures [1,3].

Herein, we report the case of Langerhans histiocytosis, particularly of late and slow onset, poorly managed due to acute leukemia associated with a pituitary adenoma.

CASE REPORT

A 24-year-old patient was followed for one year in endocrinology for pituitary adenoma under hydrocortisone and diabetes insipidus under oral antidiabetic drugs, and in oncohematology for a suspicion of acute myeloid leukemia in front of the discovery of bi-cytopenia. She was referred to our training four months previously for pruritic liquid lesions affecting the trunk and folds. The first dermatological examination revealed infiltrating, erythematous plaques covered by translucent microbubbles located on the trunk and pubic region.

Due to the suspicion of bullous dermatosis, an initial biopsy was performed, which showed dermatitis spongiform with a negative IFD result. Topical corticosteroids were initiated.

Development was characterized by clinical deterioration after three months and the appearance of new widespread skin lesions that developed in association with deterioration in general condition and tingling. The patient was hospitalized for suspected herpetic superinfection of her underlying dermatoses. Multiple plaques were found at her admission: well-defined polycyclic margins (Fig. 1a), covering the trunk and behind the ears (Fig. 1b), inguinal and intergluteal folds, with a particular distribution of the sleeveless bikini were found (Figs. 2a and 2b).

In addition, the patient reported chronic otitis media, which was evaluated by a CT scan of the rock, which revealed mastoid filling. During his hospitalization, the patient received antiviral and antibiotic treatment with good development.

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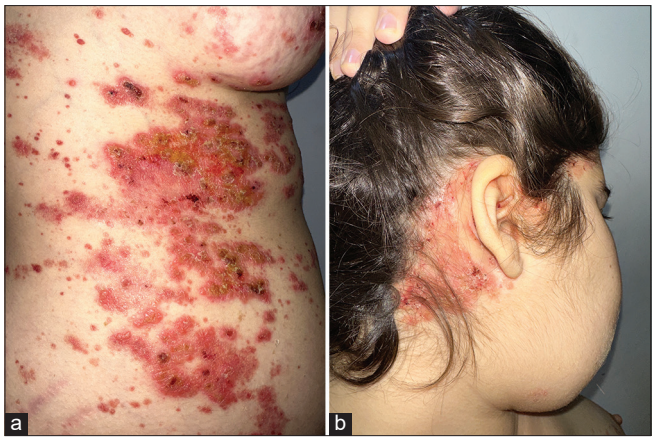

Figure 1: (a) Scaly, erythematous papules and plaques with polycyclic borders. (b) Seborrheic, dermatitis-like eruption.

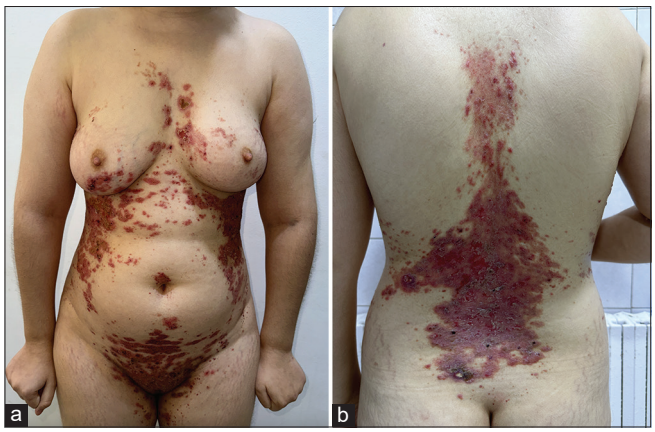

Figure 2: (a and b) Purpuric patches and papules taking the sleeveless bikini.

In view of this multi-lesional picture, with DS-like skin involvement involving the folds and trunk in sleeveless jersey, hematological and mastoid involvement, as well as diabetes insipidus, the diagnosis of Langerhans histiocytosis was evoked, which was confirmed by a skin biopsy with immunohistochemistry (CD1a+, CD68+, and Ps100 +, CD34-).

Her initial hematological and endocrine history was reviewed in favor of histiocytosis, and the patient was admitted to the hematology and oncology department for lesions and dilatations, showing secondary bone, liver, and lymph node locations. The patient was started on full-dose oral corticosteroids, a candidate for chemotherapy.

DISCUSSION

Langerhans histiocytosis (LH) is the most common form of histiocytosis and most commonly affects children aged 1 to 3 years, yet may occur at any age [1,3]. The male-to-female ratio is 2:1 [2]. The clinical presentations are highly variable, ranging from discrete, localized, mild, and asymptomatic forms to aggressive and widespread forms [4]. It is now more important to distinguish forms with multisystem involvement from those with localized monotissue lesions [5]. A variety of clinical manifestations are present, including *punched-out* lytic bone lesions, seborrheic dermatitis-like eruptions, crusted/scaly papules, plaques, and patches, eczematous lesions, diabetes insipidus, hepatosplenomegaly, cytopenia, lymphadenopathy, and a severe and fulminant multisystem condition characterized by fever, anemia, thrombocytopenia, lymphadenopathy, and hepatosplenomegaly [5-8].

Histopathological examination reveals an inflammatory infiltrate containing eosinophils, T lymphocytes, neutrophils, macrophages, and large multinucleated giant cells (LCH) [4,9].

It is important to note that LCH cells are large (10–15 cm), oval, and mononuclear. They have a complex nucleus, similar to a coffee bean, a twisted napkin, or a kidney, as well as a separate nucleolus and an eosinophilic cytoplasm. Immunohistochemistry shows positive CD1a, S100 protein, and Langerin (CD207) [1,2,4].

A thorough analytical approach, supported by the examination of the extent of the lesions, is a key element in the diagnosis of rare diseases with atypical clinical manifestations [5,10]. This was the case with our patient, who presented with systemic hematological and pituitary damage before a skin biopsy was performed, which allowed for late correction and confirmation of the LH diagnosis. Their treatment depends on the extent and location of the lesions: topical treatment (topical corticosteroids or PUVA therapy) for isolated and localized skin damage, immunosuppressants (methotrexate or thalidomide), or even chemotherapy (vinblastine and corticosteroids) for multisystem visceral damage [11,12]. Prognosis is generally poor, with systemic involvement accounting for a high mortality rate of 50–65% [13].

CONCLUSION

Langerhans histiocytosis rarely affects adults and poses a diagnostic challenge because of its variable clinical presentation [2,3]. Treatment and prognosis depend on the organs involved [12]. Skin involvement is one of the more specific symptoms of this disease, making dermatologists a crucial element in the early detection and prevention of errors in diagnosis.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Report

Palpebral sarcoid nodules

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ABSTRACT

Herein, we report a case of systemic sarcoidosis confirmed by a eyelid biopsy in a 47-year-old North African female with a past medical history of a bilateral granulomatous anterior and intermediate uveitis. She presented to the ophthalmological department for bilateral palpebral painful discomfort. An examination revealed the presence of bilateral, rounded, well-limited, subcutaneous, nodular lesions on the upper and inferior lid. A cutaneous biopsy confirmed the presence of a non-caseating granulomatous inflammation. The diagnosis of a definite ocular sarcoidosis was made and she was treated with local steroid ointment associated to hydroxychloroquine. A skin examination of the patient with granulomatous uveitis cannot be stressed enough. A biopsy allows us to make the diagnosis and to treat the patients appropriately.

Key words: Inflammation, Granulomatosis, Eye, Skin Biopsy

INTRODUCTION

Sarcoidosis has been defined as a chronic multi-systemic disease affecting patients in their third and fourth decades of life [1]. It is characterized by non-caseating granuloma formation with a predilection for pulmonary involvement [2]. Systemic locations of sarcoidosis are typically lungs and hilar lymph nodes. Therefore, any systemic organ may be affected, which may pose a great diagnostic challenge sometimes. Ocular disease is reported as present in 20% to 60% of patients with systemic sarcoidosis [3]. Eyelid involvement is highly rare, although it may have a great diagnostic value [4]. We, herein, describe a rare case of systemic sarcoidosis confirmed by a eyelid biopsy.

CASE REPORT

This observation is reported according the CARE guidelines [5].

A 47-year-old North African female had a medical history of bilateral granulomatous anterior and intermediate uveitis and no macular edema. Her visual acuity was 20/25 in both eyes. Biological blood data revealed a lymphopenia at 800 per µL (normal: 1500–4000/µL), Serum angiotensin-1 converting enzyme level was normal measured at 60 U/l (normal: 30–100 U/L), and a skin tuberculin test was anergic. Chest enhanced CT revealed mediastinal and hilar lymphadenopathy. The diagnosis of a presumed ocular sarcoidosis was made, and the patient was treated accordingly with oral corticosteroids (1 mg/kg/day), then with a progressive decrease and a marked improvement. After three years of follow-up, the patient complained of a palpebral painful discomfort. An examination showed the presence of bilateral, rounded, well-limited, subcutaneous, nodular lesions on the upper and the inferior lid (Figs. 1a and 1b: black arrows). Ophthalmic examination was completely unremarkable. A cutaneous biopsy revealed the presence of a non-caseating granulomatous inflammation. The diagnosis of a definite ocular sarcoidosis was reached, and the patient was treated with local steroid ointment associated with hydroxychloroquine.

DISCUSSION

Uveitis is the most common manifestation of ocular sarcoidosis. All anatomic class of uveitis may be seen in sarcoidosis including anterior, intermediate,

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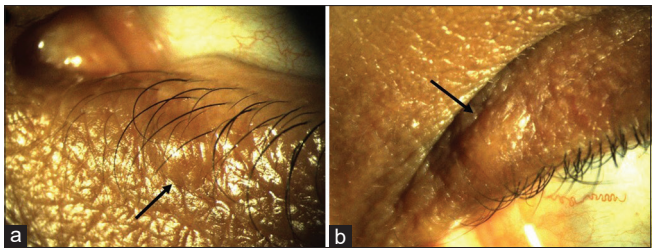

Figure 1: (a) The left inferior lid and (b) the upper lid showing the presence of rounded, well-delineated nodules (*black arrows*).

posterior, panuveitis, and sometimes mixed anterior and intermediate uveitis [6]. The rate of uveitis among ocular sarcoidosis is followed by dry and conjunctival nodules [7]. Eyelid involvement is not common. In all adnexal sarcoidosis, the incidence of eyelid involvement ranges from 11.5% to 17% [8]. Clinical manifestations include infiltrated skin, nodules, hard edema, symblepharon, entropions, irregular margins, and destructive lesions [4].

The diagnosis of sarcoidosis could be challenging in some cases due to the absence of pathognomonic clinical signs. The gold standard remains the specimen biopsy revealing the presence of non-caseating granulomas with or without epithelioid histiocytes and multinucleated giant cells. Nevertheless, biopsies of intraocular tissue are not routinely performed because of the rarity of orbitopalpebral accessible lesions and the invasiveness of intraocular biopsies [1]. Without anatomopathological diagnosis, the diagnosis of sarcoidosis may only be presumed. In fact, in regions where tuberculosis in not endemic, patients presenting uveitis associated with bilateral hilar adenopathy or asymptomatic bilateral hilar adenopathy have almost always sarcoidosis when a pulmonary biopsy is performed [9]. Therefore, because of clinical similarity on chest imaging and ocular presentation, in patients with more than six-month-long residence in tuberculosis endemic regions or where tuberculosis is endemic, tuberculosis must be excluded. If the patient has evidence of latent tuberculosis by having positive tuberculin skin test or positive interferon-Ɣ release assay, the only way to confirm the diagnosis is biopsy [10].

The strength of this case is that it highlights the importance of meticulous ophthalmic examination of ocular appendages in establishing and confirming the diagnosis of multi-system disorders. Therefore, because of its rarity, this case has the limitations of not being a current track in the diagnosis of sarcoidosis. Further prospective studies with multiple orbitopalpebral involvements should be performed to establish the clinical and prognostic patterns of those patients.

CONCLUSION

To conclude, a skin examination of the patient with granulomatous uveitis cannot be stressed enough. A biopsy allows us to make the diagnosis and to treat the patients appropriately. We obtained the patient's consent to publish this observation.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Report

Merkel cell carcinoma: A rare sarcoma

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ABSTRACT

Merkel cell carcinoma (MCC) is a rare cutaneous neoplasm that accounts for less than 1% of all primary cutaneous neoplasms. The majority of MCC cases (80%) are caused by Merkel cell polyomavirus (MCPyV) clonal integration into the host genome. In the remaining 20% of cases, UV mutations are responsible, and prolonged UV exposure is a factor. Herein, we present two cases of this rare tumor: a 48-year-old female with a diagnosis of hairy cell leukemia and an elderly male previously healthy.

Key words: Merkel cell carcinoma, Cutaneous neoplasm, Hospital dermatology

INTRODUCTION

Merkel cell carcinoma (MCC) is a rare cutaneous neoplasm that accounts for less than 1% of all primary cutaneous neoplasms [1]. A trabecular carcinoma was first described by Toker in 1972. It was named Merkel cell because it expresses Merkel cell markers, which are still being discussed. Regional incidences range from 0.1 to 0.88/100,000 person-years, yet they are higher in countries such as New Zealand and Australia [2]. A majority of MCC cases (80%) are caused by Merkel cell polyomavirus (MCPyV) clonal integration into the host genome. In the remaining 20% of cases, UV mutations are responsible, and prolonged UV exposure is a factor [3,4]. MCPyV early regions contain large and small T antigens, which have been shown to drive tumorigenesis. These proteins may play a role in MCC as well. Cells express a truncated form of LT protein that cannot replicate the virus yet retain the domain that inhibits retinoblastoma (Rb), the tumor suppressor. MCC without MCPyV exhibit cellular genomic mutations in tumor suppressor genes, especially TP53 and RB1. Other tumor suppressors, including NOTCH genes and KMT2D, are inactivated less frequently [5]. Based on a systematic review conducted in Japan, the following clinical characteristics were found: male-to-female ratio of 1:1.6, mean age of 77.5 years; 63.0% of the tumors found in the head and neck, 5.2% in the trunk, 12.6% in the upper limbs, 15.1% in the lower limbs, 3.5% in the buttocks, and 0.6% in the genitals; mean tumor size of 2.79 cm, MCPyV detected in 68.9%, and immunosuppression noted in 6.8%[6]. Herein, we present two cases of this rare tumor that are larger than usually reported in the literature and have rare topography: one was immunosuppressed, and the other was sun-exposed.

CASE REPORTS

Case 1

A 48-year-old female and a stay-at-home mom was diagnosed with low-risk hairy cell leukemia in 2019 and was given cladribine to treat it. In 2020, she was seen by the dermatology team and diagnosed with dermatosis with a neoformation. It was in her right gluteus and

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looked cupuliform with a diameter of 4 cm. The surface was smooth and shiny, with purple coloration, and the edges were regular and smooth, with a solid consistency (Fig. 1a). When it was looked at through a microscope, there were unstructured, white and pink areas (Fig. 1b). She had three months of growth and was growing rapidly, yet she was not feeling well. A spindle biopsy was performed, and the pathology report was invasive MCC with deep dermis invasion (Figs. 2a and 2b). CK-7, CK20 + (Fig. 3a), Chromogranin + (Fig. 3b), Synaptophysin -, Ki67 80%, CD56 +, Pax 5+ (Fig. 3c) CD117 + (Fig. 3d). Subsequently, the oncology service classified the patient as an IV EC patient, and she was subsequently treated with surgery and etoposide and cisplatin chemotherapy.

Case 2

In 2021, an elderly male, a flea market vendor, and a type 2 diabetic, had a dermatosis with exophytic necrolysis, which was located on the right upper limb, affecting the anterior side of the arm, distal third, and elbow. The necrolysis had a diameter of 8 by 12 cm, was multilobulated in appearance, and had a reddish-purple coloration. The surface of the necrolysis was ulcerated and friable, and it was mobile to the touch (Fig. 4a). Dermoscopy revealed an unstructured area of white and pink color (Fig. 4b). The patient had a history of more than one year of painful, intermittent bleeding, limited limb mobility, and continued growth without medical attention. The patient underwent a spindle biopsy, which resulted in a diagnosis of soft tissue carcinoma. The pathology report revealed that the cancer was Merkel cell carcinoma CK20+ with a paranuclear pattern and synaptophysin + and chromogranin +, and it was free of TTF1. Subsequently, the oncology service classified the patient as an IV EC patient, and he was subsequently treated with nivolumab.

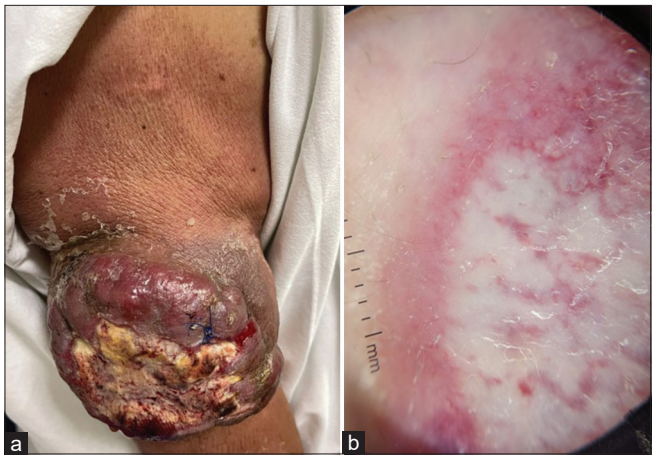

Figure 1: (a) Dermatosis (case one). (b) Dermatoscopy (case one).

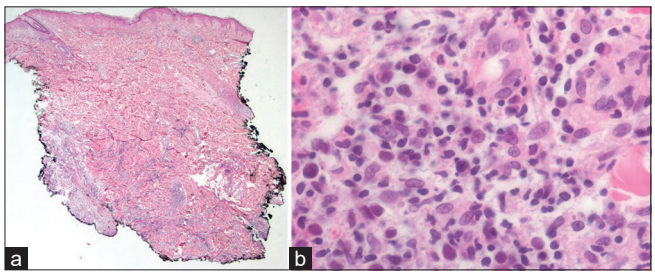

Figure 2: (a) Predominant condition observed in the deep dermis (H&E, 40x). (b) Cells of intermediate to small size with blastic-looking chromatin with periadnexal involvement and even adipose tissue (H&E, 400x).

DISCUSSION

The clinical presentation of the two cases highlights the wide variation in topographic and morphological presentation, making it a diagnostic challenge, and as with all neoplasms, the diagnosis is histological. They are predominantly located in the head and neck, and were found in the upper extremities and buttocks, the latter being the second most common cases reported in the literature [6,7]. The morphology of the lesion is consistent with that found in other publications. The subcutaneous

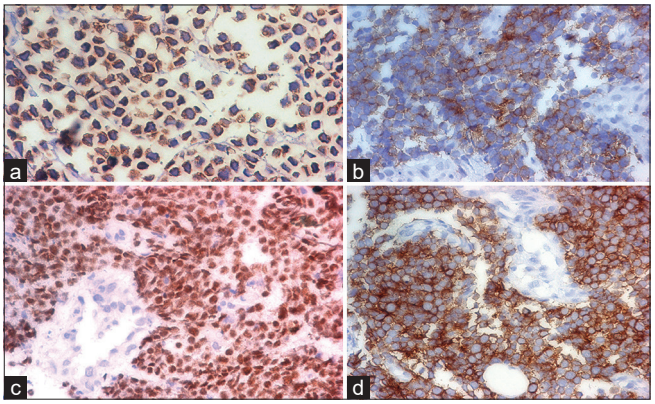

Figure 3: (a) Diffuse and intense paranuclear cytokeratin 20 positive (400x). (b) Chromogranin positive (400x). (c) Markers with aberrant expression PAX5 (lymphoid B marker) (400x). (d) Markers with aberrant expression CD117 (myeloid neoplasms) (400x).

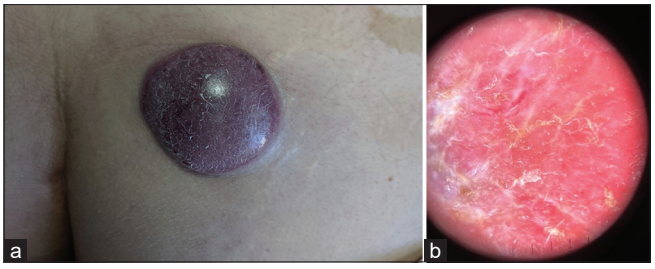

Figure 4: (a) Dermatosis (case two). (b) Dermatoscopy (case two).

necro-formations are red to vultureous, well-circled, and may include ulceration and pedunculation. [8,7] The dermoscopic features of the lesion were linear irregular, polymorphous, poorly focused, milky-pink, white, and structureless. Architectural disorder was present, yet pigmented structures were not present in all lesions [7]. In the two cases, the lesion had structureless white or pinkish-red areas. Among the histological differential diagnoses are osteosarcoma, rhabdomyosarcoma, desmoplastic small cell tumor, small cell or amelanotic melanoma, mesenchymal chondrosarcoma, Ewing sarcoma, lymphomas, and neuroblastoma. The metastatic small cell lung cancer is frequently the most challenging distinction [10,11]. A majority of MCC express cytokeratins, CK20 in 95% of cases, neuroendocrine markers (synaptophysin, chromogranin, and CD56), and neurofilament (NF). Thyroid transcription factor-1 (TTF-1) and CDX-2 are negative. CK7 is generally negative, yet occasional reported cases are positive [12]. In the present case, a combination of neural filaments, chronic lymphocytic cells (CK-20), chronic lymphoblastic cells (CK7), and thyroid transcriptase factor-1 (THF-1) stains had a high degree of sensitivity and specificity to differentiate MCC from histopathological mimics [9]. For treatment of localized disease, resection of the tumor with wide margins is recommended, with secondary closure plus radiotherapy. If the lymph nodes are involved, resection plus radiotherapy is recommended. In metastatic disease or recurrence, the treatment of choice includes immunotherapy with anti-PD1 and anti-PDL-1. Avelumab became the first FDA-approved checkpoint inhibitor for MCC, as a first-line treatment, had an ORR of 62.1% in patients with stage IV disease, Nivolumab (anti-PD-1) administered 240 mg every two weeks as a first-line or second-line treatment exhibited tumor regression response in patients with metastatic MCC in phase I/II clinical trial, ORR was 68% with 82% progression-free survival and 92% overall survival at three months. [12,13,14] Only one case was indicated for anti-PD-1 treatment due to the high cost of treatment, making it only available to a limited number of patients. About the forecast MCC primary tumor size cutoff of 2 cm is still considered a significant breakpoint in prognosis [9]. In both cases, the dimensions were larger, which is a negative prognostic factor. The relative 5-year survival in distant cases is 19%. Related factors are nodal involvement, the presence of metastases, and a size greater than 5 cm [15].

CONCLUSION

Clinical diagnosis of Merkel cell carcinoma is a challenging and uncommon neoplasm requiring a high level of suspicion. In this case report, two patients were diagnosed with this neoplasm. These cases illustrated the entire spectrum of the disease. The two neoformations were associated with UV radiation exposure and immunosuppression, respectively. However, the presentation size of these neoformations exceeded the reported literature size, indicating a poor prognosis. This was likely due to the delays in medical care caused by the ongoing COVID-19 pandemic. New treatments are available for the advanced stages of the disease; however, the cost of these treatments makes them out of reach in our country.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Report

Morphea caused by COVID-19 infection, first polish case report

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ABSTRACT

Morphea, a localized scleroderma variant, is a rare dermatological condition characterized by fibrosis and thickening of the skin. While its etiology remains unclear, there have been reports of its association with viral infections, including COVID-19. We present a case of morphea in a 26-year-old female patient with a history of two episodes of COVID-19. The patient exhibited cutaneous lesions on her left forearm, bilateral axillae, and groin, accompanied by abdominal wall induration Laboratory investigations revealed no significant abnormalities, except for positive antinuclear antibodies (ANA) with various patterns. This case highlights the potential association between COVID-19 infection and the development of morphea, underscoring the importance of considering this relationship in patients presenting with dermatological manifestations following COVID-19. Further research is needed to elucidate the underlying mechanisms and optimize treatment strategies for such cases.

Key words: COVID-19, Morphea, Post-COVID-19 Morphea, Skin diseases

INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was initially identified in December 2019, and by March, the World Health Organization declared the global pandemic of Covid-19 (Corona virus disease 2019) [1]. The virus rapidly disseminated among millions of individuals primarily through respiratory droplets, with an estimated mean incubation period of 6.4 days [2]. Viral infections can instigate autoimmune-mediated diseases either through direct viral-induced damage or by triggering immunological dysregulation due to inflammatory cascades [3].

Cases of post-COVID-19 infection systemic lupus erythematosus (SLE) have been reported in the literature [4,5], as well as a single case of atrophic lichen planus occurring after COVID vaccination in an individual with hepatitis C infection [6].

The integumentary system serves as a prominent organ system for the manifestation of COVID-19-related symptoms and complications, exhibiting a spectrum of dermatological manifestations including exanthems, urticaria, and mucocutaneous involvement [7].

CASE REPORT

A 26-year-old female patient with no comorbidities or family history of autoimmune disorders was presented at the Department of Dermatology in Wrocław for the first time in December 2022. She had a history of two episodes of COVID-19 in December 2021 and January 2022. In March 2022, the patient developed cutaneous lesions on her left forearm, which were asymptomatic. She also had a longstanding history of acne vulgaris-like lesions on her back since the age of 12. Previous treatment with topical betamethasone with gentamicin yielded no improvement. Upon admission, the patient exhibited brown and porcelain-white indurations on her left forearm, bilateral axillae, and groin (Fig. 1). Subjectively, she reported abdominal wall induration. Additionally, open and closed comedones and inflammatory papules were observed on her back. Laboratory investigations revealed no significant

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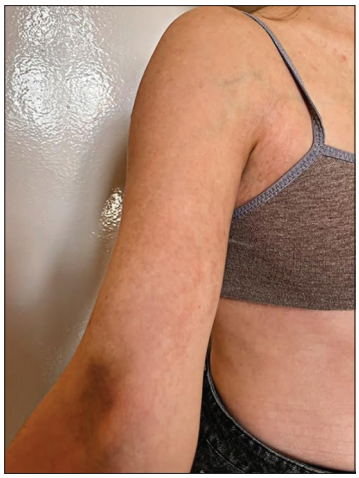

Figure 1: Brown and porcelain-white indurations on left forearm.

abnormalities. Serological tests were negative for hepatitis B, hepatitis C, and HIV. Antinuclear antibodies (ANA) IgG (IIF) exhibited a speckled pattern at a titer of 1:320, a nucleolar pattern at a titer of 1:320, and a cytoplasmic pattern at a titer of 1:100 (reference range: 1:100). Furthermore, ANA profile 3 antibodies and DFS70 (anti-dense fine speckled 70) IgG were negative, except for weakly positive dsDNA (anti-double stranded DNA) antibodies. Due to the characteristic clinical picture of the lesions, histopathological examination was abandoned, and the patient was diagnosed with morphea. After obtaining written informed consent, the patient was initiated on PUVA therapy and oral isotretinoin treatment. Subsequently, in September 2022, a reduction in skin indurations and lesion size was noted on the left forearm, axillae, and groin, while post-inflammatory scars and hyperpigmentation were observed on the back. The patient provided written informed consent for a therapeutic intervention involving subcutaneous administration of 100 mg hydrocortisone via mesotherapy, resulting in satisfactory clinical outcomes.

DISCUSSION

Morphea After Vaccine Against Covid-19 Vaccine and/or After Covid -19 Infection

In the available literature, the majority of references focus on the occurrence of morphea following vaccination against COVID-19 [8,9]. Only a limited number of isolated studies or reports have highlighted the induction of morphea as a result of COVID-19 infection itself [10-12].

In a study conducted by Paolino G et al. [8] involving four patients, three individuals exhibited the development of multiple whitish and sclerotic plaques subsequent to receiving the first and/or second dose of the Comirnaty-Pfizer® SARS-CoV-2 vaccine, while one patient presented with similar lesions 20 days after the second dose of the Vaxzevria-Astrazeneca® vaccine. The number of lesions observed ranged from 5 to 10, with diameters varying between 5 and 12 cm. Notably, none of the patient's displayed involvement of the vaccination site (arm). Subsequent evaluation led to the diagnosis of morphea in these individuals following COVID-19 vaccination.

In a study conducted by Safoura Shakoei et al. [9] skin manifestations were observed in twenty-two patients following administration of the Sinopharm vaccine, while three cases exhibited cutaneous changes after receiving the AstraZeneca vaccine. Among the observed cases, six patients developed newly onset lichen planus (LP), and one patient experienced LP exacerbation. Additionally, two individuals presented with new-onset psoriasis, and one case showed worsening of pre-existing psoriasis. One patient exhibited de novo pemphigus vulgaris (PV), while another case demonstrated PV exacerbation. Moreover, one patient experienced exacerbation of pityriasis lichenoides et varioliformis acuta (PLEVA). Other newly reported cases included toxic epidermal necrolysis (TEN), bullous pemphigoid (BP), alopecia areata (AA), pityriasis rosea, herpes zoster (shingles), cutaneous small-vessel vasculitis, erythema multiforme (EM), urticaria, and morphea.

Zahra Loft et al. [10], reported the initial case of post-COVID-19 pansclerotic morphea (PSM) in a previously healthy 57-year-old female patient. Following confirmation of COVID-19 infection, the patient presented with systemic skin stiffness, predominantly affecting the shins, arms, and abdomen, accompanied by areas displaying an orange-peel texture. Subsequent deep skin biopsy was performed, revealing sclerotic alterations. Based on clinical assessment, the definitive diagnosis of post-COVID-19 pansclerotic morphea was established.

Flavia Pigliacelli et al. [11] presented a case report describing a 61-year-old female patient who developed multiple brownish and purplish plaques on the forearms. The plaques exhibited a sclerotic appearance with mild erythematous borders, and some of them merged partially. The patient reported the onset

of cutaneous symptoms approximately one month after being discharged from the hospital following COVID-19 pneumonia, confirmed by RT-PCR. Notably, the patient had no personal or family history of autoimmune or chronic inflammatory skin diseases. Histological analysis revealed a thin epidermis, moderate skin sclerosis, and thickening of collagen fibers, supporting the diagnosis of post-COVID-19 morphea.

Michael R. Stephens et al. [12] presented a case report describing a 61-year-old female patient with a medical history of arterial hypertension, chronic obstructive pulmonary disease, and hypothyroidism. The patient presented with diffuse skin thickening six months following a two-week illness characterized by fever, myalgia, dyspnea, and cough, accompanied by a positive COVID-19 nasopharyngeal swab test. A wedge biopsy of the left forearm was conducted, and histopathological analysis revealed features indicative of morphea profunda.

In the past, an association between Borrelia burgdorferi infection and the presence of morphea was postulated. However, current guidelines do not recommend routine IgM and IgG antibody testing for Lyme disease in patients with morphea. This position is corroborated by a study conducted by Anna Malewska-Wozniak et al. [13], which examined the prevalence of IgM and IgG antibody classes against Borrelia in 82 patients with morphea and 112 with psoriasis utilizing the conventional ELISA technique. The study revealed that IgM and IgG antibodies against Borrelia were identified only in 4% of blood samples obtained from patients diagnosed with morphea.

The infection caused by Hepatitis C virus (HCV) is considered as a potential etiological factor in the development of cutaneous dermatoses. Saleha Mohammada et al. [14] conducted a hospital-based study in Pakistan which indicated that, among patients with diagnosed HCV infection, pruritus was the most frequently observed cutaneous manifestation, with a prevalence of 33.96%, followed by lichen planus (LP) at a prevalence of 23.5%.

Anuradha Jindal et al. [15], documented a case report involving a 60-year-old female patient who presented with the sudden onset of pruritic fluid-filled lesions that persisted for a duration of 20 days. The patient provided a history of being bitten by a dog, following which intramuscular injections of 0.1 ml of inactivated rabies vaccine were administered on days 0, 3, and 7. Six days post-dog bite, the patient developed cutaneous vesicles and bullae. Histopathological examination confirmed the diagnosis of bullous pemphigoid (BP).

Recent literature also has reported cases suggesting an association between COVID-19 vaccinations and the development of BP [16-19].

CONCLUSIONS

In the case described in our study, the absence of a positive medical history for autoimmune diseases and the subsequent development of cutaneous symptoms following COVID-19 infection in the patient suggest a plausible association between autoimmune disease and SARS-CoV-2. Some authors have hypothesized that SARS-CoV-2 may act as a potential trigger for the development of organ-specific autoimmune disorders in genetically susceptible individuals. Further research is needed to elucidate the underlying mechanisms and explore the clinical implications of this potential link.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Report

Keratitis–ichthyosis–deafness (KID) syndrome in an adult in sub-Saharan Africa

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ABSTRACT

KID syndrome is a congenital disorder combining keratitis, ichthyosis, and deafness. Herein, we report a case diagnosed in adulthood. A 29-year-old male patient with deafness and progressive loss of visual acuity in early childhood was consulted because of generalized scaly lesions that worsened over time. A skin examination revealed large blackish ichthyosiform scaly patches on the limbs, marked follicular keratosis on the trunk, palmoplantar keratoderma, small papules, sometimes hyperpigmented, on the mediofacial area, and significant xerosis. Dental anomalies such as malocclusion and several decayed teeth were present. The combination of ichthyosis lesions, deafness, and visual abnormalities led to the diagnosis of KID syndrome. Emollients and keratolytics were applied with a slight improvement in the skin lesions. The uniqueness of this observation was the late diagnosis of KID syndrome. Ichthyosis associated with neurosensory deficits should evoke KID syndrome despite the difficulty of molecular diagnosis in developing countries.

Key words: Keratitis–ichthyosis–deafness syndrome, Adult, Case report, Sub-Saharan Africa

INTRODUCTION

Keratitis–ichthyosis–deafness (KID) syndrome is a rare genetic disorder combining keratitis, ichthyosis, and deafness [1]. Originally described by Burns in 1915, the acronym *KID* was proposed by Skinner in 1981, and its etiology was discovered by Van Geel et al. and Richard et al. in 2002 [2-5]. In addition to the characteristic clinical triad, dental abnormalities and susceptibility to infection are often reported. Approximately one hundred cases have been reported, including four cases in sub-Saharan Africa (Cameroon, Togo) [6-9]. Herein, we report a case diagnosed in adulthood.

CASE REPORT

A 29-year-old male living in Abidjan was consulted because of generalized scaly lesions present since childhood. The onset of the symptoms was at the age of one year. The non-pruritic scaly lesions were located on the dorsal aspect of the hands and feet with extension and thickening, associated with significant skin xerosis. At two years of age, the cutaneous symptoms were associated with severe deafness and mutism (with otolaryngologic follow-up). The patient also reported progressive loss of visual acuity and corneal opacity at four years of age. An ophthalmic examination revealed cataract and vascular keratitis. His medical history was unremarkable. The patient had no skin lesions at birth, no other chronic diseases, and no parental consanguinity. A physical examination revealed generalized scaly lesions on a sometimes-erythematous background. They were pityriasiform on the trunk and scalp, ichthyosiform, thick, hyperpigmented, and scaly on the upper and lower extremities (Figs. 1a – 1d). An examination of the neck revealed follicular keratoses (Fig. 2a) and palmoplantar keratoderma (Fig. 2b). The hair and nails were normal in appearance.

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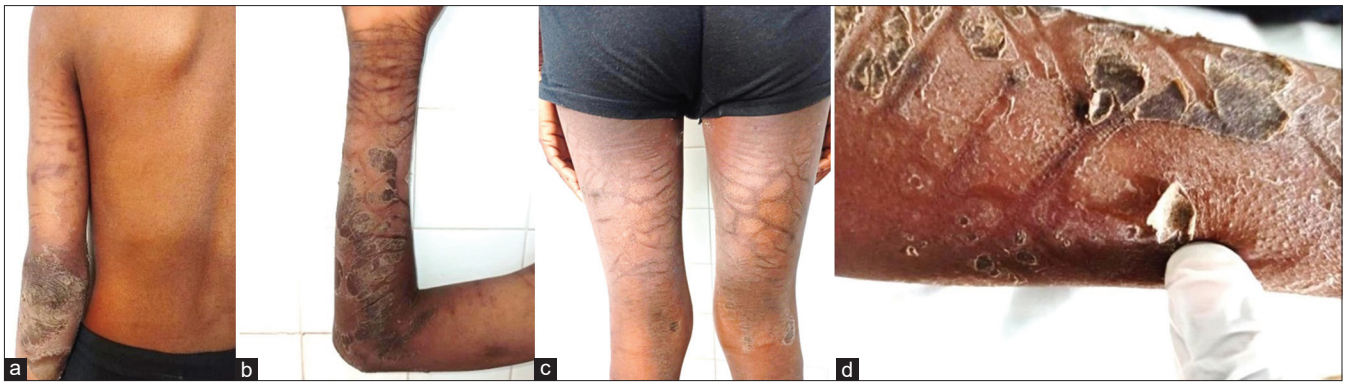

Figure 1: Generalized scaly lesions: a) ichthyosiform scales on the left upper extremity; b) ichthyosiform scales of right upper extremity; c) ichthyosiform scales of the thighs (posterior surfaces); d) ichthyosiform squamous epithelium separating into flaps.

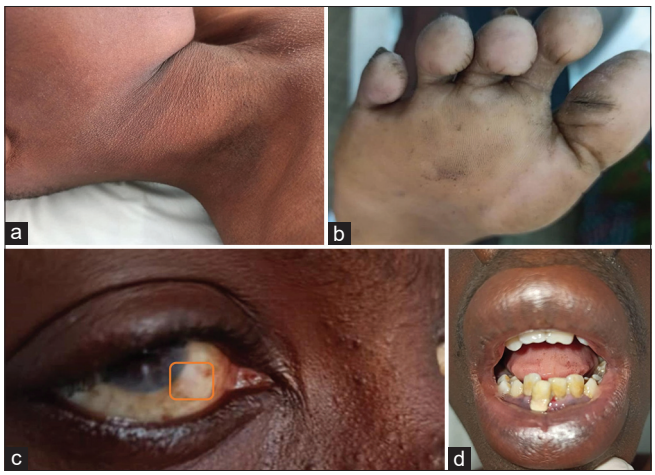

Figure 2: (a) Follicular keratosis of the neck. (b) Plantar keratoderma. (c) Vascular keratitis. (d) Multiple calculus, caries, malocclusion, tooth 41 in lingual position.

An examination of other systems, especially the ophthalmologic and stomatologic systems, revealed vascular keratitis (Fig. 2c) and multiple calculus deposits, caries and malocclusion of the lingual teeth (Fig. 2d). The diagnostic hypotheses were lamellar ichthyosis, progressive symmetric erythrokeratoderma and KID (keratitis–ichthyosis–deafness) syndrome. The association of ichthyosis lesions, deafness, and visual and dental abnormalities led to the diagnosis of KID syndrome. Dermatologic treatment was symptomatic with the use of emollients and keratolytics with a slight improvement in the skin lesions. ENT and ophthalmologic follow-up was continued. The patient was lost to follow-up after two months.

DISCUSSION

KID syndrome is a rare ectodermal dysplasia characterized by autosomal dominant mutations of the GJB2 gene encoding connexin 26 [10]. Herein, we report a case of KID syndrome associated with severe deafness, mutism, severe ichthyosis with plantar keratoderma, ocular involvement (cataract and vascular keratitis), and oral anomalies (calculus, caries, and malocclusion) in an adult. The majority of cases have been reported in children. Wonkam et al. (Cameroon) reported two cases in children aged two years, Barruet et al. (Togo) reported one case in a sixteen-year-old, and Kombaté et al. (Togo) reported one case in a nine-year-old [7-9]. To the best of our knowledge, this description of KID syndrome is the first of its kind in Côte d'Ivoire. The late diagnosis in our case could be explained by the lack of knowledge of this pathology by the general practitioners and the sociocultural prejudices of the patients. The low socioeconomic level of the patients would lead them to prefer the care of traditional therapists, which would favor delaying the diagnosis of the disease. We were unable to perform genetic analysis on the index case and his parents due to our limited technical resources. This analysis would have provided a diagnostic argument of certainty and confirmed the mode of transmission. Indeed, some authors have shown that KID syndrome is generally associated with sporadic inheritance, yet there are familial forms with autosomal dominant and recessive transmission [7,11-13,14]. In their work in Togo, Kombaté et al. suggested that KID syndrome described in a child from a consanguineous marriage was likely to be sporadic [9]. In our case, there was no concept of consanguinity. Genetic analysis of the parents in the Kombaté study and in our case would, therefore, have been useful. The hair and nails may be affected, as reported by Cammarata-Scalisi et al. and Caceres-Rios et al., in the form of progressive scarring alopecia and onychodystrophy [10,15]. In our case, the hair and nails appeared normal. Raghavon et al. (India) reported a case of a four-year-old with alopecia of the scalp, eyelashes, and eyebrows [16]. Kombaté

et al. (Togo) also reported diffuse scalp alopecia [9]. Dental anomalies, although not well described, may also be found in patients, as in our case. Caceres-Rios et al. found 25% dental abnormalities in their study in Mexico [15]. Multiple caries and pyogenic granulomas, right oral mucosal ulceration with missing teeth, and dental dysplasia were described in studies by Korolenkova et al. (Russia), Homeida et al. (U.S.), and Wonkam et al. (Cameroon), respectively [7,17,18]. KID syndrome is associated with an increased risk of chronic and opportunistic skin infections (bacterial or fungal) and, in severe cases, sepsis [13,19,20]. Benign and malignant skin tumors, such as trichilemmoma and mucosal squamous cell carcinoma, may develop in at least 12% of patients, as may squamous cell carcinoma from dermal or lingual lesions [11-13,20]. Treatment of skin lesions remains symptomatic. Treatment with retinoids may be attempted to improve the skin barrier, as well as the use of keratolytic agents and antifungal and antibacterial agents if there is a risk of infection [11,13]. In our case, the use of emollients and keratolytics allowed the skin lesions to begin to improve.

CONCLUSION

KID syndrome remains a rare entity. We have reported the first case of KID syndrome in Ivory Coast. It is necessary to go beyond ichthyosis. Auditory neurosensory deficits and ocular involvement should be considered KID syndrome in our working context. A multidisciplinary collaboration would allow to enrich the semiology of the associated disorders. The difficulties in conducting genetic and molecular analyses in developing countries such as ours are an obstacle to confirming the autosomal transmission of this syndrome.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Report

Trichomycosis axillaris: Case report

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ABSTRACT

Trichomycosis axillaris is a bacterial infection commonly caused by Corynebacterium. This condition usually affects the axillary and pubic hair, but it also can be seen on the scalp. It may have three different presentations: trichomycosis flava, rubra and nigra; it is characterized by the presence of concretions around the hair. Despite it is not uncommon, doctors outside of dermatology underdiagnosis this condition of the skin. Herein, we report a 70-year-old male patient, who visited the clinic for a post-lesional melanoderma affecting the right armpit. During the physical examination he was found to have a trichopathy localized at the axillary hair, consisting of multiple yellow axillary hairs. Dermoscopy and microscopy showed sheath and nodules around the hair. With these clinical features the patient was diagnosed with post-lesional melanoderma and axillary trichomycosis.

Key words: Hair diseases, Corynebacterium infections, Corynebacterium

INTRODUCTION

Trichomycosis axillaris is an uncommon asymptomatic bacterial infection habitually caused by Corynebacterium [1-8]. It mainly affects the armpit hair, although it can also affect the pubic and perianal region hair and, exceptionally, the scalp. It is prevalent in hot and humid climates and it is associated with poor hygiene and hyperhidrosis [1-4,6-8]. It may have three different presentations: trichomycosis flava, rubra and nigra. The trichomycosis flava is the most frequent, and it is characterized by the presence of yellow, sticky and smelly concretions and nodules around the hair [1-8]. The diagnosis is established through an adequate history and correct physical examination, that includes performing techniques such as Dermoscopy, Wood's light and Microscopy, which shows sheath and nodules around the hair as a transparent rosary of crystalline stones [1-8].

CASE REPORT

We present a case of a 70-year-old man, who was referred to the clinic for presenting a macula in the armpit, after applying deodorant. During the physical examination, a well-defined macula of violet-red coloration was evidenced, as well as a trichopathy, consisting of multiple yellow axillary hairs (Figs. 1a and 1b). Dermoscopy showed the presence of multiple nodular concretion and pods around the hair (Figs. 2a and 2b). Microscopy with lactophenol blue solution showed sheaths and blue nodules around the hair (Figs. 3a and 3b). Rest of the physical examination evidenced cellular nevi,

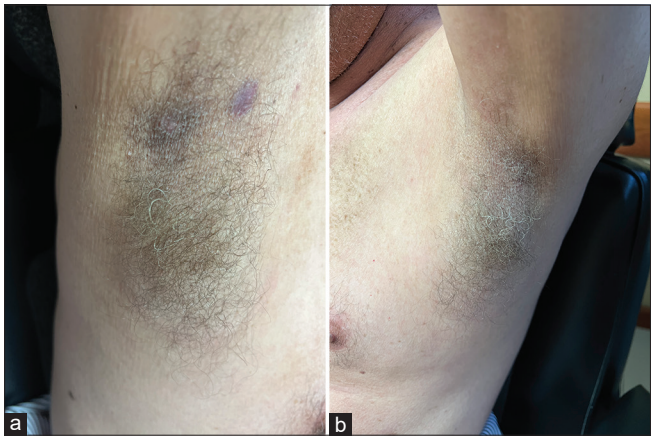

Figure 1: (a and b) Multiple yellow axillary hairs and a purplish macula in the right armpit.

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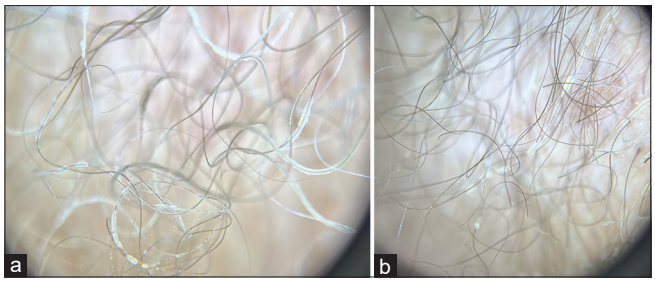

Figure 2: (a and b) Dermoscopy shows sheaths and nodules around the hairs.

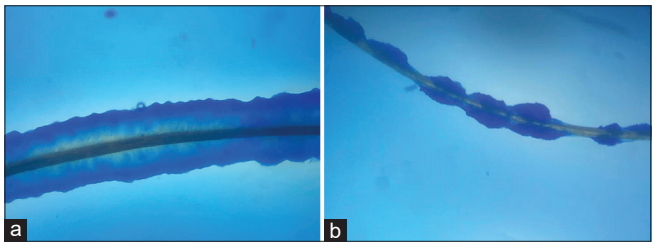

Figure 3: (a and b) Microscopy with lactophenol blue solution shows the sheath and blue pods around the hair.

ruby nevus, seborrheic keratosis, venous insufficiency and dry skin.

Patient reported that he had personal history of Diabetes type 2, treated with glibenclamide and metformin.

This trichopathy was an incidental finding on dermatological examination for another reason. With these clinical features, the diagnosis of post-lesional melanoderma and axillary trichomycosis was made. It was recommended to shave the axillary hair and apply fusidic acid three times a day for ten days.

DISCUSSION

Trichomycosis Axillaris, also called Trichobacteriosis or bacterial trichonodosis, is an uncommon superficial infection caused by *Corynebacterium (C. tenuis*, *C. propinquum*, *C. flavescens)* or *Serratia marcescens* [1-8]. It normally affects the hair of the armpit, followed by the pubic and intergluteus hair, and hardly seen on the scalp [1-4,6-8]. This trichopathy is associated with poor hygiene, humidity, obesity, hyperhidrosis, and tropical climates; in addition, it is reported more frequently in adolescents and young adults, and there are no differences with respect to the race or gender [1-8]. The infection is caused by physical contact between the bacteria and the surface, or cuticle of the hair, using a cement-like substance, that is synthetized by both the apocrine glands of the host and the microorganism; there have been reports of man-to-man transmission [2,5-7].

This condition is clinically characterized yellowish (flava variant), and less frequently, reddish (rubra variant) or blackish (black variant), sticky and smelly concretions (hair-nodules) surrounding the hair shaft. These nodules can extend along the entire length of the hair, forming a sheath, causing the hair to thicken and change it texture. Most of the patients presents associated symptoms like hyperhidrosis, itching, rash and change in odor [1,4,7,8].

The diagnosis is based on the clinical history and physical examination. Dermoscopy usually shows soft and waxy hair nodules around the hair as a transparent-yellow rosaries of crystalline stones [2-5,8]. Microscopy reveal bacterial masses, resembling like little drumsticks, limited around de hair, but never perforate it [3-5,7,8]. Wood's light is useful for delineating the extent of the trichopathy, it shows a typical yellowish-green fluorescent areas [1-5,7,8]. Culture of Corynebacterium is difficult and not necessary for diagnosis [3,5,8]. Treatment includes shaving the affected area; drying agents, as inert powders, to avoid fungal infection; topical anti-bacterial preparations containing any of the following: clindamycin, erythromycin, fusidic acid; as well as a topical treatment with sulfur, formalin, mercury chloride or sodium hypochlorite, may be used. [1-5,7,8].

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published, and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

Statement of Ethics

Verbal, photographic an informed consent was obtained from the patient described in this article.

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Our Dermatology Online

Case Report

From macular lymphocytic arteritis to cutaneous polyarteritis nodosa: A spectrum of the same disease? Two cases of the same clinical presentation yet different histopathological findings

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ABSTRACT

Macular lymphocytic arteritis (MLA) is a type of indolent cutaneous vasculitis that affects small to medium-sized blood vessels. Histopathologically, it is characterized by a predominantly lymphocytic leukocytic infiltrate (unlike polyarteritis nodosa, in which neutrophils predominate) in the blood vessels of the deep dermis and superficial hypodermis. The disease mainly affects females (17:3), with a mean age of forty years. In general, this entity is considered benign with a variable clinical presentation. The importance of knowing this entity lies in the fact that the pathological findings are discordant with the clinic and an erroneous diagnosis may lead to unnecessary treatments. This vasculitis usually has a benign course and no progression to systemic disease. Herein, we present two cases of this rare vasculitis.

Key words: Macular lymphocytic arteritis, Cutaneous polyarteritis nodosa, Vasculitis, Systemic lupus erythematosus

INTRODUCTION

Macular lymphocytic arteritis (MLA) is a type of indolent, cutaneous vasculitis that affects small to medium-sized blood vessels. Histopathologically, it is characterized by a predominantly lymphocytic leukocytic infiltrate (unlike polyarteritis nodosa, in which neutrophils predominate) in the blood vessels of the deep dermis and superficial hypodermis [1]. The disease mainly affects females (17:3) with a mean age of forty years [2,3]. In general, this entity is considered benign with a variable clinical presentation. It has been reported from an asymptomatic presentation (66%) to the appearance of oval macules of erythematous to brown coloration, especially on the lower limbs, or the appearance of leveloid patches (65% of symptomatic cases). Other symptoms that may accompany skin lesions are pruritus (10%), pain in the lesions (7.5%), weakness in the extremities (5%), and Raynaud's phenomenon (2.5 %) [3,4]. The importance of knowing this entity lies in the fact that the pathological findings are discordant with the clinic, and an erroneous diagnosis may lead to unnecessary treatments. This vasculitis usually has a benign course and no progression to systemic disease [1]. Herein, we present two cases of this rare vasculitis.

Case 1

The first case was a 52-year-old female with a history of systemic lupus erythematosus (SLE) with positive

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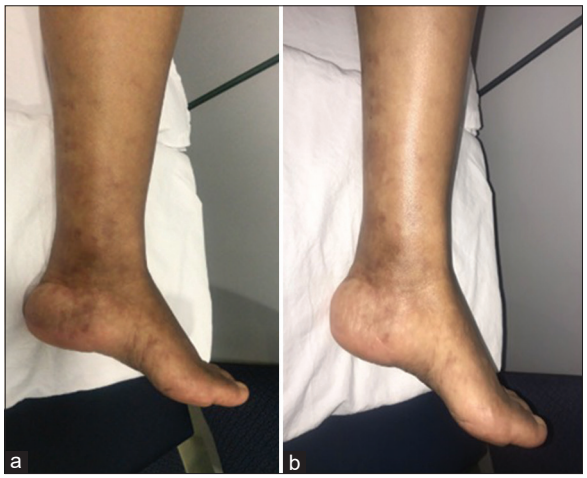
antiphospholipid antibodies (anticardiolipin). She presented a localized dermatosis (Figs. 1a and 1b) on the lower extremities with a tendency to symmetry, which affected the legs on their anterior, internal, and external lateral aspects, as well as on the dorsum of the feet, characterized by erythematous, hyperpigmented spots and brown with irregular and poorly defined borders, some circular, others oval converging and giving the appearance of livedo racemosa of one week of evolution and no other associated symptoms. A punch biopsy was performed (Figs. 2a – 2d), which reported panarteritis nodosa (PAN). Subsequently, renal activity was documented and three boluses of methylprednisolone plus cyclophosphamide were administered. During follow-up, a clinical improvement was observed in all lesions, and no other systemic symptoms were noted.



Figures 1: (a and b) Erythematous, brown, hyperpigmented spots with irregular and poorly defined borders, some circular, others oval converging and giving the appearance of livedo racemosa.

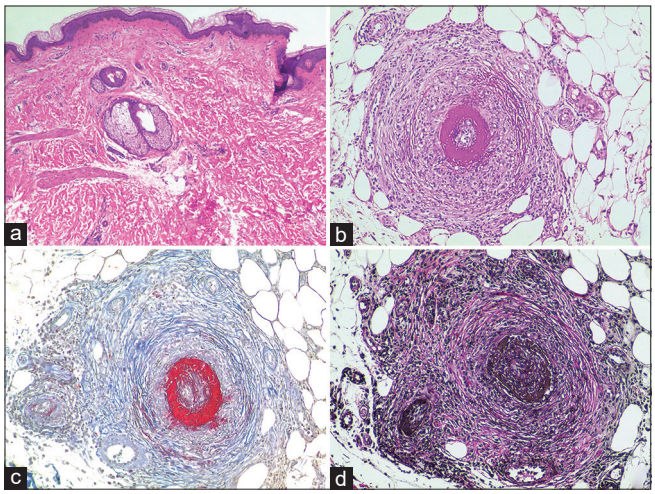
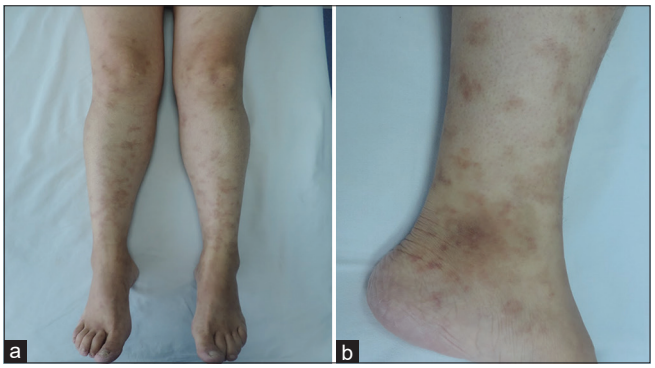


Figure 2: (a) The biopsy showing epidermal maturation and no affection in the superficial and medium dermis. (b) The damage observed in medium and small-sized arteries within subcutaneous cell tissue, necrotizing vasculitis involving all layers of the vascular wall accompanied by fibrinoid degeneration; neutrophils, eosinophils, and lymphocytes present. (c) Histochemical stains (Masson's trichrome) marking fibrinoid necrosis. (d) Elastic fiber stain showing the inflammatory infiltrate dissecting through the wall of the vessel.

Case 2

The second case was a 37-year-old female with a history of SLE. He presented a localized dermatosis (Figs. 3a and 3b) in the lower extremities with a tendency to symmetry, which affected the anterior and inner thighs, all sides of the legs, the malleolus, and the back of the feet, characterized by discretely erythematous, irregular, poorly defined, hyperpigmented spots, some with a reticulated appearance. A punch biopsy was performed, which reported panarteritis nodosa (Figs. 4a – 4d). One month later, renal activity was documented due to the presence of proteinuria, and a short course of prednisone and mycophenolate mofetil was initiated. During follow-up, a clinical improvement



Figures 3: (a and b) Hyperpigmented spots with a reticulated appearance.

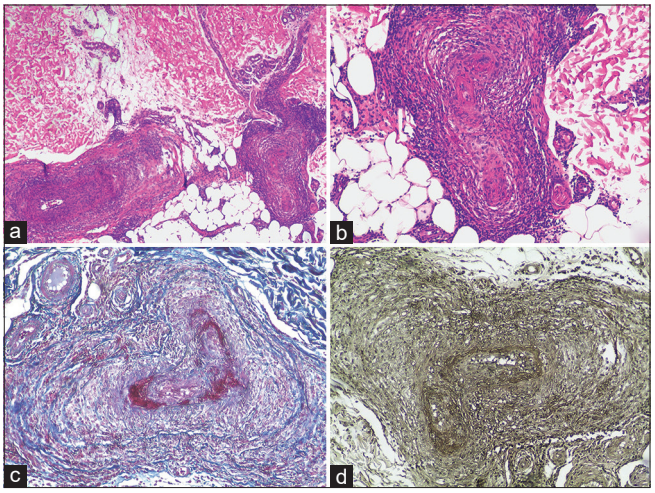


Figure 4: (a) The lesion observed in the deep planes, also involving medium-sized vessels in the deep dermis and subcutis. (b) Early lesions showing fibrinoid necrosis with thickening and infiltration of the vessel wall and leukocytoclastic also observed. (c and d) Vessel partial obliteration occurring secondary to intimal and mural fibrosis.

was observed in all lesions, and no further treatment was needed.

DISCUSSION

These two patients with a history of SLE presented with a similar clinical course. The biopsies revealed findings suggestive of PAN, yet the first with neutrophil, eosinophil, and lymphocyte infiltrate and the second just with lymphocyte infiltrate. However, during the course of both conditions, the skin lesions were self-limiting and were not accompanied by other systemic symptoms characteristic of polyarteritis nodosa. To date, there still has been a debate regarding whether this entity (AML) is misdiagnosed as cutaneous PAN (cPAN) or is a spectrum in and of itself [3.4]. Clinically, cPAN is characterized by painful, erythematous nodules on the lower extremities associated with livedo racemosa, followed by ulcers, and rarely gangrene and digital necrosis. Histopathological findings include septal panniculitis with necrotizing vasculitis of small vessels in the deep dermis and superficial hypodermis. In a longer series, it was impossible to demonstrate the development of a systemic disease in the PAN variety after a follow-up of seven years [5]. cPAN, due to its benign course and medium vessel vasculitis, may resolve with reticulated hyperpigmentation (post-inflammatory hyperpigmentation), yet to our knowledge, hyperpigmented macules never occur as primary lesions of vasculitis, and based on overlapping clinicopathological characteristics, macular arteritis may represent a latent, not nodule-forming chronic variant of cutaneous polyarteritis nodosa [6,7]. Regarding histopathological findings, it is important to make the differential diagnosis of other entities and make clinical pathological correlation, since cases of histopathological findings have been reported, mimicking thrombophlebitis. Although the differential diagnosis is sometimes difficult, thrombophlebitis should be considered when diagnosing cPAN and AML to avoid misdiagnosis and excessive treatment [8]. Our patients presented skin lesions characterized by hyperpigmented and erythematous spots, consistent with what has been reported in the literature (same lesions in up to 65% of cases) [3,4]. Regarding the histopathological findings, both biopsies highlighted the presence of fibrinoid necrosis and predominantly lymphocytic infiltrate in small and medium caliber vessels in the deep dermis and hypodermis, consistently with an AML case series [2].

CONCLUSION

Up to now, there have been no reports of an association of AML with LEG activity. However, in these two cases, it was highlighted that, simultaneously or in a short period of time after the dermatosis appeared, activity by the LEG was documented on other levels. During the follow-up of both cases, they never met the criteria for polyarteritis nodosa.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Report

Warts as a common occurrence on nevus sebaceous: A case series depicting *locus minoris resistentiae*

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ABSTRACT

Locus minoris resistentiae (LMR) is a special site that offers less resistance to the onset of disease than the rest of the body. Areas of cutaneous mosaicism may act as congenital LMR sites. Viral infections such as verruca are a rare occurrence on these sites. Nevus sebaceous is a benign hamartoma with epidermal, follicular, and apocrine mosaicism in the stem cells that expand in the lines of Blaschko, which may act as a site of LMR. Herein, we present a case series of nevus sebaceous to document the occurrence of verrucae and the possibility of LMR at these sites.

Key words: Wart, Locus minoris resistentiae, Nevus sebaceous

INTRODUCTION

Locus minoris resistentiae (LMR) is a special site that offers less resistance to the onset of disease than the rest of the body. Trauma, irradiation, healed herpes scars, or chronic lymph stasis act as LMR, thus predisposing the site to numerous inflammatory and neoplastic conditions [1]. Areas of cutaneous mosaicism may act as congenital LMR sites. Infectious conditions such as verrucae in such areas are rare [2]. Herein, we report clinico-pathological findings in a series of twelve patients, among whom four cases developed verrucae on nevus sebaceous, pointing toward a possibility of nevus sebaceous as a site of *locus minoris resistentiae*.

CASE REPORT

Case 1

A seventeen-year-old female presented with a solitary asymptomatic orangish-pink raised lesion on the scalp present since birth. She had developed a new lesion with finger-like projections on the old lesion in the previous three months (Fig. 1a). There was no such lesion anywhere else on the body. A biopsy from the orange plaque showed sebaceous gland hypertrophy, abortive hair follicles, acanthosis, and epithelial papillomatosis, suggestive of nevus sebaceous (Fig. 2). A biopsy from the warty lesion revealed hyperkeratosis, parakeratosis, acanthosis, with papillomatosis and koilocytic changes suggestive of warts (Fig. 3). Based on the clinico-histopathological findings, a diagnosis of verruca on nevus sebaceous was established.

Case 2

A ten-year-old male presented with a brownish-yellow lesion on the scalp present since birth. His father noticed a new skin-colored growth near the edge of the previous lesion two months previously. A well-demarcated, hairless, brownish-yellow plaque with filiform growth in the periphery was present on the scalp (Fig. 1b). A clinical diagnosis of nevus sebaceous with filiform wart was confirmed by histopathology.

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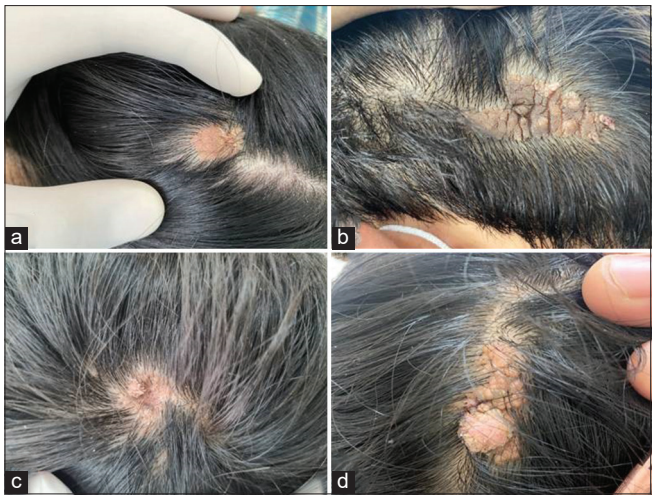

Figure 1: (a-d) Cases of nevus sebaceous with overlying warts.

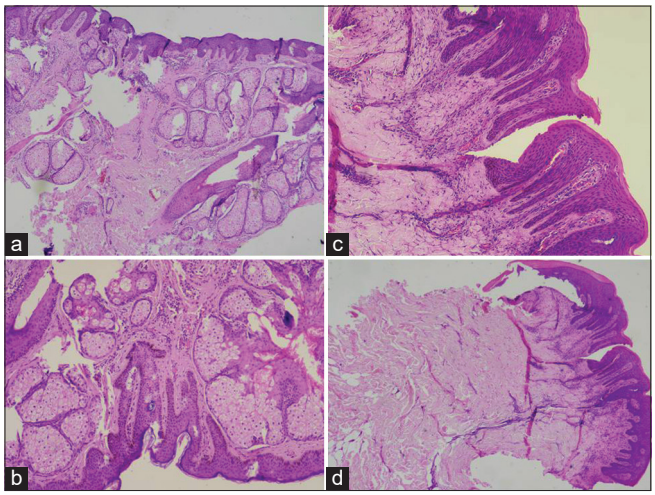

Figure 2: Histopathology from various hairless, brown plaques showing orthokeratosis, acanthosis, and defective hair follicle with conglomeration of the sebaceous gland, suggestive of nevus sebaceous (H&E).

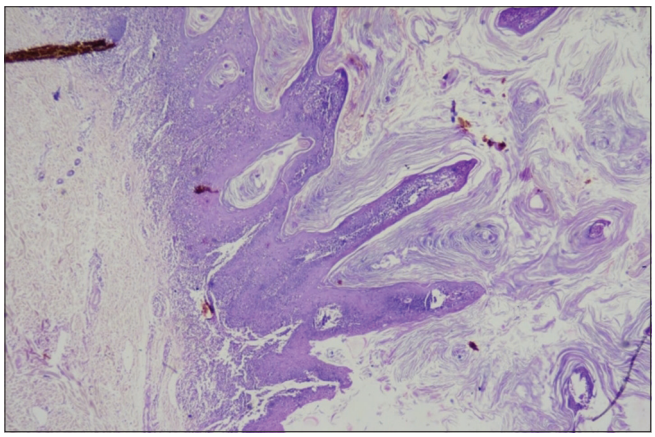

Figure 3: A biopsy of the newly developed growth revealing hyperkeratosis, parakeratosis, acanthosis, papillomatosis with a fibronuclear core, and koilocytic changes, suggestive of verruca (H&E, 10×).

Case 3

A fifteen-year-old male with an orangish-gray lesion near the vertex present since birth developed a small, rough growth near the edge of the lesion, incidentally noticed by his mother one month previously. A yellowish-brown plaque with irregular edges and an uneven, smooth surface with a filiform growth in the periphery of the lesion was observed on examination (Fig. 1c). The clinico-histopathological findings confirmed the diagnosis of nevus sebaceous with an overlying wart.

Case 4

A twelve-year-old female presented with an orangish-yellow plaque on the scalp apparent since birth and a four-month history of a new large pinkish growth with a rough surface near the anterior aspect of the lesion. A diagnosis of verruca overlying nevus sebaceous was established on clinico-pathological grounds (Fig. 1d). All cases were treated with electrocautery.

The remaining eight cases presented as asymptomatic, yellowish-brown to pinkish plaques of varying sizes and a smooth overlying surface with the absence of hair. The lesions had been present since birth. Based on clinico-pathological grounds, they were diagnosed as cases of nevus sebaceous (Table 1) (Fig. 4). No new growth was noticed at any site.

Among the twelve cases who presented with nevus sebaceous, four were seen to have secondary growth, which turned out to be verrucae. The prevalence of verruca overlying nevus sebaceous was found to be 33.3%, which was much higher than what was anticipated. This favored the notion of nevus sebaceous as a site of LMR with high chances to develop secondary viral infection, especially due to human papilloma virus.

DISCUSSION

Genetic and acquired factors make some areas of skin more vulnerable to infections than the rest of the body. These areas are known as the immunocompromised district (ICD). Local immune dysregulation makes these sites prone to developing opportunistic infections, tumors, or immune reactions (often of granulomatous nature) confined strictly to the district itself.

Locus minoris resistentiae may be defined as a site that offers lesser resistance to the development of a

Table 1: Clinical and demographic profile of patients.\

Case No.	Age/Sex	Clinical Details
1	7/male	Asymptomatic, 6 x 4 cm, yellowish, rhomboid plaque near the vertex (Figure 4a).
2	5/male	A reddish-brown to black plaque, measuring 4 x 3 cm, with multiple smooth, papular areas and sparse hair on the scalp (Figure 4b).
3	6/male	3 x 2 cm, yellowish-brown plaque with the absence of overlying hair near the vertex of the scalp (Figure 4c).
4	8/male	An asymptomatic, large, 4 x 5 cm, yellowish plaque with a smooth surface and a well-defined border just anterior to the vertex of the scalp (Figure 4d).
5	10/female	A 5 x 3 cm, irregular, well-defined plaque overlying the scalp with an irregular overlying surface and sparse hair coming through the plaque (Figure 4e).
6	14/male	1 x 2 cm, asymptomatic, yellowish-brown plaque on the right temporal region of the scalp with overlying hair loss (Figure 4f).
7	3/male	2 x 3 cm, annular, asymptomatic, reddish-yellow plaque with overlying hair loss on the scalp (Figure 4g).
8	12/female	A 4 x 3 cm, asymptomatic, yellowish-brown plaque with well-defined margins on the scalp having sparse overlying hair (Figure 4h).

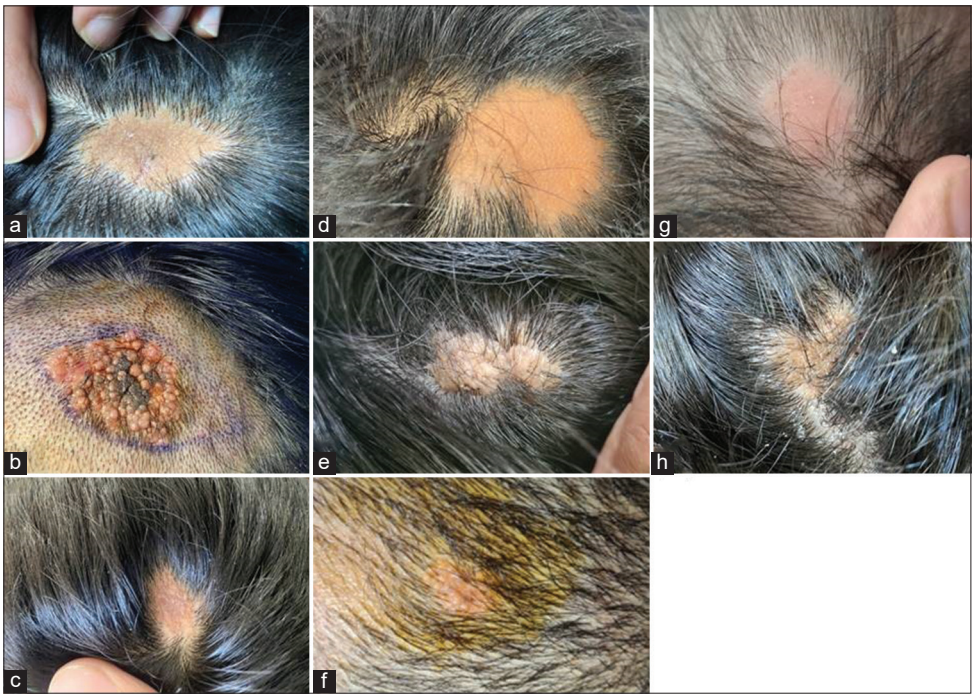

Figure 4: a-h) Eight cases of nevus sebaceous presenting as solitary, well-defined, hairless, orangish-brown plaques on the scalp.

disorder as compared to rest of the body. LMR may be congenital or acquired. Epidermal nevi, lichen striatus, congenital hemangioma, giant melanocytic nevus, linear porokeratosis, and CHILD syndrome, all being areas of cutaneous mosaicism, act as congenital LMR [2]. The acquired causes of localized immune dysregulation are chronic lymph stasis, herpetic infections, ionizing and UV radiation, burns, trauma (amputation), tattooing, etc. [3,4]. Nevus sebaceous is a benign hamartoma with epidermal, follicular, and apocrine mosaicism in the stem cells that expand in the lines of Blaschko. Various inflammatory dermatoses, adnexal disorders, and neoplasms have been reported to occur on sebaceous nevi [5].

Cribier et al. reported that the most common benign and malignant tumors associated with nevus sebaceous were syringocystadenoma papilliferum and BCC, respectively. They also reported fourteen cases of verrucae on nevus sebaceous [6]. Carlson et al. detected human papilloma virus DNA in 82% of cases of nevus sebaceous, which may be a predisposing factor in the pathogenesis of verrucae on nevus sebaceous [6].

The available literature on such reports from India is sparse. Herein, we have reported this case series in support of the view that nevus sebaceous may act as a site of LMR, and any new growth on nevus sebaceous should be confirmed histopathologically due to the rarity of this association.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent. The patients have given their consent for images and other clinical information to be reported in the journal. The patients

understand that their names and initials will not be published and due efforts will be given to conceal their identity but complete anonymity cannot be guaranteed.

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Our Dermatology Online

Case Report

Acute generalized exanthematous pustulosis caused by sulfasalazine

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ABSTRACT

In the landscape of cutaneous adverse drug reactions (cADRs), acute generalized exanthematous pustulosis (AGEP) remains a pertinent dermatological manifestation. This research delineates a clinical presentation consistent with AGEP precipitated by the administration of sulfasalazine in a 68-year-old female. Drawing from the EuroSCAR study's diagnostic parameters, the patient exhibited salient features such as facial erythema and a pervasive papular rash, concomitant with specific hematological perturbations, including leukocytosis and elevated hepatic enzymes. Utilizing the EuroSCAR AGEP validation score, a definitive diagnosis was ascertained, obviating the need for histological confirmation. Subsequent therapeutic interventions facilitated symptomatic resolution, leading to the patient's discharge with a categorical advisory against future sulfasalazine exposure. This elucidation accentuates the causative potential of sulfasalazine in AGEP manifestation and underscores the imperativeness of vigilant diagnosis and timely intervention.

Key words: sulfasalazine, AGEP, Drug hypersensitivity, Drug eruptions

INTRODUCTION

Cutaneous adverse drug reactions (cADRs) encompass a spectrum of dermatological manifestations caused by pharmacotherapy. Notable classifications of cADRs include mild maculopapular exanthems (MPE), Stevens–Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), drug reaction with eosinophilia and systemic symptoms (DRESS), and acute generalized exanthematous pustulosis (AGEP) [1].

AGEP has an estimated annual incidence of approximately 1 to 5 cases per million individuals [2,3]. The EuroSCAR study conducted an analysis of 97 well-documented cases of AGEP from various European countries. In more than 90% of the cases, AGEP was attributed to drug exposure. The EuroSCAR study provided insights into the diverse range of causative agents associated with AGEP. Among them, the following drugs were found to be most commonly linked to AGEP: ampicillin/amoxicillin, quinolones, hydroxychloroquine, sulfonamides, terbinafine, and diltiazem (Table 1) [4]. These medications emerged as frequently identified triggers of AGEP, as ascertained by the study findings [3,5].

CASE REPORT

A 68-year-old female with a medical history of seronegative rheumatoid arthritis and hypertension was urgently admitted to the Dermatology of Dermatology in June 2022 for prompt diagnostic evaluation and treatment of cutaneous lesions. The patient had been prescribed sulfasalazine 500 mg on May 29, 2022, which was discontinued on June 21. Subsequently, she developed facial erythema, followed by a diffuse papular rash on June 11. On June 26, the patient noticed an enlarged lymph node, and on June 28, she presented with facial edema, a fever of 39 degrees Celsius, and dysphagia.

Hospitalization records from June 22 to June 29 at the Department of Internal Medicine in Lubin indicated

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polymorphonuclear neutrophils > 7.000/mm³. Chest radiography revealed fibrotic changes in the left lung, while abdominal ultrasonography showed no significant abnormalities. A laryngology consultation confirmed acute inflammation of the tonsils and pharynx.

Upon admission, the patient displayed moderate contact and exhibited maculopapular rash on an erythematous background on the face, trunk, and extremities. Additionally, she presented with firm edema involving the lower limbs, extending to the knees, and lip erosions (Fig. 1). The patient's body temperature was above 39.0 degrees Celsius. Subsequent subjective and objective evaluations prompted laboratory investigations, which revealed leukocytosis (16.72 10^3/uL), anemia (erythrocytes 3.87 10^6 u/L), hemoglobin 11.2 g/dL, hematocrit 34.4%, thrombocytopenia (94 10^3u/L), elevated neutrophils (7.26 10^3/uL), and immature granulocytes (0.71 10^3/uL), as well as erythroblasts (0.1 10^3/uL). Furthermore, decreased levels of albumin (2.5 g/dL), potassium (2.8 mmol/l), total protein (4.7 g/dL), HDL cholesterol (29 mg/dL), and elevated levels of glucose (126 mg/dL), triglycerides (177 mg/dL), total bilirubin (1.7 mg/dL), and C-reactive protein (CRP) (17.5 mg/L) were observed. Elevated activity of liver enzymes was noted, including alanine aminotransferase (ALT) (68 U/L), aspartate aminotransferase (AST) (58 U/L), and gamma-glutamyl transferase (GGTP) (188 U/L). In the AGEP validation score of the EuroSCAR study group (Table 2), the patient received 9 points (Table 3), which is a definite diagnosis of AGEP and, that was the reason why a biopsy was not taken. An internal medicine consultation revealed no significant abnormalities. Electrocardiography (EKG) exhibited no anomalies, and the patient was advised to undergo twice-daily monitoring of the respiratory rate, receive antibiotic therapy, and maintain adequate hydration. A neurology consultation was recommended in case of clinical deterioration. Intravenous potassium supplementation was prescribed due to hypokalemia.

On the third day of hospitalization, the patient's body temperature normalized. Laboratory tests

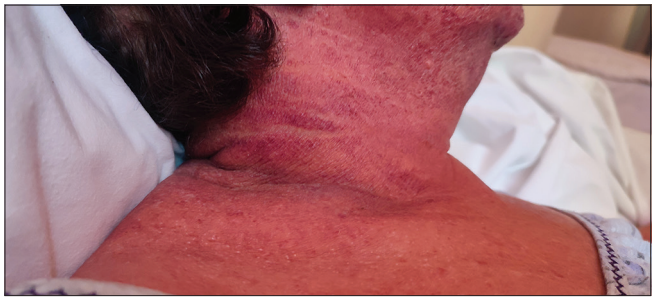

Figure 1: Diffuse erythema on the neck with hundreds of pustules.

Table 1: Drugs associated with Acute Generalized Exanthematous Pustulosis (AGEP).

Drugs highly associated with AGEP	Other drugs with less strong associations with AGEP
Pristinamycin	Cortocisteroids
Aminopenicillins	Macrolides others than pristinamycin
Quinolones	Oxicam nonsteroidal anti-inflammatory drug
Sulphonamides	Antiepileptic drugs
(Hydroxy) chloroquine	
Sulphonamides	
Terbinafine	
Diltiazem	

Table 2: Acute Generalized Exanthematous Pustulosis (AGEP) validation score of EuroSCARE study group.

Variable	Score	Variable	Score
Morphology		Course	
Pustules		Muscular involvement	
Typical	+2	Yes	-2
Compatible	+1	No	0
Insufficient	+0	Acute onset (>10 days)	
Erythema		Yes	0
Typical	+2	No	-2
Compatible	+1	Resolution (<15 days)	
Insufficient	+0	Yes	0
Distribution/pattern		No	-4
Typical	+2	Fever>38.75^{0}C	
Compatible	+1	Yes	+1
Insufficient	+0	No	+0
Postpulastular desquamation		Polymorphonuclear neutrophils>7000/mm ≥	
Yes	+1	Yes	+1
No/Insufficient	+0	No	+0

Interpretation: 0 - no AGEP, 1-4 possible, 5-7 probable, 8-12 definite

Table 3: Acute Generalized Exanthematous Pustulosis (AGEP) validation score of EuroSCARE study group, our patient.

Variable	Score	Variable	Score
Morphology		Course	
Pustules		Muscular involvement	
Typical	+2	Yes	0
Compatible		No	
Insufficient		Acute onset (>10 days)	
Erythema		Yes	0
Typical	+2	No	
Compatible		Resolution (<15 days)	
Insufficient		Yes	0
Distribution/pattern		No	
Typical	+2	Fever>38.75^{0}C	
Compatible		Yes	+1
Insufficient		No	
Postpulastular desquamation		Polymorphonuclear neutrophils>7000/mm ≥	
Yes	+1	Yes	+1
No/Insufficient		No	

score 9 points, definite AGEP

demonstrated leukocyte count within the normal range (9.26 10^3/uL), persistent anemia (erythrocytes 3.81 10^6 u/L, hemoglobin 10.9 g/dL, hematocrit 34.3%), and potassium within the normal range (3.6 mmol/L). Positive hepatitis B surface antibody (anti-HBs) levels (> 1000.0 mlU/ml) were detected, while hepatitis B surface antigen (HBsAg), Epstein–Barr virus IgG (EBV IgG) (12.7 U/ml), hepatitis A virus IgG antibodies, and cytomegalovirus IgG antibodies were identified. Follow-up laboratory investigations were normal.

On the ninth day of hospitalization, a psychiatric consultation was conducted, confirming the occurrence of a prior episode of delirium with a mixed etiology, in the absence of pharmacological interventions. Following the administration of intravenous and intramuscular glucocorticosteroids (dexamethasone, methylprednisolone) and phenoxymethylpenicillin antibiotic therapy, subsequent laboratory investigations revealed the absence of leukocytosis. In accordance with the laryngology consultation, a radiographic examination of the sinuses was scheduled, and the radiological report indicated a hypoplastic or partially opacified frontal sinus, while the other sinuses demonstrated normal development with air-filled spaces. The patient was discharged home in a satisfactory general condition, accompanied by an unequivocal directive to refrain from the administration of sulfasalazine.

DISCUSSION

AGEP is characterized by specific diagnostic criteria. These include the presence of pustules on an erythematous background, accompanied by desquamation upon pustule resolution. Typically, the skin manifestations initiate in interdigital regions or the facial area and rapidly disseminate to encompass the entire skin surface. In approx. 20% of cases, mucous membranes are also affected. Notably, AGEP exhibits an acute onset within ten days of exposure to the causative drug, followed by a complete remission of the skin lesions within fifteen days [6]. Additional systemic manifestations include fever (> 38°C) and peripheral neutrophilia [5,6].

In the literature, there are isolated reports on sulfasalazine being implicated in the development of AGEP [7,8].

In a study conducted by Choon et al. [9], a cohort of twenty-one patients with AGEP was examined. Among the study population, there was female predominance: 16 females and 5 males. The analysis of causative agents identified amoxicillin as the primary culprit drug, observed in ten cases. Additionally, cloxacillin was implicated in three cases, phenytoin in two cases, and individual cases were attributed to carbamazepine, allopurinol, cephalexin, ceftriaxone, celecoxib, and a herbal product. There was also one patient with AGEP after sulfasalazine inclusion.

In an investigation conducted by Vashisht et al. [10], a clinical case involving a forty-year-old female patient with a documented history of reactive arthritis was presented. The patient's therapeutic regimen included the initiation of sulfasalazine tablets, with an initial dose of 500 mg, followed by incremental dose escalations spanning four days. Consequently, the patient manifested non-follicular pustules and erythema on the limbs. A definitive diagnosis of AGEP was conclusively established, substantiated by a flawless validation score of 12 out of 12 on the European Study of Severe Cutaneous Adverse Reaction scale.

A study conducted by Yang [11] provided evidence supporting a strong correlation between specific human leukocyte antigen (HLA) alleles and severe cADRs induced by certain drugs. Notably, the study observed a significant association between HLA-B15:02 and carbamazepine-induced Stevens–Johnson syndrome/toxic epidermal necrolysis (SJS/TEN), HLA-B58:01 and allopurinol-induced cADRs, HLA-B59:01 and methazolamide-induced SJS/TEN, and HLA-B13:01 and sulfasalazine-induced DRESS. Unfortunately, no correlation between HLA and AGEP was observed.

CONCLUSION

While the EuroSCAR study does not explicitly identify sulfasalazine as a medication associated with a high probability of inducing AGEP, it is important to acknowledge the potential occurrence of AGEP in relation to sulfasalazine use. Patients should be informed about the plausible risks and advised to seek consultation with healthcare practitioners regarding any concerns or inquiries concerning the administration of sulfasalazine or other pharmaceutical agents.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Report

Norwegian scabies in a patient with down syndrome: A case report

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ABSTRACT

Scabies is a highly infectious dermatosis. It is caused by the mite *Sarcoptes scabiei var. hominis*. The available estimates indicate more than 400 million cases of scabies annually. The main route of infection is direct skin contact. The main symptoms such as pruritus appear 3–6 weeks after infection. Additionally, papules, erythema, erosions, excoriations, and crusts may be visible. One of the rarest forms of scabies is Norwegian scabies. This is the most severe variant. Its clinical picture may resemble psoriasis. In the article, we present the case of a 21-year-old patient with Down syndrome who was admitted to the department of dermatology with a diagnosis of psoriasis. During hospitalization, due to clinical doubts, it was decided to extend the diagnostics. Basing on the microscopic examination, Norwegian scabies was diagnosed. The treatment involved oral ivermectin and topical 5% permethrin, which resulted in a remission of the skin lesions and the resolution of itching.

Key words: *Sarcoptes scabiei*, Scabies, Crusted scabies, Permethrin, Ivermectin

INTRODUCTION

Scabies is a widespread, infectious disease. It is caused by the mite *Sarcoptes scabiei var. hominis*. The available estimates indicate more than 400 million cases of scabies annually [1]. Scabies occurs in all latitudes, so all populations are at risk of developing the disease. The risk is much higher among people living in crowded and pauper conditions, due to greater skin-to-skin contact and lack of access to effective treatment. The highest prevalence is observed among infants and children in tropical countries [2].

Infestation usually occurs with 5–15 specimens. The entire lifecycle takes place in the human epidermis. Fertilized females burrow into the epidermis where they lay their eggs. One female lays about 1–20 eggs and dies after several weeks. The larvae hatch after about sixty hours, and their development into an adult form takes about two weeks. The main route of infection is direct skin contact. Symptoms appear 3–6 weeks after infection. Hence, to locate its source, while collecting medical history, a longer period should be investigated. In the case of reinfestation, symptoms appear much faster [3]. The main symptom occurs as pruritus, which intensifies after warming the body, especially at night. Additionally, papules, erythema, erosions, excoriations, and scabs may be visible.

They result from the presence of the parasite itself, as well as from type IV hypersensitivity reactions. The lesions are most often located around the interdigital areas, torso, and buttocks. Moreover, it is worth adding that zoonotic infections (referred to as *pseudoscabies*) are rare and self-limiting. It is commonly thought that scabies mites inhabiting other species cannot complete their full lifecycle in the human epidermis. However, experimental human infections with scabies mites of dog origin resulted in a successful replication with hatching and the development of mites. Additionally, there are several case reports mentioning spontaneous zoonotic scabies [4].

One of the rarest forms of scabies is Norwegian scabies, also known as *hyperkeratotic scabies*. This is the most

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severe variant and is highly infectious. Symptoms include the presence of a layered, thickened scale. The clinical picture may resemble psoriasis [5-8]. The treatment of Norwegian scabies includes combined oral and topical antiparasitic agents [9].

CASE REPORT

A 21-year-old patient with Down syndrome was admitted to the Dermatology Clinic of the Military Institute of Medicine with a diagnosis of psoriasis in December 2021.

A medical history was collected from his mother. The patient had suffered from psoriasis since he was twelve years old (2013), the diagnosis was confirmed by histopathological examination. The previous treatment included topical corticosteroids and oral acitretin (25 mg a day) from April to December 2019. At that time, due to a difficult family situation, the patient was temporarily staying at an orphanage, so a reliable treatment effectiveness assessment was difficult to determine. Moreover, the reason for its discontinuation was unknown. Since 2020, the patient had again been under his mother's care. He did not receive systemic treatment, only topical one with corticosteroids. The skin lesions worsened approximately one month before hospitalization.

The clinical picture was dominated by massive, hyperkeratotic layers with fissures and moderate inflammation of the skin (Figs. 1a – 1c). Moreover, lesions covered with thick layers of scale were found on the scalp and chest (Fig. 2). Numerous dermal and epidermal papules and erythema were visible on the genitals and groins. The skin lesions were accompanied by intense itching, which was reflected in numerous excoriations. All fingernails and toenails were affected: massive subungual hyperkeratosis was observed (Fig. 3).

The patient's mother presented discreet skin lesions, such as papules and excoriations, on the trunk.

During hospitalization, scrapings were taken from the superficial layers of the hyperkeratotic lesions. Microscopic evaluation confirmed the presence of *Sarcoptes scabiei*. Norwegian scabies was the diagnosis. Performed laboratory tests revealed eosinophilia ($4.37 \times 10^3/\mu L$) and increased total IgE concentration (338 IU/mL). Additionally, hepatitis B and C and HIV infections were excluded. The patient's mother underwent a dermatoscopic examination, which revealed burrows. The woman was diagnosed with the classic form of scabies.

The patient was treated orally with ivermectin at a single dose of 200 ug/kg of body weight and topically with 5% permethrin at a single dose of 30 g on the entire skin surface, including the scalp and face. Additionally, local keratolytic medications were implemented, which resulted in a significant reduction of hyperkeratotic build-ups (Figs. 4a – 4e) and resolution of erythematous lesions and itching. The mother was treated topically with permethrin, excluding the scalp and face.

The patient was discharged from the clinic with a recommendation to repeat treatment with ivermectin and permethrin eight days after the first dose and to attend for a follow-up visit in four weeks. The patient and his mother showed up to the outpatient clinic five months after hospitalization, without any symptoms. Due to the clinical improvement, a follow-up microscopic examination was waived, and both were considered cured.

DISCUSSION

Rare forms of scabies include the Norwegian, nodular, and bullous variants. Norwegian scabies, also called

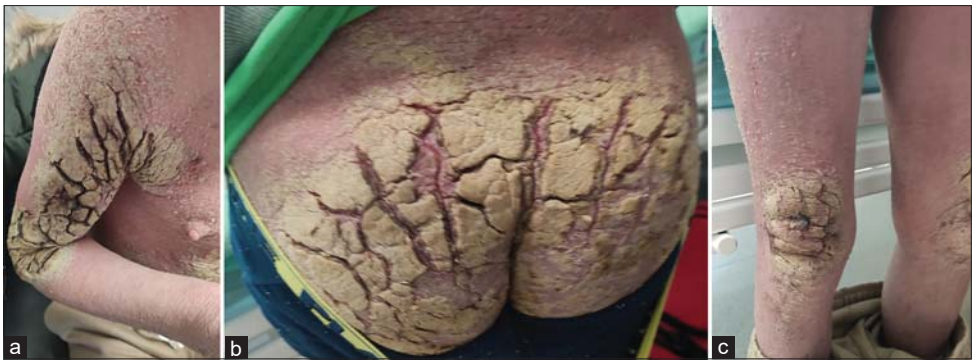

Figure 1: (a) Fissures around the right shoulder. (b) Fissures at the sacrolumbar area. (c) Fissures around the knees.

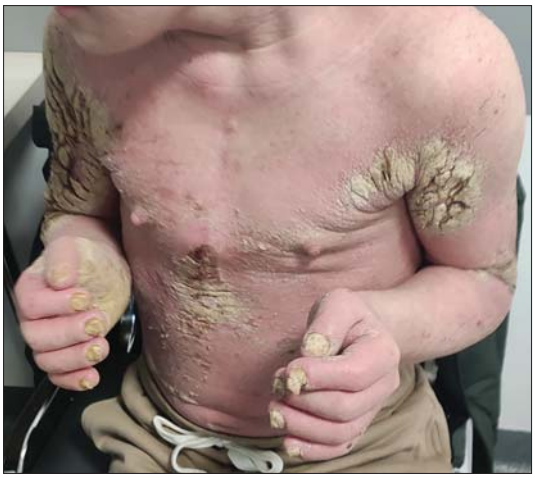

Figure 2: Thick scale on the chest.

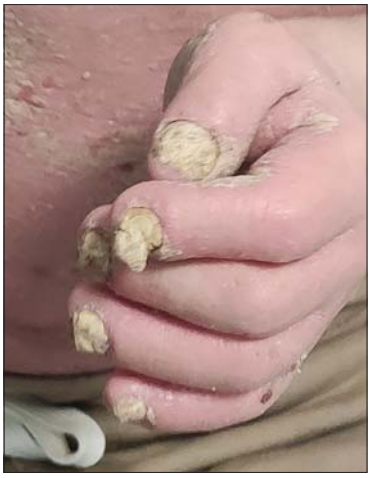

Figure 3: Subungual hyperkeratosis.

crusted scabies, is the most severe one. It affects patients with immune deficiencies, after transplantations, patients with Down syndrome, HIV-infected, as well as patients who chronically use topical corticosteroids. This variant is highly infectious and is associated with mortality [10]. A disturbed and insufficient immune response allows the parasite to multiply unrestricted. Infection may also easily occur indirectly, through exfoliated epidermis. The clinical picture is dominated by thick, layered, extensive scales or crusts. Norwegian scabies may cause erythroderma, affecting the scalp, ears, palms, and soles of the feet. In addition, mites may also accumulate in the matrix of the nails, causing onychodystrophy, subungual hyperkeratosis, or changes in the color of the nail plates. These symptoms may be confused with other diseases such as psoriasis or nail fungus [11], while contributing to prolonged infestations [12].

The diagnostics of scabies involves the microscopic examination of scrapings from the superficial layers of the skin. It allows to detect the presence of mites, eggs, or brown feces. It is recommended to take several samples from characteristic skin lesions with a scalpel, preferably using oil, which helps the material to adhere to the blade [13]. In the classic form of scabies, there are about 10–20 parasites in the patient's skin. A negative test result does not exclude the diagnosis. However, in the case of Norwegian scabies, massive infestations occur, and the number of parasites reaches approx. 1–2 million, thus the probability of a positive test is much higher. Other diagnostic methods, such as the burrow ink test have been described in the literature [14]. It is a simple and often overlooked test in which the ink is gently rubbed into the suspected area. Its excess is wiped off with an alcohol-soaked cotton swab and the burrow becomes visible as a wavy line [15]. Other methods include dermatoscopy and videodermatoscopy. A new approach to scabies diagnosis is serological testing. In 2011, Rama et al. developed a specific IgE antibody against a recombinant scabies antigen. In this study, the sensitivity and specificity were 100% and 93.75%, respectively [16]. Laboratory tests may also be helpful. An increase in total IgE concentration and peripheral eosinophilia are distinctive [17].

Norwegian scabies due to its non-specific presentation and, consequently, delayed diagnosis may cause numerous complications such as secondary bacterial infections, cellulitis, or sepsis, which is associated with high mortality [18,19]. Moreover, invasive *Staphylococcus aureus* and *Streptococcus pyogenes* infections may result in kidney disease and rheumatic heart disease [2].

The 2017 European guidelines for the management of Norwegian scabies recommend 5% permethrin or 25% benzyl benzoate repeated daily for seven days, then twice a week until cure in combination with oral ivermectin 200 μg/kg on days 1, 2, and 8. For severe cases, when a follow-up microscopic examination gives positive results, additional ivermectin treatment might be required on days 9 and 15 or on days 9, 15, 22, and 29 [9].

In Poland, according to the summary of product characteristics, a single oral dose of ivermectin is 200 μg/kg of body weight, and in the case of Norwegian scabies, a second dose within 8 to 15 days and/or simultaneous local treatment. The recovery occurs four weeks after treatment. Persistent itching does not justify repeating the treatment before this date. The

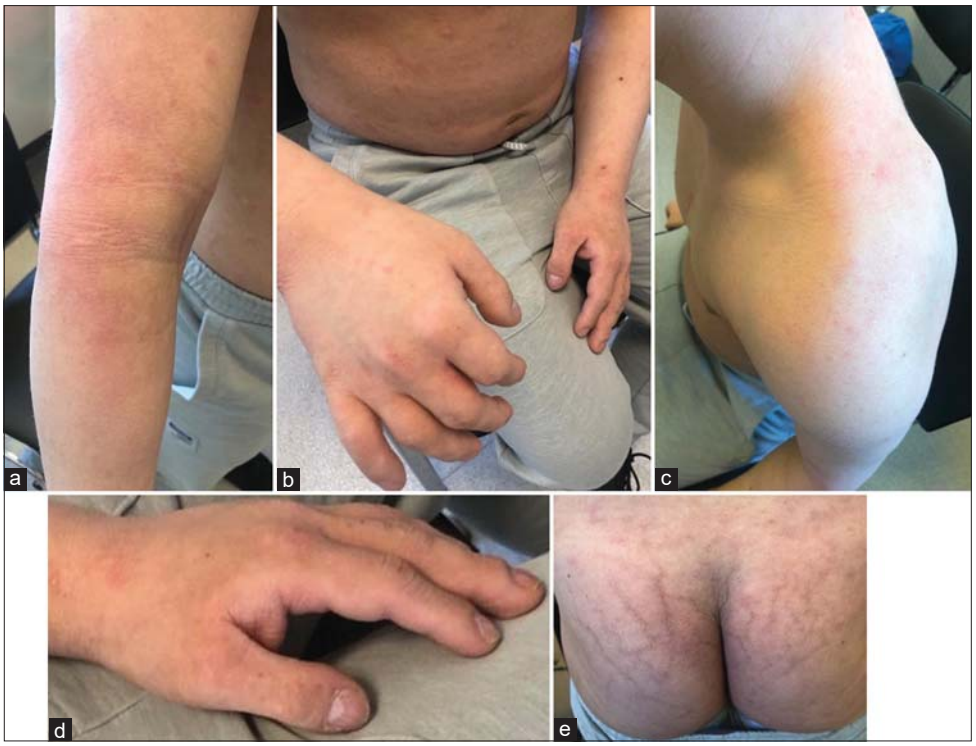

Figure 4: (a) Right arm after treatment. (b) Right hand after treatment. (c) Left arm after treatment. (d) Left hand and nails after treatment. (e) Sacrolumbar area after treatment.

administration of a second dose should be considered within two weeks of the administration of the first dose if new specific lesions appear or parasitological examination gives a positive result.

All people living in the same household should be treated, regardless of the presence of clinical symptoms. Patients with Norwegian scabies should be isolated until the end of treatment [20]. The infestation is considered cleared if one week after the end of treatment there are no skin lesions or nocturnal itching. However, pruritus may persist up to 2-4 weeks after treatment. It should be cured with the repeated application of emollients. Oral antihistamines and mild topical corticosteroids may also be helpful. A follow-up visit is recommended two weeks after the end of treatment to perform a control microscopic examination [9].

An inseparable part of scabies treatment includes hygiene recommendations such as clothes, bedding, and towels washing at 60°C at least. Everyday objects that cannot be washed should be placed in plastic bags for at least seven days. All smooth surfaces should be washed thoroughly, and upholstered furniture ought to be vacuumed. Mattresses may be insulated with painting foil. The ability of scabies mites to survive in beds and upholstery (away from the human host) is up to four days [3].

The differential diagnosis of Norwegian scabies should include psoriasis, atopic dermatitis, chronic allergic eczema, seborrheic dermatitis, lichen planus, palmoplantar keratosis, and cutaneous lymphoma [21]. The correlation between Down syndrome and psoriasis is vague. The prevalence of psoriasis in patients with Down syndrome ranges from 0.5% to 8% [22], and in turn from 2% to 3% in the world population [23]. Nevertheless, it should be noted that patients with trisomy 21 have a higher risk of developing skin diseases [24].

CONCLUSION

In this article, we present a case of Norwegian scabies, which posed diagnostic difficulties due to its occurrence in a patient suffering from psoriasis. The clinical picture of both diseases may be similar. Moreover, Norwegian scabies is a rare disease yet cannot be omitted in the differential diagnosis. Appropriate treatment not only helps to relieve symptoms yet also limits further transmission of the infection. The presented case confirmed the effectiveness of combined therapy with ivermectin and permethrin in the treatment of Norwegian scabies.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published, and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

miniReview Article

Challenge of voluntary depigmentation in Mali: Natur'art engages in an awareness caravan against its harmful effects

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ABSTRACT

Introduction: To commemorate March 8, 2023 (International Women's Day), Natur'art engages in a vast caravan of awareness against the harmful effects of the act of depigmentation. Artificial depigmentation (AD) is the lightening of the skin using chemicals. The products employed are highly active corticosteroids, hydroquinone, as well as mercurial products such as soda. Artificial depigmentation is a practice that has emerged over the past three decades and has become one of the main reasons for dermatology consultations. In Mali, one in four women engages in depigmenting, and this phenomenon is not yet to stop as depigmentation products dominate the market. **Objective**: The main objective of this project was to make African women aware of the dangers of this practice and to make them aware that beauty is plural through the enhancement of the natural integrity of the skin and hair. **Timeline of Activities:** The awareness caravan on the harmful effects of artificial depigmentation was held at different places of the capital Bamako. The opening ceremony was held at the Bamako International Conference Centre (CICB) on Friday, March 26, 2023. The conference on the main theme followed by booth visits with the exhibition of artistic images of the skin of black African women and finally some high schools chosen on the basis of their high number of girls served as a place of awareness. The setup ended at about 8:10, and the actual ceremony began at 8:30. It was marked by three interventions. The first intervention was that of the Minister of Health and Public Health. The second was the presenter of Natur'art, Awa Bagayoko, who explained the initiative of the caravan, the innovative idea of Natur'art, consisting of preserving and enhancing the natural complexion of the African woman. There were a number of conferences about depigmentation. **Conclusion:** This awareness-raising caravan, the first of its kind in Mali, served as a motor to intensify the fight against this harmful practice that devalues black African women.

Key words: voluntary depigmentation, awareness, harmful effffects, Mali

INTRODUCTION

Artificial depigmentation (AD) is the lightening of the skin using chemicals. The products used are highly active corticosteroids, hydroquinone, as well as mercurial products such as soda [1,2].

Artificial depigmentation, a practice that has emerged over the past three decades, has become one of the main reasons for dermatology consultations [1-3]. In Mali, one in four women engages in depigmentation, and this phenomenon is not yet to stop as depigmentation products dominate the market [3]. Ingredients used by the manufacturers of skin-lightening creams and soaps include mercury salts that prevent the formation of melanin, resulting in a lighter complexion [4]. Mercury is also found in other cosmetic products, such as eye cleansers. According to Professor Somita

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Keita, a dermatologist at the National Center for Support in the Fight against Disease (CNAM), says in an interview that when we prescribe pharmaceutical products that eliminate black spots on the bodies of women and they see that it has succeeded, they begin to use the product on the entire body, hence the need to educate potential candidates about the dangers of depigmentation. According to the WHO in a 2011 report, 25% of women in Mali regularly use skin-lightening products [3-5]. They represent 77% in Nigeria, 27% in Senegal, 35% in South Africa, and 59% in Togo [2,4-6]. In addition to mercury, depigmentants also contain toxic substances, such as hydroquinone and dermocorticoid, that weaken the immune system. The International Association for Information on Artificial Depigmentation (AIIDA) reports that 38% of skin cancers are favored by depigmentation [7]. The products used sometimes have effects that are difficult to treat or are untreatable [2]. Depigmentation is dangerous for health and causes diseases such as acne, stretch marks, and skin cancer. In pregnant or lactating women, the consequences of depigmentation are alarming [8,9]. It poses a risk of low birth weight, predisposition for the child to develop cardiovascular disorders, poor scarring after cesarean section in the mother, and cortico-dependence, says Dr Yamoussa Karabinta at a conference hosted by Cherifla TV. In Mali, patients divert products from their original use to make lightening products. As in other countries on the continent, including Senegal, South Africa, Togo, and Nigeria, Mali is affected by the phenomenon of depigmentation and hair straightening. In a 2011 report on Mercury in skin-lightening products, the WHO sounded the alarm about the health consequences of depigmentation [5]. How aware are Malian women of these dangers? Have they access to information about the dangers of using depigmenting and straightening products? What is the general view and opinion on the practice? Natur'art is a project of awareness and promotion of African beauty and femininity through artistic and cultural activities. It stresses the natural through complexion and hair to make women wonder about the consequences of using depigmentation products and to bring awareness to the danger that they incur to the skin. This caravan sets to change the mentality designed according to which the use of lightening and relaxing products would be a weapon of seduction and a sign of integration among women. Depigmentation is a practice used by many women to look beautiful to others. Today, women are at the heart of the debate on the issue of physical violence, verbal violence, demand for rights, and struggle for emancipation. At the international level, the month of March is declared Women's Month and March 8 is celebrated through commemoration actions and advocacy for the improvement of women's living conditions, both in cities or rural areas. In Mali, the month of the woman and the day of March 8 are generally celebrated through folklore demonstrations and adornments. Nowhere in the actions and speeches of the celebration of this month of women is mention made of the use of toxic products that seriously harm health. Natur'art by this caravan is committed to joining the struggle for the valorization of women, yet this time by emphasizing the need to address the question of the health of the woman, especially on behaviors and conceptions of beauty and social fulfillment. It is through this perspective that Natur'art, a traveling exhibition, awareness-raising skits, a panel of discussion on the dangers related to the use of depigmentation products, natural braid activities, fashion shows, photo exhibitions, documentary film screenings, testimonies and performances, raises awareness of the natural.

OVERALL OBJECTIVE

The main objective of the project was to make African women aware of the dangers of this practice and to make them aware that beauty is plural through the enhancement of the natural integrity of the skin and hair. Feeling "good in your own skin" means accepting yourself.

TIMELINE OF ACTIVITIES

Activity Spaces

The awareness caravan on the harmful effects of artificial depigmentation was held at different places of the capital Bamako. The opening ceremony was held at the Bamako International Conference Centre (CICB) on Friday, March 26, 2023. The conference on the main theme followed by booth visits with the exhibition of artistic images of the skin of black African women, and finally some high schools chosen on the basis of the high number of girls served as a place of awareness.

Duration of the Caravan

The caravan took place over the period from Friday 26 to Sunday 28 in March, 2023, for three days of full activity.

Target of the Caravan

The awareness-raising activity had two targets, a group of primary targets consisting of young girls, adult women, workers from the local socio-professional hair and cosmetics sectors, traditional practitioners and a group of secondary targets consisting of health authorities, local associations and NGOs fighting for women's rights and empowerment, as well as technical and financial partners. The caravan was the initiative of Natur'art innovates, which offers numerous actions of marketing and communication, which will allow great visibility and strengthening of the notoriety in the juvenile population.

Opening Ceremonies

The setup ended at about 8:10, and the actual ceremony began at 8:30. There were a lot of young participants in the conference room (Fig. 1). It was marked by three interventions. The first intervention was that of the Minister of Health and Public Health. After a customary greeting, she placed the event in its context. She insisted on the importance of the caravan, which for her, must be a wise way to fight this scourge that destroys the true identity of African women. The African woman is distinguished by the beautiful color of her skin that she must preserve. She concluded by saying that she hopes that a significant number of young women will be made aware of the dangers of this harmful practice that ravages African society in general and Malian society in particular. This speech by the Minister was followed by that by the presenter of Natur'art, Awa Bagayoko (Fig. 2), who explained the initiative of the caravan, the innovative idea of this Natur'art project, which consists of preserving and enhancing the natural complexion of the African woman. She emphasized her commitment and that of her young team to lead this fight. She, then, thanked all partners for their technical and financial support for holding the caravan. Before concluding her speech, she conducted the caravan program. The last speech was by the Minister for the Promotion of Women, Children, and Families. She affirmed her full support for the young team engaged in such a difficult project. She gave a brief overview of the scourge that is becoming increasingly common in our societies. Before declaring the activities open, she said she was convinced of the success of the caravan.

Developments in Activities

March 26, 2023, was marked by a conference on the problem of depigmentation in Africa examined by Dr Yamoussa Karabinta (Fig. 3), Assistant Professor of Dermatology at the Medical Faculty of Bamako and Hospital Practitioner at the Dermatology Teaching Hospital of Bamako. Dr Karabinta defined voluntary depigmentation as a harmful, non-medical practice that lightens skin that is normally pigmented by the use of depigmenting products that may cause serious health problems. After defining the phenomenon, he spoke of the origin of the plague that are linked to the fear of being too black to the idea that the mixed or white complexion is more attractive than the dark black complexion. Some women think that the brighter your complexion, the better you are considered in society. He showed us figures in terms of the prevalence of voluntary depigmentation in sub-Saharan Africa to illustrate the scale of the problem. He cited the main depigmenting products in Africa, namely hydroquinones, mercurial derivatives, and dermocorticoids. As consequences of this practice,

Figure 1: Participants at the opening ceremony.

Figure 2: President of Natur'art on the right with his guest of honor.

Figure 3: Dr Yamoussa Karabinta, Assistant Professor of Dermatology at the Medical Faculty of Bamako and Hospital Practitioner at the Dermatology Teaching Hospital of Bamako.

Figures 4: (a-c) *The various speakers.(a) Fatoumata Fc Coulibalibaly. (b) Adama Traore. (c) ALfousseyni Diallo.*

Dr Karabinta listed the occurrence of infections such as mycosis, furunculoses, acne, erysipelas, unsightly and irreversible wide stretch marks, scarring disorder, exogenous ochronosis, which are hyperpigmented spots appearing on photo-exposed areas and the occurrence of skin cancers which make all the severity of this practice. An iconographic projection ended the conference. After the conference, it was the artists of Natur'art through traveling exhibitions, awareness-raising skits, and fashion parades, photography exhibitions, screenings of a documentary film of testimony that occupied the rest of the day. The second day was devoted to awareness campaigns at high schools, faculties and large institutes to persuade women of the real danger that awaits them. A panel discussion on the dangers of using depigmentation products took place on the third day at the Modibo Keita Memorial. Dr Tall Koureissi and Dr Binta Guindo all dermatologists, Fatoumata Fc Coulibalibaly (Fig. 4a), Adama Traore (Fig. 4b), Alfousseyni Diallo (Fig. 4c), and Aminata Dramane Traoré, all from civil society took part in this panel to thoroughly dissect the subject. The debate was moderated by actor Abdoulaye Magan.

Closing Ceremony

She was marked by the intervention of the Minister of Health, who said he was reassured by the awareness of this devastating phenomenon, and she reaffirmed her commitment to accompany young people in this fight. The president of Natur'art, Awa Bakayoko, would like to expand this caravan to all regions of Mali.

Before closing the ceremony, the Minister for the Advancement of Women, Children, and Families, expressed his satisfaction and encouraged young people to continue this noble struggle.

CONCLUSION

Whatever the reasons, voluntary depigmentation has no health benefits. On the contrary, it is a source of countless dangers, including skin cancers. This awareness-raising caravan, the first of its kind in Mali, will serve as a motor to intensify the fight against the harmful practice that devalues African black women.

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.

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Our Dermatology Online

Clinical Image

Giant condyloma acuminata

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A sixty-year-old patient was hospitalized at the Second Department of Internal Medicine for the investigation of anemia. B_{12} deficiency was revealed, and the relevant supplementation was initiated. A clinical skin examination revealed a huge, brown, polypoidal mass covering the entire inguinal area that had been there for the last nine years (Fig. 1). Neither rectal nor anal lesions were observed. During hospitalization, the patient was infected with COVID-19 and, after treatment, was discharged from the hospital without any further dermatological consultation. Laboratory examination for syphilis and HIV was negative. It was a giant condyloma acuminata.

Giant condyloma acuminata is a rare disease affecting 0.1% of the population, mainly immunocompromised patients suffering from diabetes, cancer, following transplantation, and is associated with HPV 6 [1] and 11 strains yet also 16 and 18, the high-risk ones [2]. It often recurs and may be transformed into squamous cell carcinoma. Treatment includes immunomodulator agents such as imiquimod, surgical excision, and non-invasive methods such as local hyperthermia [3].

Final diagnosis: giant condyloma acuminata.

Three differential diagnoses: skin tags, molluscum contagiosum, condyloma latum.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

Figure 1: Giant condyloma acuminata in the inguinal region.

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Our Dermatology Online

Case Letter

Benign vulvar tumors: A series of 60 cases

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Sir,

Vulvar dermatology represents a challenge for many providers. Patients with vulvar lesions may present for primary care, gynecology, or dermatology. Although most tumors do not require treatment, it is necessary to consider a differential diagnosis, including pre- and malignant tumors and infectious pathologies. The aim of our study was to report the various benign tumors in a vulvar pathology series. The observational study included 64 cases over five years. Clinical examination was supplemented by dermoscopy, and a biopsy was taken in suspected cases or cases with a doubtful diagnosis. Condyloma acuminatas were excluded from our study.

Among 200 patients, 49 had 64 benign tumors, among which only eight were of a vascular or lymphatic nature (Figs. 1a – 1d), while 56 were not (Figs. 2a – 2j). Twenty patients had multiple lesions. Table 1 summarizes the number of cases by type of pathology. Lesions were mainly located on the labia majora (83%), vestibule (15%), and other sites (2%). They were asymptomatic (80%), pruritic (15%), bleeding on contact (6%), painful (4%), and oozing in the patient with acquired lymphangiectasias. Excision confirmed the diagnoses of hidradenoma papilliferum, syringomas, molluscum pendulum, botriomycomas, and syringosystadenomas papilliferum. For seborrheic keratosis, nevus, and epidermoid cysts, excision was performed for patients who requested it. Other treatments were instituted: laser in the patient with acquired lymphangiectasias; antibiotic therapy with drainage in the two cases of bartholinitis; venotonics for varicosities; and propanolol for infantile hemangiomas. Therapeutic abstention was recommended for benign vulvar vestibular papillomatosis.

As a gynecological and dermatological organ, the vulva falls well within the dermatologist's practice [1,2].

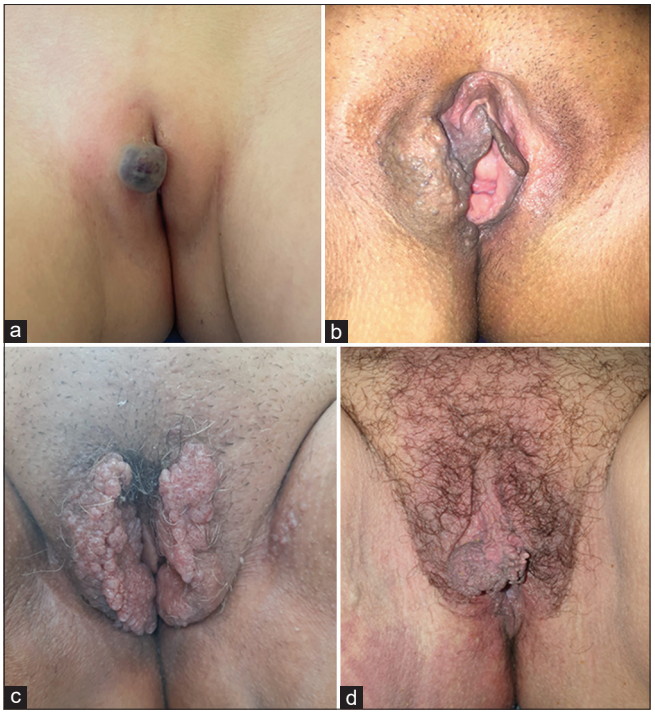

Figure 1: a) Hemangioma. b) Vulvar varicosities. c) Acquired lymphangiectasias. d) Angioma regenerative nodules.

To date, no staging of benign vulvar tumors has been established [1].

Most benign vulvar tumors are diagnosed clinically, sometimes requiring appraisal through the dermoscope, and do not require any treatment; however, surgical excision may be indicated for various reasons, such as aesthetic appearance, friction, recurrent infection, or if malignancy is suspected [3-5]. Some of these tumors have shown an association between their increase in size and hormonal factors (pregnancy, menstruation) as well as endocrinopathies [6]. The dermatologist has a key role to play in recognizing benign lesions of the vulva, diagnosing malignant lesions at an early stage,

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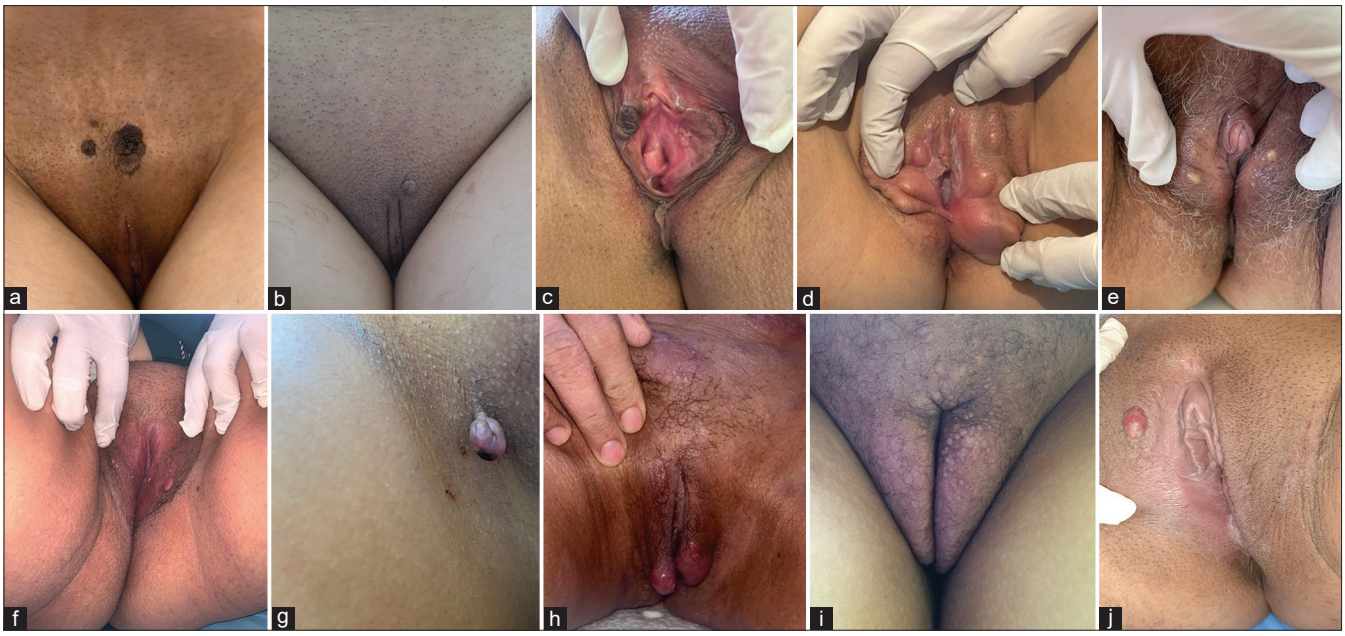

Figure 2: a) Seborrheic keratosis. b) Nevus. c) Benign vulvar vestibular papillomatosis. d) Hidradenoma papilliferum. e) Epidermal cysts. f) Syringomas. g) Molluscum pendulum. h) Bartholinitis. i) Syringocystadenoma papilliferum. j) Botriomycomas.

Table 1: The number of cases by type of pathology.

Disease	Number of cases
Vascular and lymphatic diseases	8
Hemangiomas	3
Vulvar varicosities	3
Acquired lymphangiectasias	1
Angioma regenerative nodules	1
Non-vascular diseases	56
Seborrheic keratosis	13
Nevus	10
Benign vulvar vestibular papillomatosis	10
Hidradenoma papilliferum	7
Epidermal cysts	3
Syringomas	2
Molluscum pendulums	2
Bartholinitis	2
Syringocystadenoma papilliferum	1
Botriomycomas	1

alleviating patient anxiety, and reducing the need for unnecessary examinations [1].

Our study presents a panorama of benign vulvar tumors, with the presence of fairly rare tumors. Despite the frequency of bartholinitis, its small number in our series may be explained by its easy recognition by general practitioners and its direct referral to gynecology. However, their occurrence in postmenopausal women should exclude any malignancy [7].

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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Our Dermatology Online

Case Letter

Coexistence of erythema dyschromicum perstans, frontal fibrosing alopecia, and facial papules

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Sir,

Erythema dyschromicum perstans is a chronic skin disorder manifesting with hyperpigmented macules on the trunk, extremities, neck, and face [1]. It has been suggested that various factors such as radiocontrast agent exposure and cobalt allergy might play role in the development of erythema dyschromicum perstans. However, the exact cause of erythema dyschromicum perstans has not been elucidated yet [2,3]. The disease affects males and females equally and may occur at any age [4]. The definitive diagnosis of erythema dyschromicum perstans is usually made based on clinical and histopathological features. The treatment of erythema dyschromicum perstans may be troublesome since the disease may have a progressive course [1].

A 72-year-old Caucasian female presented with a seven-year history of asymptomatic hyperpigmented macules on the face without photoaggravation and hair loss (Figs. 1a – 1c). Two years after the appearance of the symptoms, a skin biopsy was performed from a hyperpigmented macule on the neck, and the histopathological examination was consistent with erythema dyschromicum perstans (Figs. 1d – 1f). The patient was previously treated with oral dapsone 50–100 mg/day for three years, hydroxychloroquine 200 mg/day for three months, and cyclosporine 200 mg/day for eight months without a significant clinical response.

The present dermatological examination revealed grayish, hyperpigmented macules distributed symmetrically on the face, neck, and inframammary region. In addition, symmetrical, band-like frontotemporal alopecia, regression of the hairline, and loss of the eyebrows were detected. Skin-colored, monomorphic papules on the cheeks were also noted. The patient's Fitzpatrick skin phototype was III. A dermatoscopic examination revealed small, gray to brown dots mostly in an irregular linear arrangement with a pinkish-brown background on the neck, and a perifollicular scale and loss of orifices on the scalp (Figs. 1g and 1h).

Erythema dyschromicum perstans usually presents with gray to brown colored, asymptomatic macules on the trunk, proximal extremities, neck, and face. The lesions may occur on both sun-exposed and sun-protected body areas. Moreover, they show symmetrical distribution [1,2]. Various factors such as radiocontrast agent exposure, cobalt allergy, and human immunodeficiency virus (HIV) infection have been implicated in the development of erythema dyschromicum perstans. However, the exact cause of the disease remains unknown [2]. Systemic and topical steroids, dapsone, clofazimine, isotretinoin, narrow-band ultraviolet B therapy have been used in the treatment of erythema dyschromicum perstans [1]. Nevertheless, no effective treatment has been widely accepted for the management of erythema dyschromicum perstans [2]. On the other hand, it is controversial whether erythema dyschromicum perstans and lichen planus pigmentosus are different disorders or variants of the same disorder [3]. Both erythema dyschromicum perstans and lichen planus

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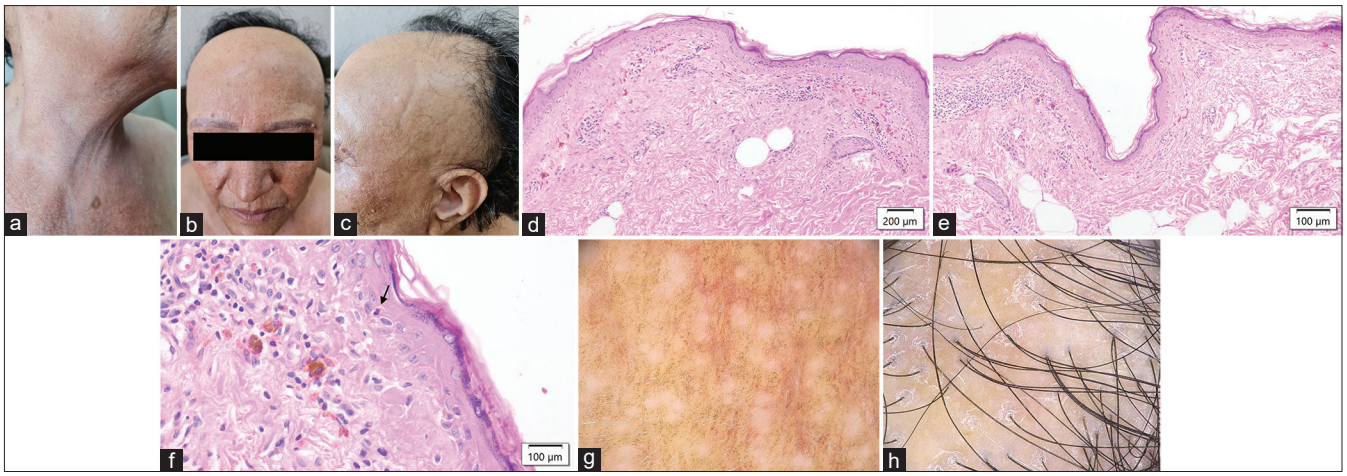

Figure 1: Grayish, hyperpigmented macules on the neck (a). Frontotemporal alopecia, regression of the hairline, and loss of the eyebrows. Eyebrow tattooing was also noted (b). Band-like frontotemporal alopecia, hyperpigmented macules, and skin-colored papules on the left malar region (c). Histopathological examination of the grayish, hyperpigmented macule on the neck revealed melanin incontinence in the papillary dermis (H&E, 100x) (d), lymphocytic inflammation in a lichenoid pattern in the papillary dermis (H&E, 100x) (e) and sparse apoptotic keratinocytes in the epidermis (arrow) (H&E, 200x) (f). Dermatoscopic examination of the hyperpigmented macule on the neck (g). Dermatoscopic examination of the alopecic area on the scalp (h). Dermatoscopy was performed with a FotoFinder Medicam 1000 (FotoFinder Systems GmbH, Bad Birnbach, Germany) under 10x magnification.

pigmentosus are acquired skin diseases characterized by dermal hyperpigmentation [4]. Furthermore, lichen planus pigmentosus of the face has been associated with frontal fibrosing alopecia in which facial papules might indicate poor prognosis [5]. Hereby, we present a 72-year-old female patient who had erythema dyschromicum perstans, frontal fibrosing alopecia, and facial papules at the same time. We suggest that frontal fibrosing alopecia and facial papules should also be considered in the management of patients diagnosed with erythema dyschromicum perstans.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Case Letter

Fibrosing frontal alopecia: An original pediatric case

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Sir,

Frontal fibrosing alopecia (FFA) is an anatomoclinical form of lichen planus pilaris, which is defined by a recession of the frontotemporal and sometimes even occipital line of implantation of the scalp, realizing a banded or crown-shaped, scarring alopecia. Described for the first time by Kossard in 1994 in six postmenopausal women and, since this first description, several cases have been documented, thus coining the term *postmenopausal* describing this type of scarring alopecia [1]. Herein, we report an original pediatric case of FFA, confirmed clinically, dermoscopically, and histologically.

A twelve-year-old female with no particular pathological history presented with a progressive and symmetrical receding frontotemporal hairline of the scalp evolving since the age of six years. On clinical examination, there was frontotemporal alopecia in bands with the disappearance of downy hair, follicular hyperkeratosis, and the "solitary hair" sign (Figs. 1a and 1b). The rest of the physical examination was normal. Dermoscopy revealed erythema and perifollicular hyperkeratosis, and the histological examination was in favor of lichen planus pilaris. We, therefore, retained the diagnosis of AFF and the child received oral corticosteroid in mini-pulses of 20 mg/day twice a week.

AFF is a rare condition with an increasing incidence. It is characterized by the progressive recession of the fronto-temporo-parietal, sometimes even occipital, line of implantation of the scalp, realizing a scarring alopecia known as the "band" or "crown" [2]. The downy hair disappears completely, giving a particular aspect to the line of implantation. A few isolated terminal hairs often remain in front of the receding area, giving the sign of the solitary hair [3], which is useful for distinguishing AFF clinically from other alopecias that may affect the frontotemporal region, such as traction alopecia, androgenic alopecia, and alopecia pelada. In its typical form, the diagnosis may be exclusively clinical. Dermoscopy facilitates the diagnosis of AFF by showing sensitive and specific signs [4]. In case of doubt, histology is necessary. AFF is not always postmenopausal, nor exclusively female [5]. Some cases have been reported in non-menopausal women, followed by rare pediatric cases. Male cases have also been described, as well as familial cases [6,7]. The etiology of AFF has not been clearly elucidated. Its occurrence after menopause argues for a hormonal factor. The efficacy of anti-androgens, reported by some authors, is also in this direction. However, observations in non-menopausal women, in men, and now in children do not support this hypothesis. A genetic component remains to be confirmed after the recent identification of familial cases. Regarding treatment, there is no consensus on a therapeutic strategy. Intralesional corticosteroid therapy allows to obtain an improvement in almost 60% of cases.

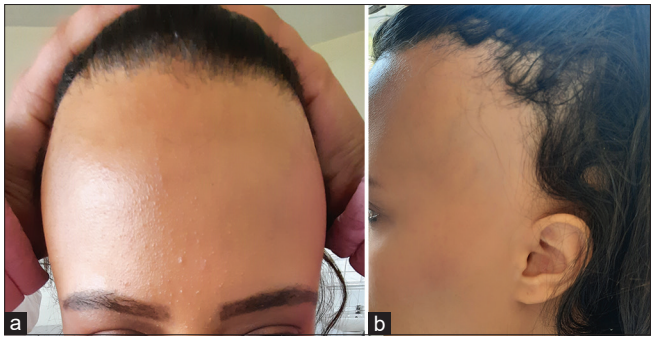

Figure 1: (a-b) Symmetrical recession of the frontotemporal implantation line with the disappearance of the downy hair.

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The description of cases of FFA in children intrinsically implies a paradigm shift in the conception of the disease.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Letter

Punch grafting for a recalcitrant, venous leg ulcer

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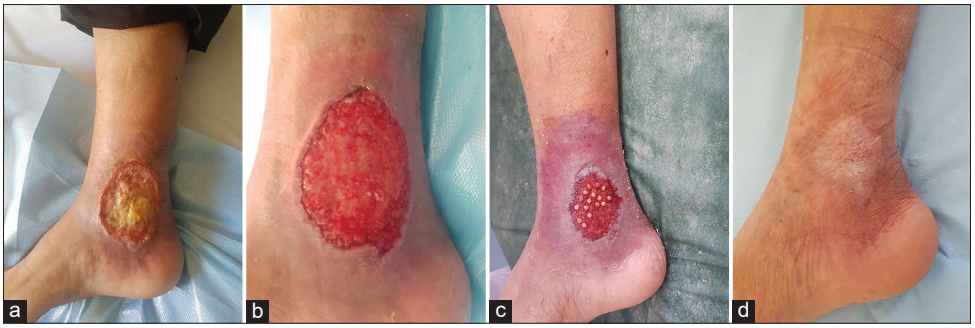

Figure 1: (a) The fibrinous venous ulcer located on the medial malleolus surrounded by ochre dermatitis. (b) The venous ulcer bed after chemical and mechanical debridement. (c) Re-epithelialization and punch grafting. (d) Complete healing after five months with a two-year follow-up.

Sir,

Punch grafting is a technique that has been widely employed for the treatment of wounds and foot and leg ulcers [1-3]. It is easy to implement, is complication-free, and is nowadays considered again an important therapeutic alternative as many ulcers fail to heal completely despite well-conducted care [3]. The principle of such grafting consists of obtaining thin, split-thickness skin grafts (STSG) containing the epidermis and papillary dermis, which promote wound re-epithelialization and the release of growth factors and cells [2]. It considerably shortens the healing time [3]. The HAS recommends its use for recalcitrant ulcers (> six months) and ulcers larger than 10 cm^2 [4]. A study by Conde-Montero demonstrated its value in reducing pain in all types of ulcers, yet especially in necrotic angiodermatitis [5]. The preparation phase is essential in order to acquire an adequate ulcer bed for graft reception. The management of causative and etiological factors is also necessary to optimize the results [2,4]. Particularly in venous ulcers, it is necessary to educate patients on the need to respect healthy lifestyle measures and wear compression bandages. It is equally important to manage co-morbidities, recommend lymphatic and venous drainage, prevent trauma, and treat wounds early [4]. Herein, we report the case of a recalcitrant, venous leg ulcer treated with punch grafting. Our case illustrates the interest in this technique and underlines the need to have all the optimal conditions accompanying the healing and manage the etiological and promoting factors.

A 44-year-old male patient presented with a history of a venous ulcer on the right leg evolving for three years with chronic venous insufficiency at a surgical stage, for which he was operated one year previously and also benefited from platelet-rich plasma (PRP) sessions without a clear improvement. A clinical examination revealed a roughly oval ulcer, 6 × 5 cm in diameter, with a budding and fibrinous surface, located on the medial malleolus. An examination of the skin around the lesion revealed signs of chronic venous insufficiency, such as ochre dermatitis and varicosities (Fig. 1a). Doppler ultrasound of the arterial and venous network revealed venous insufficiency without arterial involvement. Compression bandages were prescribed. The preparation of the ulcer bed was performed by chemical dressings

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such as hydrocolloids, the mechanical debridement of the fibrin, and the revival of the ulcer edges with CO_2 laser. The patient, then, underwent punch grafting harvested from the thigh (Figs. 1b and 1c). Complete healing was observed after five months with a two-year follow-up and no recurrence (Fig. 1d).

The interest in this technique lies in the fact that it is simple, effective, and complication-free. In addition to producing an analgesic effect, it accelerates and optimizes healing.

Consent

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The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Case Letter

Docetaxel-induced palmoplantar erythrodysesthesia syndrome: Dramatic presentation of a benign complication

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Sir,

Docetaxel is a taxane class of cytotoxic agents used for the treatment of solid tumors [1,2]. Palmoplantar erythrodysesthesia (PE) syndrome is characterized by intense, painful erythema of the palms and soles that may progress to the formation of vesicles or bullae in a minority of patients [3,4]. We, herein, describe a case of PE after exposure to docetaxel therapy in a patient with breast malignancy.

A 45-year-old female was being treated with docetaxel pulse therapy for breast cancer, given a dose of 120 mg intravenous in normal saline over a one-hour infusion. It was planned to provide four such cycles of docetaxel, and she received two cycles of treatment without any untoward effects. As per protocol, a premedication consisting of 16 mg dexamethasone and 22.75 mg pheniramine maleate was given half an hour before each cycle of therapy intravenously. After five days of the third cycle, the patient complained of a burning sensation and developed painful, erythematous, well-demarcated plaques on both hands and feet with dry, cracked, xerotic skin on the dorsal surfaces of both hands (Figs. 1a and 1b). A diagnosis of docetaxel-induced PE was considered. She underwent a skin biopsy that was suggestive of PE (Fig. 2). The discontinuation of docetaxel and treatment with 0.05% betamethasone dipropionate cream and diclofenac sodium resulted in the gradual resolution of symptoms over one week.

As per the plan of therapy, only the last (fourth) cycle of docetaxel chemotherapy was to be given, the patient

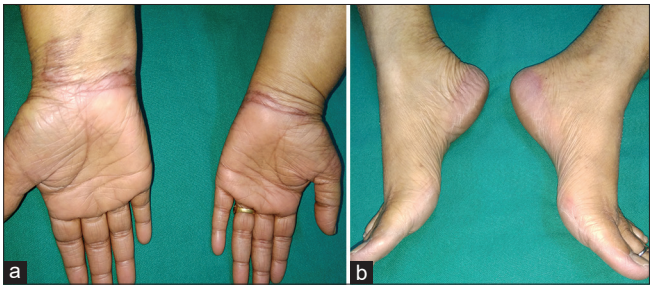

Figure 1: (a) Well-demarcated, painful, erythematous plaques on both hands and feet after the third dose of docetaxel. (b) Painful, erythematous plaque on the foot after the third dose of docetaxel.

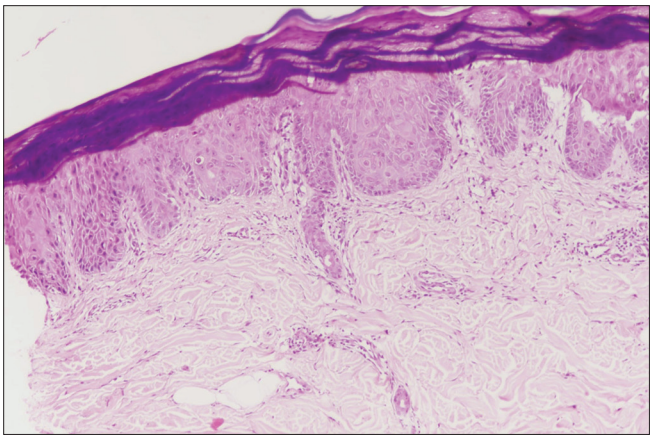

Figure 2: Histopathology revealed hyperkeratosis, hypogranulosis with regular acanthosis, multiple apoptotic keratinocytes, and dyskeratosis with areas of basal cell vacuolization present with mild perivascular lymphomononuclear cell infiltrates along with some eosinophils.

was counseled about its likely recurrence and explained the benign nature of palmoplantar lesions developed in the last cycle of therapy. However, she was also reassured that an attempt to prevent such lesions should be made

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Figure 3: Erythematous, linear streak at the venipuncture site on the right hand after the fourth dose of docetaxel.

during chemotherapy by placing an ice pack on the palms and soles. Topical betamethasone cream and a moisturizer were also administered a week before chemotherapy. There was no complaint of a burning sensation or the development of erythematous lesions on the palms and soles except an erythematous, linear streak at the venipuncture site on the right hand (Fig. 3).

The true incidence of adverse effects due to docetaxel is unknown, yet according to the literature, it ranges from 6% to 81% [1,2]. PE due to docetaxel and some other chemotherapeutics agents has been reported in the literature [2]. It has been postulated that it is due to the excretion of docetaxel through the eccrine glands resulting in a direct cytotoxic effect on epidermal cells. There are no explicit descriptions as to why this adverse effect is mainly limited to the acral parts. However, some factors differentiate the acral area from other parts of the body, such as a thick stratum corneum, temperature gradient, vibrant capillary network, rapidly proliferating cells, repeated exposure to friction/trauma, absence of sebaceous glands, and a higher number of eccrine glands, thus favoring this particular side effect on these specific sites [3,4].

PE is not a life-threatening drug reaction, hence the continuation of treatment to be weighed against its potential benefits in an individual patient. Although dose reduction is an effective method to avoid recurrence, additional preventive measures may be justified [5]. These include the avoidance of trauma, friction, exposure to heat, and regular moisturizing of the hands and feet several days before therapy. During treatment, cooling of the acral areas with ice packs has been observed to help impair circulation and decrease the excretion of chemotherapeutic drugs through the eccrine glands through vasoconstriction. Other techniques, such as the use of pyridoxine, topical steroid, vitamin E, and analgesics, are found to be effective in reducing severity [4,5].

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Our Dermatology Online

Case Letter

Phototoxic drug reaction induced by hydroxychloroquine

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Sir,

Hydroxychloroquine is an anti-malarial drug often administered in systemic diseases for its immunomodulatory, anti-inflammatory, and photoprotective properties, especially in dermatomyositis and lupus erythematosus. However, antimalarial drugs have also been reported to cause photosensitivity [1].

Herein, we present a case of a phototoxic drug reaction that occurred during the treatment of cutaneous lupus erythematosus with hydroxychloroquine.

A twenty-six-year-old female treated for discoid lupus with hydroxychloroquine 200 mg twice a day and corticosteroids 40 mg a day was admitted five weeks later for a painful erythematous eruption involving sun-exposed areas. A skin examination revealed erythematous, hyperpigmented patches with bullae on sun-exposed sites, including the face, ears, posterior neck, upper back, anterior chest, forearms, and hands (Fig. 1). The eyelids, nasolabial folds, and perioral and posterior auricular regions were spared. The patient reported prolonged sun exposure several hours prior to the eruption without photoprotection.

The histopathological examination of a skin biopsy sample revealed extensive necrotic keratinocytes and dermal edema associated with an inflammatory infiltrate of lymphocytes, eosinophils, and neutrophils, consistent with a phototoxic drug eruption. Direct immunofluorescence was negative. Photopatch tests were not performed due to a lack of proper equipment at our hospital.

Hydroxychloroquine was withdrawn from the day of admission, and the eruption resolved with desquamation within several days, leaving pigmented scars. The patient did not relapse within a one-year follow-up period while maintaining corticosteroids.

Due to the high affinity of hydroxychloroquine for melanin, its highest concentration is in the skin and the eyes, which is why the most common hydroxychloroquine adverse events are ocular and cutaneous [2]. The most often described cutaneous side effects are bluish-gray hyperpigmentation, while itching, generalized pustular rash, urticaria, and erythroderma are less common [3]. Reports on hydroxychloroquine-induced photosensitivity are limited [4-6].

Photosensitive drug eruptions are cutaneous eruptions due to exposure to a medication and sunlight. Diagnosis is suspected from the clinical history, physical examination, and the temporal relationship between chemotherapy and light exposure, as well as knowledge of the classic groups of medications typically involved in such reactions, and is confirmed with clinical tests, including phototesting, photopatch testing, and histopathology [1].

Distinguishing between the two patterns of photosensitivity, photoallergic and phototoxic reactions, is based on the onset from sun exposure, clinical appearance, and histology [1].

In our patient, a rapid onset after sunlight exposure, with no prior sensitization, a clinical appearance resembling sunburn localized strictly to sun-exposed areas, with blisters and hyperpigmentation, necrotic keratinocytes in histopathology, suggested phototoxicity rather than photoallergy.

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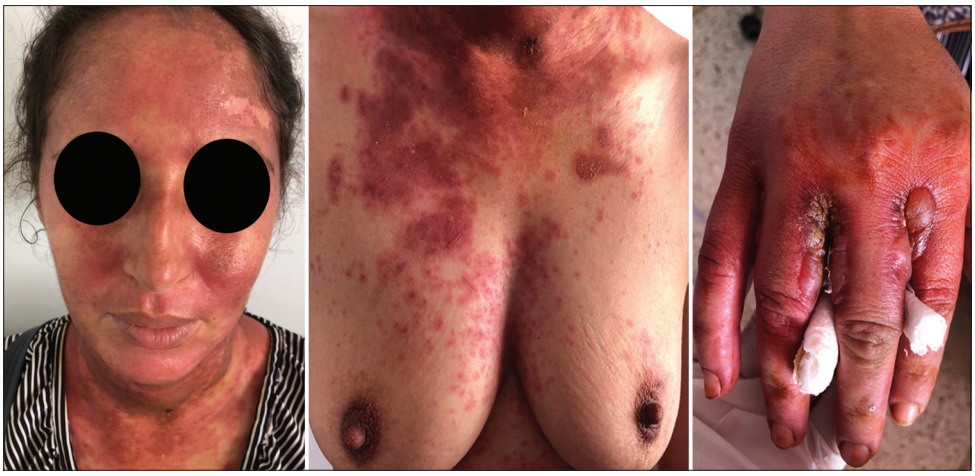

Figure 1: Erythematous, hyperpigmented patches with bullae in sun-exposed areas.

It is crucial to inform patients taking hydroxychloroquine about the potential skin-related adverse effects and recommend that they avoid direct sun exposure and use photoprotective measures.

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Our Dermatology Online

Case Letter

Takayasu's arteritis: The case report of a sixty-year-old male with digital gangrene

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Sir,

Takayasu arteritis (TA) is a chronic vasculitis of medium and large arteries, mainly affecting the aorta and its major branches, with a preponderance for young females during the second or third decades of life. It is an idiopathic granulomatous vasculitis of the aorta and its predominant branches and is one of the most widespread vasculitides [1]. Although it may take a variety of clinical presentations, digital ischemia has rarely been reported in large vessel vasculitis [2]. This case study aims to highlight the importance of screening for TA in male patients so that the diagnosis is not overlooked and adds more data to the limited literature on male patients.

A sixty-year-old male patient presented with brutal pain in the fingers associated with cyanosis. He had a history of high blood pressure, erythema nodosum three months previously, and no history of Raynaud's phenomenon.

A clinical examination revealed a well-limited, necrotic lesion of the right middle finger, pulpal petechiae, and periungueal infarction with a prolonged capillary refill time (Fig. 1a).

Cyanosis, pallor, and coldness also was found on vascular examination with an abolition of the right and left ulnar pulses and asymmetric arterial blood pressure: 110/70 mmHg in the right arm and 130/85 mmHg in the left arm (Figs. 1b and 1c).

His full blood count and renal, liver, and thyroid functions were normal. Coagulation tests and total blood calcium and magnesium showed no abnormalities. ESR: 39 mm/h; CRP: 41 mg/L.

IgM anticardiolipin antibody, lupus anticoagulant, and antiBeta-2 glycoprotein IgG and IgM antibodies were negative. Antinuclear antibody, anti-dsDNA, cytoplasmic anti-neutrophil cytoplasmic antibodies, and perinuclear ANCA were negative as well.

Doppler ultrasound of the upper limbs revealed total thrombosis of the collateral of the right radial artery and of both ulnar arteries of the forearms. CT angiography showed total occlusion of both ulnar arteries.

Diagnosis of TA was retained according to ACR criteria, and a treatment of 1 g/day IV pulse of methylprednisolone was instore, then switched to oral prednisone combined with cyclophosphamide and the amputation of the distal phalanx of the third finger.

The evolution was a significant clinical recovery with the normalization of ESR and CRP and a follow-up appointment every month.

Our case presents the rare findings of a Moroccan male whose initial symptoms appeared at the age of six years. According to the American College of Rheumatology, the diagnosis may be reached if three of the six criteria are met, with our patient meeting four of them, They consist of claudication of the extremities; a decreased pulsation of one or both brachial arteries; a systolic blood pressure differential between the arms of at least 10 mmHg; arteriographic narrowing or occlusion of the whole aorta, its primary branches, or large arteries

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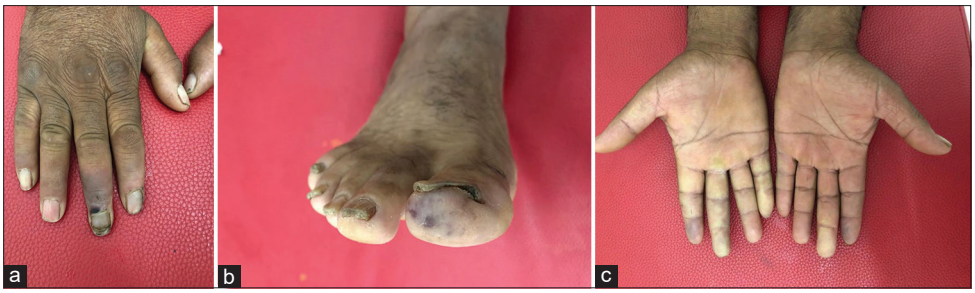

Figure 1: (a) Necrotic lesion on the middle finger. (b) Cyanosis of the big toe. (c) Pallor of the palmar side of the hands.

in the upper or lower limbs excluding arteriosclerosis, fibromuscular dysplasia, or other causes [3].

Due to the non-specific clinical presentations, the diagnosis of Takayasu's arteritis is delayed or missed. In the case of our patient, the initial clue to the diagnosis was the unilateral necrotic lesion on the finger, and there have been only three similar cases reported in the literature [4].

Research conducted so far has reported that the occurrence of digital gangrene in AT is localized only in the lower limbs. Furthermore, the incidence of symptomatic digital gangrene in the upper limb is infrequent, owing to the high abundance of collaterals and the limited extent of atherosclerosis in the upper limb. Thus, the development of digital gangrene in the upper extremity in association with TA, as occurred in our patient, is a remarkably rare finding. For appropriate diagnosis and treatment of patients presenting with digital gangrene, one should always take Takayasu arteritis into consideration.

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We would like to thank Nada Bennouna, Department of Dermatology and Venerology, Ibn Rochd University Hospital, Casablanca, Morocco.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Letter

Adult tinea in a psoriatic patient

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Sir,

Tinea is a superficial fungal infection of the hair follicles caused by the filamentous fungi dermatophytes that have distinct predilection parasitism for the hair. This infection affects predominantly preadolescent children and is rarely seen in adults. Herein, we present a case of tinea capitis in an adult.

A 64-year-old, menopaused female patient had psoriasis and vitiligo for more than twenty years and was treated with local steroids and phototherapy with a good clinical response. She presented with pruritic erythematous and squamous lesions on the face apparent for two months. A clinical examination revealed multiple, rounded, erythematous, and slightly scaly plaques on the periphery, located on the forehead, eyebrows, tip of the nose, and both cheeks (Fig. 1a). On the scalp, there were three partially alopecic, erythematous plaques surmounted by fine, yellowish scales located in the frontal and temporal area, among which the largest measured 4 cm/3 cm (Figs. 1b and 1c).

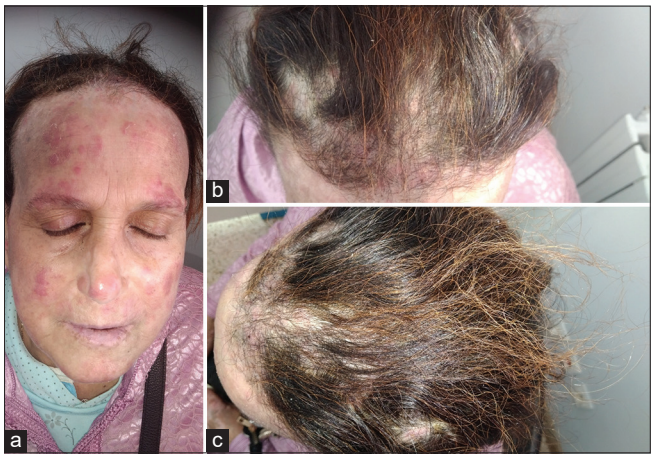

Figure 1: (a)Clinical examination of the face: multiple erythematous and scaly plaques of small sizes, localized on the forehead, eyebrows, tip of the nose, and the cheeks. (b) Clinical examination of the scalp: three alopecic, erythematous plaques with yellowish scales, localized on the temporal and parietal areas, multiple broken hairs seen, among which the largest measured 4 cm/3 cm. (c) Clinical examination of the scalp: a top view of the alopecic, erythematous plaques with yellowish scales in the frontal and temporal areas.

Trichoscopy showed an erythematous background, yellow scales, and corkscrew hair (Fig. 2). The diagnosis of a fungal infection was strongly suspected.

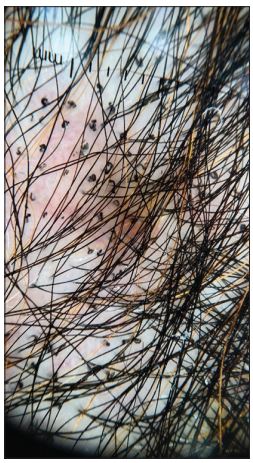

Figure 2: Trichoscopic image (DermLite 4; 3Gen; polarized mode, 10×): erythematous background, yellow scales, and multiple corkscrew hairs.

Direct microscopic examination of the face and hair scales revealed numerous spores with endothrix parasitism, and a cultural examination isolated *Trichophyton violaceum* after three weeks.

On the basis of the clinico-dermoscopic and microbiological results, the diagnosis of mycosis of the scalp and skin was established.

Therapeutic management consisted of griseofulvin at 1 g per day for six weeks. A follow-up noted the total disappearance of the facial lesions, the regression of the dermoscopic signs, and the beginning of hair regrowth (Figs. 3a and 3b).

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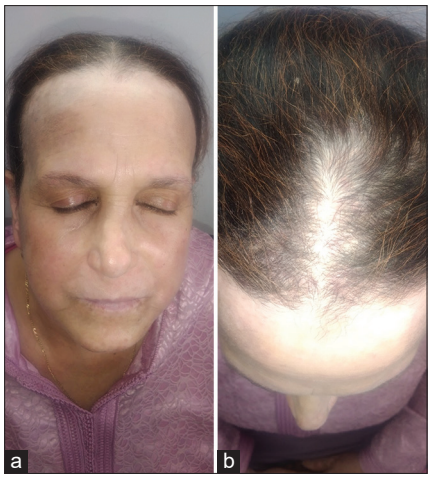

Figure 3: (a) Follow-up clinical examination of the face after six weeks: regression of the facial lesions and pruritus. (b) Follow-up clinical examination of the scalp after six weeks: regression of the pruritus, erythema, and beginning of hair regrowth.

Tinea capitis is a common childhood fungal infection. The exact incidence in adults is unknown yet is generally thought to be low. Only 3% to 5% of cases of tinea capitis occur after puberty [1].

Its clinical manifestations range from mild scaling with little hair loss to large inflammatory and pustular plaques with extensive alopecia [2]. Moreover, it is often misdiagnosed in adults because of its atypical clinical presentation [3].

Trichoscopy (hair dermoscopy) is highly useful in detecting ringworm of the scalp, with a sensitivity of 94% and a specificity of 83%. Its characteristic features include comma hairs, corkscrew hairs, zigzag hairs, Morse code-like hairs, bent hairs, block hairs, I-hairs, and whitish sheaths [4].

In adults, *Trichophyton tonsurans* is the primary fungal species responsible for tinea capitis in the U.S., Canada, Mexico, and Central America. Meanwhile, *Trichophyton violaceum* is more prevalent in Africa, India, Thailand [5], and Iran [6], which was similar to our patient. In some European and Asian countries, including Korea, *Microsporum canis* is the main pathogen identified [5].

Multiple risk factors have been described in the series on tinea in adults: diabetes, immunosuppressants, prolonged use of tropical or systemic steroids, and anemia [6]. The other predisposing factors were contact with animals or direct contact with an infected person [7].

In numerous reports, a higher incidence of tinea in adults (46.4%) was given in postmenopausal females, and this is explained by the involution of the sebaceous glands following a decrease in the levels of blood estrogen [7].

Regarding our patient, two underlying factors were found: 1) the application of topical steroids one month before the appearance of the lesions 2) and menopause, which explains this occurrence.

The treatment of tinea capitis relies on the use of terbinafine, itraconazole, griseofulvin, and fluconazole. It is usually effective yet should be prescribed for at least one month [5].

Adult tinea corporis has an unusual clinical and mycological presentation. Trichoscopy is helpful in increasing the sensitivity of physical examination. Thus, an early diagnosis and treatment is essential to avoid permanent damage to the hair follicle and, thus, prevent scarring alopecia.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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Our Dermatology Online

Case Letter

Carotenoderma caused by eating habits in the month of Ramadan

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Sir,

A thirty-year-old male with no previous pathological history presented with an orange, well-limited, homogeneous coloration of the left palm that began three days before his consultation (Fig. 1a). Dermoscopy revealed a homogeneous, orange pigmentation (Fig. 1b). The rest of the skin and mucous membranes were normally colored. He had no history of eating disorders or abdominal symptoms or changes in urine color. However, the patient reported regular and excessive intake of orange and tomato juice during the month of Ramadan without any notion of ingesting energy drinks. He was advised to reduce the amount of orange and tomato juice. The discoloration faded several days later.

Carotenemia is a well-known condition characterized by yellowish-orange discoloration of the skin and elevated serum b-carotene [1]. Carotenoids are a large group of naturally occurring pigments, which give fruits and plants their bright yellow, orange, and red hues. More than six hundred carotenoids have been identified, yet the major ones detected in human blood are b-carotene, a-carotene, lutein, b-cryptoxanthin, zeaxanthin [2], and lycopene. The majority of published cases of carotenemia are caused by excessive dietary intake of carotenoid-rich foods, such as carrots, mango, dried seaweed, tomatoes, pumpkin, spinach, yellow corn, butter, eggs, and yellow turnips. Rarely, carotenemia has been associated with systemic diseases, including diabetes mellitus, hypothyroidism, nephrotic syndrome, glomerulonephritis, and primary liver disease [3]. Discoloration is clinically evident once serum carotene levels are three to four times the normal [4]. It predominates on the palms and soles due to the thickness of the stratum corneum, as well as on areas rich in sebaceous glands such as the nasolabial folds. However, palmoplantar involvement may be isolated in localized forms. The mucous membranes are always respected [5]. The elimination of the offending food leads to the normalization of the skin color in two to six weeks.

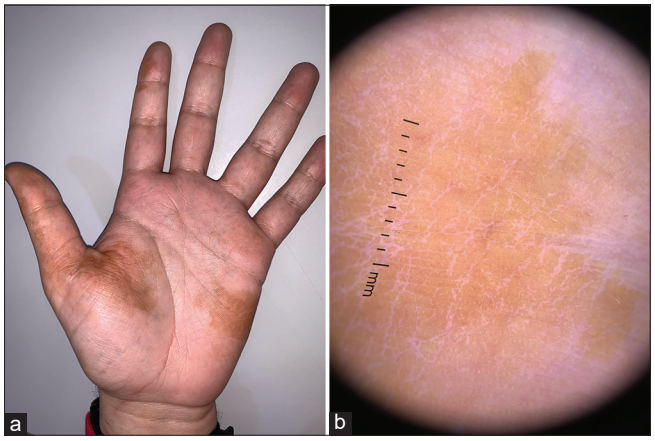

Figure 1: (a)Yellow discoloration of the left palm. (b) Dermoscopy showing a homogenous, orange discoloration of the left palm.

Consent

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Case Letter

Cutaneous Dubreuilh melanoma with ocular invasion

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Sir,

Intraocular metastases of cutaneous melanoma are rare, mainly found in the choroid, rarely in the conjunctiva [1]. Herein, we study the case of a patient hospitalized for a cutaneous melanoma of Dubreuilh presenting with a conjunctival progression homolateral to the lesion.

An 82-year-old patient of clear phototype, reporting chronic sun exposure, consulted for a pigmented lesion on the left cheek, 5 cm in length, which had been evolving slowly for around seven years, with a central area more infiltrated and blackish (Fig. 1a). A biopsy established the diagnosis of Dubreuilh's melanoma with a nodular component. A dermoscopic examination revealed a granular pattern, target appearance, and obliteration of the follicles (Fig. 1b). Ocular examination revealed a blackish pigmentation in the conjunctiva under the lower eyelid of the left eye (Fig. 1a). Ophthalmological examination and investigations confirmed the diagnosis of conjunctival progression of the cutaneous melanoma. An extension work-up revealed peri-umbilical permeation nodules. The patient was treated with chemotherapy.

Melanomas are malignant neoplasms that develop from dendritic melanocytes. Although the skin is the most common site of melanoma development, these neoplasms may occur in any tissue containing melanocytes. Ocular progression of a cutaneous melanoma is rare. Some studies suggest that the clear phototype, familial atypical mole syndrome, xeroderma pigmentosum, dysplastic nevi, and a family history of ocular melanoma may increase the risk of developing both cutaneous and ocular melanomas [2]. Our patient had conjunctival involvement, which may probably be explained by the surface progression of Dubreuilh's melanoma, with the risk factors identified in our case being the light phototype and early and intensive exposure to the sun.

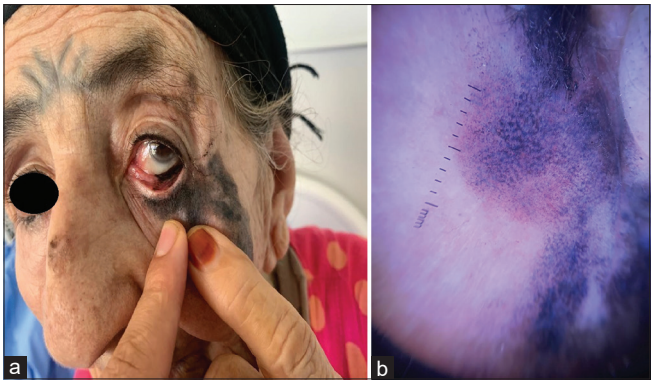

Figure 1: (a) Primary cutaneous Dubreuilh melanoma invading the lower eyelid and the ipsilateral ocular conjunctiva. (b) Dermoscopic image of Dubreuilh's melanoma.

The fine and asymmetrical pigmentation of the follicular orifices in the lower part of the lesion is explained by the progression along the hair infundibulum of isolated or grouped melanocytic cells composed of dots, globules, then these structures fusing and becoming more homogeneous, sometimes bluish, progressively darkening the entire surface, even making the pilosebaceous orifices disappear in the upper part of the lesion. This dermoscopic aspect may explain the progression of the skin lesion toward the homolateral ocular conjunctiva [3-5].

Griech et al. reported that, in some cases, it was impossible to distinguish whether a tumor was of cutaneous or ocular origin, especially at the stage of metastasis [4,6]. Herein, the question may arise whether the tumors were related or had developed

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independently of each other, hence the interest in identifying the oncogenic mutation responsible for a tumor for diagnostic and therapeutic purposes when targeted therapies are available. In the case of our patient, ocular melanoma secondary to the progression of the cutaneous melanoma was easily diagnosed based on the following clinical criteria: the long-standing nature of her melanoma, the recent onset of visual disturbances, and the failure of the patient and her family to notice the pigmented ocular lesion.

In summary, dermatologists should also consider screening for ocular involvement in patients with the risk factors listed above with particular attention to the examination of the medial cantus region, eyelid folds, and conjunctiva by requesting a specialized ophthalmological examination to obtain an early diagnosis.

Consent

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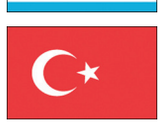


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