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Developing a Manual of Best Practice to prevent early death from skin cancer in albinism in sub-Saharan Africa

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Key words: oculocutaneous albinism, skin cancer surveillance, skin surgery, Standing Voice, community dermatology, sub-Saharan Africa.

Abstract

Skin cancer is statistically a far greater threat than witchcraft-related atrocities that have affected people with albinism across Africa. As of January 2019, 207 people have been murdered and a further 573 attacked as a result, however many more people with albinism develop skin cancer which is a far larger threat to their life. In countries with limited health budgets there is often no effective model of care for skin surveillance and only a few health professionals with training in skin surgery. Standing Voice is a UK based charity, working in collaboration with the Regional Dermatology Training Centre in Moshi (Tanzania), to run a coordinated outreach programme to provide treatment to the most marginalised people in Tanzania and Malawi. These two organisations have recently developed *The Manual of Best Practice: Skin Cancer Prevention and Management for Persons with Albinism in Sub-Saharan Africa*, a practical guide to programme implementation, skin surveillance and skin cancer treatment which can also be applied to other low-resource settings around the world.

Introduction

Oculocutaneous albinism (OCA) affects up to 1 in 1,000 individuals in sub-Saharan Africa[1]. Individuals with OCA lack the pigment melanin

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and are therefore susceptible to the harmful effects of solar radiation, including non-melanoma skin cancers[2]. A Tanzanian study on albinism in 1985 revealed 100% exhibited skin damage by the first year of life and advanced skin cancers were observed in 50% of those between the ages of 20 and 30[3]. In Tanzania less than 2% of children with albinism were expected to reach the age of 40[3]. Whilst recent albinism outreach programmes and education have resulted in a reduced risk of early death for these populations, it is estimated that the risk of people with OCA in Africa developing skin cancer is one thousand times higher compared with the general population[4].

The crisis of skin cancer has intersected on a devastating scale with other frontiers of discrimination faced by people with albinism in sub-Saharan Africa. Families do not understand how to protect their children against sun damage, schoolteachers are ill-equipped to deal with the special educational needs of children with albinism and a lack of mainstream dermatological training means many qualified practitioners are unable to diagnose early indications of skin cancer. Poor performance in school as a result of neglected educational needs means people with albinism are less likely to move on to higher education and are therefore often forced into agricultural labour, which further increases the risk of skin cancer. Prevention of skin cancer in albinism can be best achieved through a combination of education and medical outreach.

Standing Voice is a leading human rights charity defending the rights of people with albinism across Africa. Standing Voice's flagship Skin Cancer Prevention Programme provides comprehensive outreach dermatological care. The programme was established in partnership with the Regional Dermatology Training Centre in 2013. By the end of 2018, 3,257 patients were registered for regular skin cancer surveillance (approximately 20% of all persons with albinism in Tanzania) in 45 clinics across Tanzania and an additional 1,875 patients were supported by access to sunscreen. This has resulted in a 68.5% reduction in the prevalence of actinic keratoses in patients in the Tanzanian programme over the last 7 years. Additionally, presentations with skin cancer have reduced by as much as 85% in certain clinic locations. Prior to this programme being implemented, there was no consistent provision for early excision of non-melanoma skin cancers in local health facilities, so that patients had to travel long distances to receive treatment at a major hospital. The programme was piloted in Malawi in 2016 and now has 456 patients registered in 7 clinics across two districts of the country.

In order to consolidate understanding of best practice when it comes to managing skin cancer in people with albinism in a low resource setting, Standing Voice, in collaboration with the International Foundation for Dermatology (IFD) have developed *The Manual of Best Practice: Skin Cancer Prevention and Management for Persons with Albinism in Sub-Saharan Africa*. The project was funded by the International League of Dermatological Societies (ILDS), Novartis and the Pierre Fabre Foundation. It features contributions from leading

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dermatological health workers in Tanzania, Malawi, UK, USA and Spain, all of whom have experienced working in rural communities in sub-Saharan Africa and were writing from an understanding of local constraints and conditions.

Standing Voice invests substantially in the continual training of the government-employed community dermatologists and clinical officers who deliver frontline clinical care within the Skin Cancer Prevention Programme. Capacity development is realised though training workshops and ongoing mentoring. The manual will hugely support capacity development as it consolidates current learning and aims to drive improvements in clinical practice for professionals working to promote the dermatological health of people with albinism.

Method

Government-employed community dermatologists and health workers working at the district level are best placed to manage skin cancer in people with albinism, as they have the capacity to deliver timely and affordable treatment. In order to develop a manual that would fully meet the needs of those working to treat people with albinism in sub-Saharan Africa, data was collected regarding the existing knowledge community dermatologists had of albinism and skin surgery. This information was gathered through a pre-teaching questionnaire, interactive practical workshops, observations in clinics and operative sessions.

Using this information, the following areas were identified as essential to include in the document: programme implementation, health education, examination, referral processes, cryotherapy, operative procedures and acting on histology reports. Community dermatologists also gave their feedback on the draft manual before publication, to ensure the illustrations which featured in the publication were comprehensive and useful.

To guide the writing of the manual, the authors envisaged three types of users: governments and charitable organisations who are setting up dermatological health clinics, clinicians (with or without postgraduate qualifications), and clinical trainers, where this resource

would be used as a teaching curriculum for those caring for people with albinism.

Result

The publication was launched in Milan at the 24th World Congress of Dermatology, on the 13 June 2019, on International Albinism Awareness Day. Whilst the first edition of this publication is specifically targeted at those operating in sub-Saharan Africa, the publication is applicable to other low resource regions around the world. The manual is internationally recognised, enabling clinicians to deliver effective quality care to people with albinism across Africa and beyond. It is currently a 156-page practical resource concentrating solely on skin cancer prevention and management, but it will become part of a larger series of publications also featuring the management of other clinical and social challenges facing people with albinism such as low vision.

Discussion

The involvement of community dermatologists and health workers in Tanzania has resulted in the publication of an essential resource for teaching purposes, describing the best practice in preventing and treating skin cancer in low-resource settings. Dr Claire Fuller, Chair of the International Foundation for Dermatology, states 'this manual is also a real integration tool', as patients who meet for care or education sessions can build relationships and escape the isolation of their condition, an opinion shared by Dr Daudi Mavura, Principal of the Regional Dermatology Training Centre in Moshi. Community dermatologists and clinical officers have stated the manual is 'easy to understand and use from', 'provides uniform procedures to follow' and 'helps reinforce learning workshops and hands-on training'.

Conclusion

Skin cancer in people with albinism is preventable through effective education, screening programmes and early treatment. *The Manual of Best Practice: Skin Cancer Prevention and Management for Persons with Albinism in Sub-Saharan Africa* is a pioneering resource to achieve this goal.

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For further information visit **www.standingvoice.org**

Hookworm-related Cutaneous Larva Migrans

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Key words: Larva migrans, hookworm, *Ancylostoma spp.*, larva currens, thiabendazole, albendazole, ivermectin.

Hookworm-related cutaneous larva migrans (HrCLM) is an infestation caused by penetration and migration in the epidermis of larvae of nematodes. *Ancylostoma braziliense* and *Ancylostoma caninum* are the species most frequently involved. Natural reservoirs of these nematodes are the stomach and bowel of dogs and cats. The natural environment of the larvae is sandy, warm and damp soil. Humans are accidental and final hosts. Larvae are not able to cross the basement membrane, therefore, they do not reach vessels. In humans, HrCLM is limited exclusively to the skin.

HrCLM is characterized clinically by slightly raised erythematous tracks: they may be single or multiple, linear or, more often, serpiginous, ramified and intertwined. The length of tracks is variable (sometimes many cm); the width ranges from 1 to 4 mm (Figs 1-2). Tracks represent the unsuccessful attempt of larvae to reach the bloodstream. Tracks are very often accompanied by pruritus. Feet and ankles are most frequently involved[1]. Some clinical varieties of HrCLM have been described: abortive (or papular), tinea pedis-like, bullous, follicular and paronychia-like HrCLM[2].

HrCLM is endemic in three geographical areas: East Africa, Thailand and America (South-East United States, Caribbean and Brazil). However, the observation of cases originating in European countries is more frequent than in the past: HrCLM has been observed in United Kingdom, Germany, France and Italy. Outbreaks of HrCLM have been recorded in Nigeria, South Africa, Barbados, Belize, France and Italy.

HrCLM is usually a self-limiting infestation: its duration ranges from 2 to 8 weeks. However, a rare variety of "chronic" or "persistent" HrCLM, characterized by a typical clinical presentation but long duration (from 5 to 14 months) has been described[3].

Complications are bacterial superinfections, Löffler's syndrome, erythema multiforme, irritant/allergic contact dermatitis and psychiatric manifestations (depression, psychosis). Fever can be a marker of HIV infection[4].

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Laboratory abnormalities (leucocytosis with eosinophilia, increase in inflammatory tests and total IgE) are extremely rare.

Differential diagnosis includes larva currens, caused by *Strongyloides stercoralis*. Larva currens is characterized by a track speed of 5-10 cm/day, urticaria, abdominal pain and diarrhoea, peripheral eosinophilia, parasites in the stools and slow response to therapy (several courses are very often necessary).

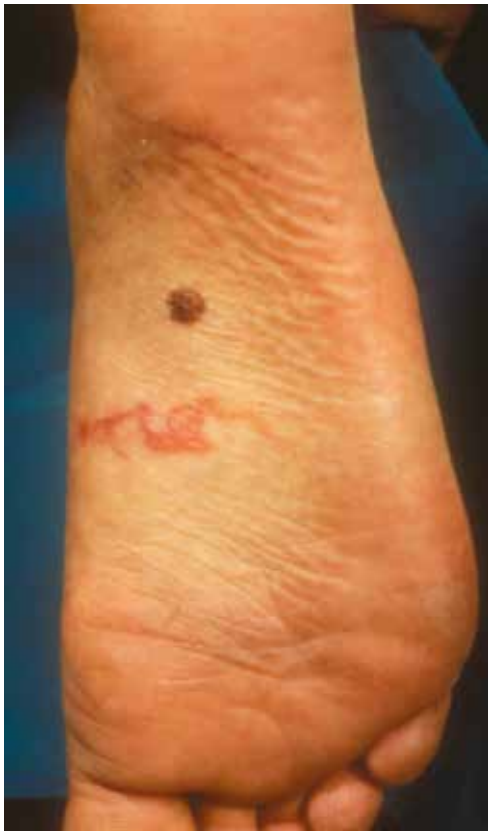

Fig 1. Cutaneous larva migrans, showing typical elevated, erythematous, serpiginous track.

The therapy of HrCLM currently includes cryotherapy[5], topical drugs (thiabendazole[6], albendazole[7] and ivermectin[8]), and oral drugs (thiabendazole[9], albendazole[10] and ivermectin[11]). The use of ethyl chloride spray and oral diethylcarbamazine, stibanose, chloroquine, gamma-esachlorcycloexan, fluoromebendazole and mebendazole has been abandoned.

Cryotherapy with liquid nitrogen can be used in single and small lesions. Three applications of 10 secs each on 0.5-1 cm perilesional skin beyond the border of the visible lesion are necessary: the larva is often located beyond the visible end of the track. However, cryotherapy is often ineffective (no response or relapse in 25-35% of patients); in addition, it can induce the formation of blisters, erosions, ulcers and scars[5].

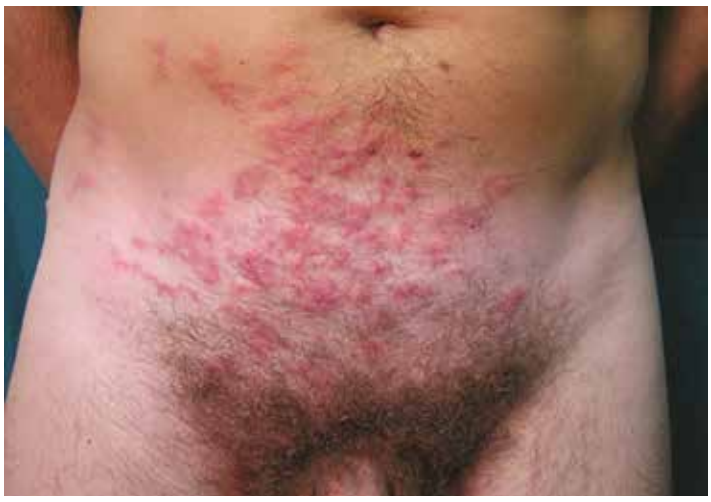

Fig 2. Multiple lesions of larva migrans on the abdomen.

Topical thiabendazole has been used at different concentrations (from 10 to 50%), once-thrice/day, for 3 to 15 days. It is effective and safe. It may be considered in children[6].

Literature data on topical albendazole are limited to a very small number of patients, in whom it was used at a concentration of 10%, as lotion or ointment[7].

Literature data on 1% ivermectin cream are conflicting[8].

Oral thiabendazole is effective. However, the daily dosage (20, 25 or 50 mg/kg/day) and the length of the therapy (1, 3 or 4 days) are not yet established. Furthermore, side effects (nausea, abdominal pain, vomiting, headache, dizziness, hematuria) are rather common and sometimes severe[9].

Oral albendazole is used at the dosage of 400 mg/day for 1 to 7 days[10]. Regimens of 1, 3 or 5 days are often followed by partial remission or recurrence of the infestation[12-14]. A one week duration allows a complete remission in almost all patients[12-14]. Side effects (nausea, abdominal pain, Herxheimer-like reaction, alopecia, Stevens-Johnson syndrome) are rare, mild in severity and self-healing[15].

Oral ivermectin is also effective. It can be used as a single dose, although 2-3 courses are sometimes necessary[11]. In several countries, ivermectin is on the market only for use in veterinary medicine.

We would recommend cryotherapy or topical thiabendazole only for single and small lesions, and oral albendazole (for one week) or ivermectin for widespread or chronic lesions or those lesions which are resistant to cryotherapy or topical thiabendazole.

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Paederus Dermatitis: the beetle that doesn't bite

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Key words: Paederus, irritant contact dermatitis, pederin, beetles, haemolymph.

Introduction

Paederus dermatitis is an irritant contact dermatitis caused by contact with pederin; a toxic vesicant amide found in the endolymph of female beetles from the *Paederus genus*[1-3]. The beetles themselves do not bite or sting; the dermatitis is a result of crushing the insect against the skin so that it releases its haemolymph[1-3]. This typically occurs when reflexively brushing the beetle away, giving rise to the characteristic linear lesions, hence the name 'dermatitis linearis'[2]. Other recognised names include; "rove beetle dermatitis", "whiplash dermatitis", "spider lick", "night burn" and "wake and see"[2,5].

The Rove Beetle

There are over 600 species of *Paederus* beetles belonging to the Staphylinidae family, the second largest beetle family[2,4,6,7]. They exist worldwide except Antarctica, although they are far commoner in tropical and subtropical regions[4]. There are case reports in the literature from Iran[9], Brazil[2], Africa[10,11], and Turkey[12] among others. The beetles are known by several names worldwide including: Econda and Nairobi fly in central Africa, Tomcat in eastern Asia, 'Whiplash beetle' in Australia, and 'Dracula' in Iran. However, across Europe and the Americas they are most commonly called Rove beetles (named for their wandering tendencies)[2].

Paederus spp. are typically 7-13mm long and thus often mistaken for ants[5]. They are nocturnal and are attracted to white light; a phenomenon referred to as 'phototaxis'[2]. As shown in Figure 1 they exhibit jewel-coloured abdomens (in fact, the genus name *Paederus* likely has its origins in the Latin 'paederos' meaning precious stone). This bright colouration is an example of aposematism; an adaptation to warn potentials predators of toxins if eaten.

Photo courtesy of www.entomart.be

Fig 1. Paederus beetle.

Pederin

Pederin is a vesicant toxic amide that accumulates in the haemolymph of female *Paederus* beetles and comprises approximately 0.025% of the total body weight[7,8]. It is synthesized by the endosymbiont *Pseudomonas spp.* and not by the beetles themselves[8]. Pederin has an apoptotic effect on basal and suprabasal layers of dermis and causes acute toxic injury to the skin.

Of note, Paederus dermatitis is **not** 'blister beetle dermatitis'. This is caused by cantharidin which has a different chemical structure and not produced by the Staphylinidae beetle family[1]. These lesions are typically less inflammatory.

Clinical Features

The most commonly affected sites are exposed areas of skin including the arms, legs, face and neck; palms and soles are usually spared. Patients are often unaware contact with the beetle has occurred as it typically happens at night. As the names 'wake and see' (Nigeria) and 'night burn' (Turkey) suggest, lesions are often only noticed the following morning.[2]

There is a latent period between first skin contact with the toxin and the earliest erythematous lesion; typically around 24 hours. In mild cases, there may be only brief erythema lasting a few days[1]. In more moderate cases, linear erythematous lesions develop vesicles/pustules (see Figure 2) which then dry out and desquamate, leaving hypo – or hyperpigmented skin (see Figure 3)[1]. In severe cases where there has been extensive skin involvement, patients may present with systemic symptoms including fever, vomiting and arthralgia. "Nairobi eye" refers to ocular involvement – periorbital cellulitis or keratoconjuctivitis [11]. This occurs when contaminated fingers are used to rub the eyes, or if the beetle makes contact with the cornea directly (during sleep – triggering a blink reflex). Kissing lesions e.g. elbow and knee flexures and genital lesions are also seen as pederin can be transferred by fingers, opposing skin, sheets or clothing.

Differential diagnoses include phytophotodermatitis, allergic contact dermatitis, herpes simplex and impetigo. A clear history would exclude contact with photosensitising botanical agents.

Treatment

Prevention is key – in high risk areas and in the highest risk periods (shortly after rainy season) patients should avoid having windows open at night with lights on[2]. If the beetle is

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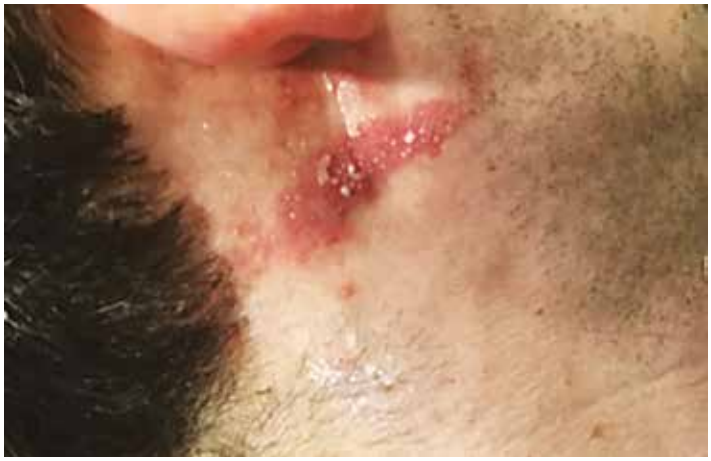

Fig 2. Linear inflammatory lesion.

seen on the skin it should be blown off rather than wiped or swatted away. If contact is made, the skin should be washed thoroughly to remove residual pederin and tincture iodine can be used to neutralise pederin[4]. Cold water compresses and topical steroids are the mainstay of treatment although topical and/or oral antibiotics may be required where secondary bacterial infection occurs. Ebrahimzadeh et al. found improved healing time with *Sambucus ebulus* (danewort) due to its anti-inflammatory properties[7].

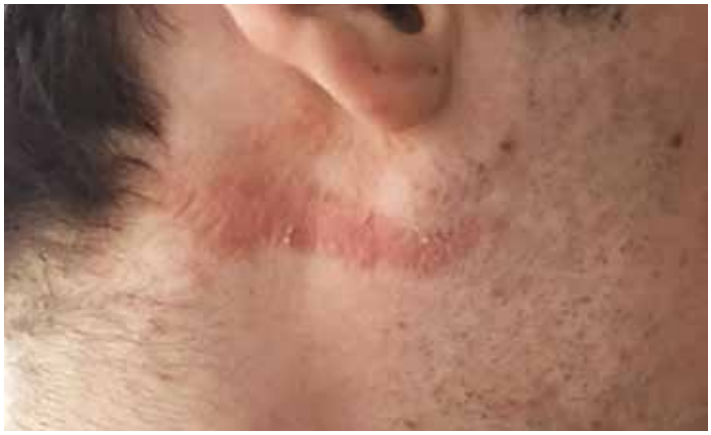

Fig 3. Post-inflammatory hyperpigmentation.

Conclusion

Paederus dermatitis affects individuals of all ages across tropical and sub-tropical regions. Typically, erythematobullous linear lesions appear 24-48 hours after exposure, which then dry out and self-heal. Patients are often unaware of contact with the insect as it usually occurs at night during sleep when the insects are crushed reflexively. Educating local populations and travellers regarding safe removal of the beetle from the skin and avoiding open windows in dark hours is vital to avoid severe cases and mucocutaneous involvement.

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UPDATE FROM IFD
ILDS DermLink Grant Awards in 2020

Every year the International League of Dermatological Societies (ILDS), through the International Foundation of Dermatology (IFD) awards ILDS DermLink grants to projects submitted by ILDS Members. In 2019, we received 17 project proposals for ILDS DermLink grants. Projects were judged on the following criteria: identification of needs, proposed impact, project sustainability and whether the projects addressed either tropical dermatology or migrant health.

Seven 2019 ILDS DermLink Grants totalling US $30,000 were awarded to projects from six countries: Brazil, Botswana, Malawi (two projects), Nepal, Nigeria and Tanzania. More information regarding each project is now on the ILDS website: https://ilds.org/news/2019-ilds-dermlink/.

The next round of ILDS DermLink grants will open on 5 December 2019. If you would like to apply, please visit our website www.ILDS.org and if you need more information regarding this grant, please contact DermLink@ilds.org.

Sporotrichosis in Brazil – an ongoing epidemic presenting with skin lesions

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Key words: Sporotrichosis, *Sporothrix brasiliensis*, implantation mycosis, cats, Brazil, zoonosis, neglected tropical disease.

Since the 1950's sporotrichosis, caused by *Sporothrix* species, has been well recognised as a subcutaneous or implantation mycosis in tropical countries, including Brazil. It normally presents on the skin with a chain of nodules (lymphocutaneous) along lymphatics or as a solitary ulcer (fixed). By the 1960's it was reported as the second most prevalent cause of fungus infection in endemic areas such as Para State (Brazilian north region). In 1966, for instance, 56 cases were recorded in a 5-year retrospective study[1]. Almost 15 years later, another paper reported 8 cases in the Amazon state (north region of Brazil), and sporotrichosis was considered to be the most prevalent subcutaneous mycosis there[2]. By 1998 however, a significant number of cats were reported to be infected by *Sporothrix sp*., followed by a huge increase in human cases from the poorest areas of Rio de Janeiro State, Brazil. The prevalence of both human and feline infections has increased exponentially with time. By 2001, sporotrichosis was flagged as an emerging zoonosis and the epidemic nature of spread was reported by researchers from Fundação Oswaldo Cruz (FIOCRUZ). Barros and colleagues compared the rising numbers of cases during the 1987-1998 decade when only 17 cases were notified with the 66 cases identified in a shorter, more recent, period of two years. Most of these cases presented with the lymphocutaneous form (66,7%) of the disease followed by the fixed cutaneous form (24,2%) but there were some cases with multiple scattered skin lesions (disseminated form) (6%)[3].

In 2008 a case series of 255 individuals, including 94 patients and 161 healthy household contacts in Rio de Janeiro State was reported. In this series, patients presented with a more polymorphic spectrum of clinical presentations; 23.4% showed disseminated cutaneous involvement and there was a unique case of a palpebral lesion with conjunctival involvement[4]. Rio de Janeiro State has still remained the major focus of this outbreak over the last decade, since the first zoonotic cases reported 20 years ago. In 2010, a 10-year review of 804 human cases of sporotrichosis (1998 to 2008)[5] showed that more than 1,500 cats had been diagnosed with cutaneous sporotrichosis. One interesting fact observed was the demographic pattern: most of the human cases affected women aged 40–49 years, who were engaged in domestic duties and they were also from deprived social strata. Zoonotic sporotrichosis should be considered to be a neglected tropical disease with an atypical clinical presentation, caused by *Sporothrix brasiliensis*, the new species associated with this epidemic of human and cat infections. The outbreak, however, has now spread further.

A cross-sectional, retrospective study reported 25 cases of human sporotrichosis between 2003 and 2013 in Sao Paulo State[6]. Another report has described an emerging problem in Recife State (Brazilian north-eastern region), where 59 infected cats have been identified since 2014; most of these cats are domestic, which indicates a high risk of human infection if this outbreak is not controlled [7].

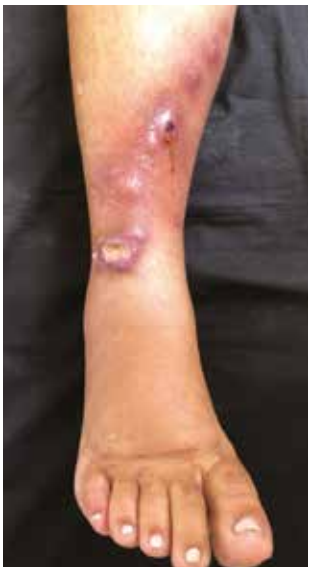

Fig 1. Lymphangitic form of sporotrichosis.

It is likely that these data underestimate the whole picture of the epidemic zoonotic sporotrichosis in Brazil. In 2018, 8 posters and 2 oral communications on zoonotic sporotrichosis were presented at the meeting of the Brazilian Society of Dermatologists. Most of these patients presented with atypical clinical features such as hypersensitivity reactions (e.g. erythema multiforme, or erythema nodosum), disseminated forms and some cases were fatal. It is important to stress that most of the cases presented have been confined to different states of Brazil (Southeast: Minas Gerais, Espirito Santo and Sao Paulo; South: Santa Catarina, Rio Grande do Sul; Central region: Brasilia, Northeast: Pernambuco (e-posters and oral communication 2018)[8] and the North: Belem (verbal communication 2018). There has been a steady spread of this fungal infection throughout the country and a few cases have now been described from Northern Argentina. For the time being, zoonotic sporotrichosis is an infection that has yet to be controlled and, although mainly restricted to Brazil, there is a risk of further spread to other regions of the continent.

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A practical aid to eliciting the treatment history

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Key words: medication, topical, history, display, cream.

Eliciting an accurate medication history is crucial to patient management. We need to know what drugs worked, what did not and whether there were adverse effects. But patients rarely recall the names of their creams, still less the active constituents: "the white cream" could be a simple emollient, a potent drug such as corticosteroid or antimicrobial, or any one of a multitude of combinations.

The problem is magnified in a resource-poor country such as Nepal where polypharmacy abounds, drugs are available over the counter, literacy is limited and informed recommendation is often unaffordable. Consulting a dermatologist costs about $5 while free advice is readily available from family and friends. The standard dermatological "cure-all" cream would probably contain a combination of potent topical corticosteroid (clobetasol or beclomethasone), an antifungal (miconazole or clotrimazole) and an antibiotic (gentamicin or neomycin). So the previous treatment is not only unknown but often inappropriate.

Patients with eczema will benefit from the corticosteroid but may be tempted to use it excessively. Over-use results in facial hypertrichosis, telangiectasia, erythema and even Cushing syndrome, particularly in infants. Topical corticosteroid creams are commonly prescribed inappropriately, for example for tinea, acne, scabies and as a skin lightening cream[1,2]. Corticosteroid treatment of tinea decreases the erythema and pruritus but allows the infection to become widespread and recurrent, requiring treatment with expensive oral antifungal agents. Meanwhile antifungal resistance caused by excessive use of topical terbinafine combined with corticosteroid is an increasing problem throughout South Asia. As a result, the clinical presentation is very likely to have been modified by previous treatment. In this context, eliciting the drug history is not only more important but also more difficult.

A novel and simple solution has been developed in the skin clinic at Greenpastures Hospital in Pokhara, Nepal. Tubes of used (and especially mis-used) creams brought in by patients are displayed on a wooden rack mounted on the wall of the clinic (Fig 1.). Patients of all ages, unable to name the creams they used at home, can often recognize the tube, enabling the doctor to identify the components. The display also serves an educational role when counselling patients about the constituents and potential adverse effects of topical preparations and the hazards of following non-professional advice. The rack is simple to construct from wood and samples easily collected, updated and added to over time. The concept is applicable to rich as well as resource-poor countries; "Health and Safety" requirements can be met by using a lockable, glass-fronted display cabinet. This simple device greatly facilitates the dermatological consultation and we recommend it to our fellow dermatologists.

Fig 1. Display cabinet containing sample creams.

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Predisposing Factors for Necrotizing Fasciitis in the Brazzaville (Congo) University Hospital

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Key words: Predisposing factors, necrotizing fasciitis, immunocompromised, Congo, microtrauma, vasculopathy, diabetes, HIV.

SUMMARY

Objectives

- Identify subjects at risk
- Improve diagnostic precision
- Ensure better prevention of necrotizing fasciitis

Methodology

A descriptive and analytical study was conducted over 15 years on the files of patients hospitalised in Dermatology at the Brazzaville University Hospital for necrotizing fasciitis.

Results

65 files were selected. The prevalence of necrotizing fasciitis was 3.71% of hospitalised patients. The Male/Female ratio was 1.32. More than half of the cases were immunocompromised or had vascular disease. An identifiable point of entry was found in 67.6% of cases. 98.4% of patients self-medicated, 70.7% using traditional medicine. The average admission time was 12.7 days.

Conclusion

Necrotizing fasciitis is most prevalent in young immunocompromised people and in the elderly with vascular disease.

Introduction

Necrotizing fasciitis (NF) is a rare fatal bacterial skin disorder affecting fascia. It is of unknown aetiopathology and may be associated with one or several microbes[1]. The clinical diagnosis of NF is often limited by the complexity of dermatological and extra-dermatological signs, making magnetic imaging indispensable in some cases[2,3]. An awareness of the diagnosis of NF is essential[4]. In the USA, Kaul[5] has distinguished between risk factors for erysipelas and NF. Dhiedou[6] noted differences in the assessment of the occurrence of non-necrotizing cellulitis with necrotizing forms. Age and diabetes are known risk factors[1,7].

In Asia, acupuncture is frequently described as a risk factor for necrotizing fasciitis[8]. Human immunodeficiency virus infection also appears to predispose to the condition[9]. There are many other predisposing factors[10], although environmental and geographic triggers are not fully understood.

The authors report 65 cases of necrotizing fasciitis to identify predisposing factors .

Method

This was an analytical and descriptive study carried out on the files of patients hospitalised in the dermatology department of the Brazzaville University Hospital for 15 years from January 2002 to January 2017. The patients came from the emergency room.

The inclusion criteria were:

- Documented necrotizing fasciitis with or without myonecrosis.
- Patient records containing : Arterial and venous echodoppler for hypertensive patients, laboratory risk indicators for necrotizing fasciitis (C reactive protein, white blood cell count, hemoglobin, sodium, creatinine, glucose, HIV serology).

The following were excluded: myositis and post-surgical soft tissue infections.

The data of the civil status of the patient and the clinical data were collected on cards:

- A first sheet recorded age, sex, occupation, entrance door, seat, non-steroidal anti-inflammatory drug use, traditional treatment specifying scarifications, consultation time.
- A second sheet collected all previous morbidity: high blood pressure, diabetes, obesity, HIV infection, chronic lymphedema, chronic venous insufficiency, use of depigmenting products.

The data analysis was performed using Epi info software for the calculation of averages and standard deviations.

Results

1. Population studied

1,752 patients were hospitalised during the study period. 978 were admitted for a large inflammatory leg: 667 had necrotizing cellulitis, 246 non-necrotizing cellulitis and 72 necrotizing fasciitis. 65 patients with necrotizing fasciitis met the inclusion criteria. The prevalence of necrotizing fasciitis was 3.71% of hospitalised patients. The average age was 57.35 years (standard deviation ± 17.67). There were 37 men and 28 women (M:F=1.32). 49 patients came from disadvantaged backgrounds. Males predominated in the 50-59 and 70-79 age groups (Fig 1).

2. Clinical data

The clinical characteristics of the patients with necrotizing

Continued overleaf…

Predisposing Factors for Necrotizing Fasciitis in the Brazzaville (Congo) University Hospital...*continued*

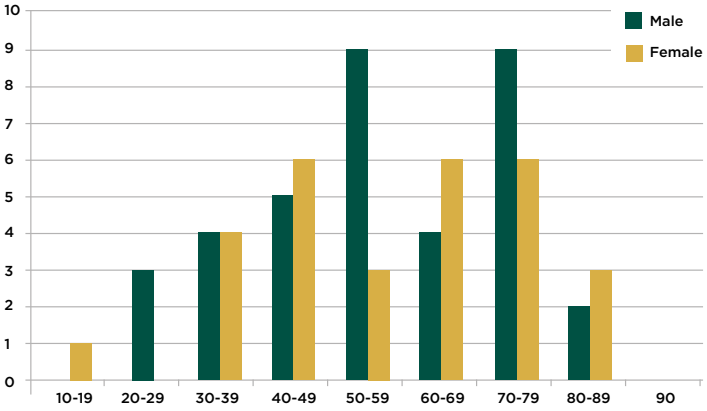

Fig 1. Distribution of necrotizing fasciitis by age and sex.

fasciits are summarised in Table 1. The average length of admission was 12.7 days. Affected patients were immunocompromised or had other risk factors such as cardiovascular and metabolic diseases (Table 2).

Table 1

Clinical charateristics	
Cutaneous barrier disruption	n
Micro-trauma	36
Scarification	4
Vascular ulcer	1
Shingles	1
Prurigo	1
Sub-total	**43**
Traditional medicine	
Phytotherapy	34
Scarification	12
Sub-total	**46**
Self-medication	
NSAI	64
Amoxicillin	48
Oxacillin	11
Location on body	
Right leg	29
Left leg	31
Both legs	2
Right arm	2
Left arm	6
Chest	1
Pelvis	1
Sub-total	**72**

Table 2

Main co-morbidity factors. Breakdown by gender

COMORBIDITY	SEX	
	M	F
HIV infection	12	10
Hypertension	11	3
Other systemic illness	6	2
Diabetes	4	3

Cardiovascular diseases (n=30)included high blood pressure (n=14), obliterating arteritis (n=8) and lymphatic venous insufficiency (n=8). Metabolic pathologies included diabetes (n=7, 4 of whom were also hypertensive) and obesity (n=5). 22 patients had retroviral infection. Other associated conditions were elephantiasis (n=2), sickle cell disease (n=2), sarcoidosis (n=1), prurigo (n=1), portal hypertension (n=2). 10 cases had used depigmenting cosmetic products but another risk factor was identified in all these patients.

Comments

Study Limitations:

- Does not include NF from intensive care and surgical services.
- Complexities of health itineraries.

1. Study population

The prevalence of necrotizing fasciitis was low; but the prevalence is probably underestimated as most studies use only hospital data[11,12]. In Guinea, necrotizing fasciitis is one of the main causes of hospitalisation in dermatology[13]. More reliable data have been reported in France in the Sbidian study[11] which obtained the same incidence as Kaul[5], and more recently by Naseer[14] and Bocking[15]. The average age in our study is 57[3]; it is identical to that of Diedhou[6] and close to those of Sbidian[11] and Kaul[5]. Increasing age predsisposes to NF [1,5]. Male predominance is not common in the literature[1, 11], and can be explained in our study by the type of co-morbidity. The socio-economic structure of Congo could explain the high prevalence of patients from disadvantaged backgrounds[16].

2. Clinical data

A portal of entry was identified in 67.6% of cases, dominated by microtrauma. Scarification can be an original entry point. In Asia, cases have been reported following acupuncture[8]. A propensity to self-medication is a scourge in Congo[10]; all patients except one had taken a non-steroidal anti-inflammatory drug; this aggravating factor admitted in the majority of publications is rarely discussed[18,19]. The predominance of lower limb location is classic[4]; however, the upper limb involvement in eight cases is impressive (Table 1). Traditional medicine used in septic conditions is an indisputable aggravating factor. NF is a medicosurgical emergency, long consultation times and hazardous health routes are a recurrent problem in Africa, contributing to increased morbidity and mortality[20].

3. Comorbidity

The use of depigmenting agents was in all cases associated with another co-morbidity factor. It is recognised as a predisposing factor in non-necrotizing cellulitis[21] but its responsibility in necrotizing fasciitis is not proven.

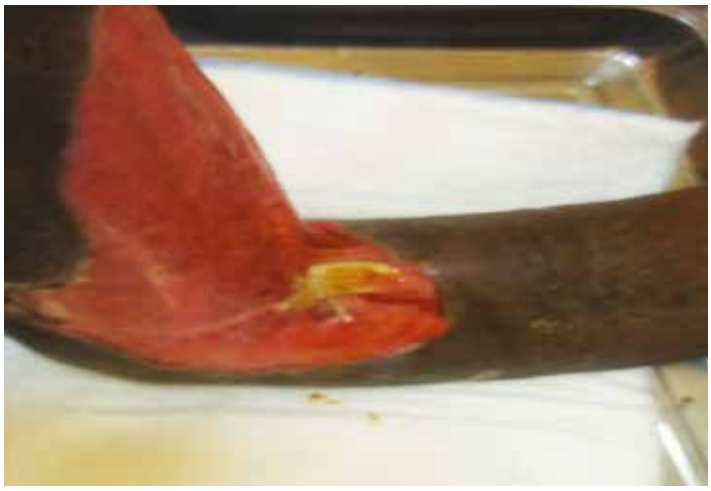

Fig 2. Necrotizing fasciitis of the upper limb (after debridement).

HIV infection has been found in 33.8% of cases, this predisposing factor is well known[9] but rarely reported in developed countries. The high incidence of AIDS in Congo could be the justification for this. HIV infection certainly contributes to the reduction of the average age of patients with necrotizing fasciitis.

Diabetes and high blood pressure are found in more than half of the cases. These diseases have a growing prevalence and pose a public health problem[22]; and are more common in patients aged 50 to 89 years. Diabetes and high blood pressure are recognized in the literature as risk factors for NF[23, 24].

In our study, systemic risk factors were found to be important, as previously reported[1, 25]. In contrast, in erysipelas, local risk factors predominate[21].

The unique features of our study are the systemic use of non-steroidal anti-inflammatory drugs by patients, the high frequency of HIV infection and the absence of a history of chronic kidney disease and substance abuse.

Conclusion

There was an overall male predominance in our series. Diabetes, high blood pressure, peripheral vascular disease and HIV were the most common comorbidities. The prevalence of NF is almost certainly underestimated.

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CORRIGENDUM

In the report on refugee camps in Lebanon (vol 15 issue 1), it was stated that there was access to clean running water and balanced food in the camps. This was not the case, and we apologise to Prof Griffiths for this error.

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