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COVID-19 brings a new era in International Postgraduate Dermatology Education

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Conflict of interests: None.

Key words: COVID-19, education, dermatology, diploma, international partnership

Abstract

In 2016, planning for a Diploma in Dermatology and a Master of Medicine in Dermatology course for the Pacific Islands was commenced to address increasing skin-related health issues in both Fiji and the wider Pacific. The Pacific Dermatology Training Centre was established within the Tamavua Twomey Hospital complex in Suva, Fiji, and the Postgraduate Diploma in Dermatology (PGDD) was ratified by the Fiji National University (FNU) Senate by 2018 and commenced in 2019 with four students. To support the one dermatologist in Fiji, Dr Tuicakau, as well as to broaden the educational base, the course was supplemented with overseas trained dermatologists.

In 2020, the outbreak of the COVID-19 pandemic severely incapacitated the education system. The course was adapted to overcome the physical barriers of border closures and online dermatology clinical and theoretical teachings from international dermatologists using video conferencing tools such as Zoom was commenced. This new method of education has been a challenging task for the PGDD in Fiji, having to tackle limited infrastructure, increase in workload and to electronically upskill staff members. Despite its challenges, the programme has grown, with plans for students to receive teaching from more than 20 international lecturers throughout 2020.

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Fig 1. The official opening day of the Pacific Dermatology Training Centre with Director Dr Mecuisela Tuicakau alongside Dr Margot Whitfeld, Chairman of Pacific Dermatology Ltd (Aust)

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Introduction

Skin diseases have posed an increasing health problem in both Fiji and the wider Pacific. To address this issue a Dermatology Diploma course and a Master of Medicine (Dermatology) course for the Pacific Islands was commenced in 2016. There is only one specialist dermatologist in Fiji, with no regional training pathway for others to achieve this status . In order to broaden the educational base, the course was supplemented by overseas trained dermatologists travelling to Fiji to provide clinic-based and face-to-face teaching.

In late December 2019, the World Health Organization was informed of an outbreak of a respiratory illness in the city of Wuhan, China. The cause of this outbreak was a novel coronavirus otherwise identified as SARS-COV-2 (informally called coronavirus disease (COVID-19)).[1] By 19 March 2020, Fiji confirmed its first case of COVID-19 and subsequently undertook progressive countermeasures to control the spread, eventually closing its borders and prohibiting international travel. By 5 November, 2020, Fiji has recorded 34 cases, with only 2 deaths, and marked 200 days without any community transmission of COVID-19.[2] Recently, the government of Fiji pledged FJD 1 billion for a COVID-19 stimulus package, and FJD 40,000,000 additional funds were allocated to the health sector in response to COVID-19.[3]

According to UNESCO, nationwide closures of educational institutions have affected almost 60% of the world's student population.[4] Could a newly commenced, internationally partnered tertiary education programme with a face-to-face model survive in Fiji? In this report, we discuss the response of a 'Postgraduate Diploma in Dermatology programme in Fiji' to the COVID-19 crisis.

Background

In 2016, a feasibility study for the development of a Postgraduate Training programme for Dermatology began, initially to develop a Postgraduate Diploma In Dermatology (PGDD) course, and a Master of Medicine in Dermatology (MMed (Derm)) degree course for the Pacific Islands. In 2017 and 2018 renovations to the outpatient clinic were undertaken, and programme development begun. The Pacific Dermatology Training Centre was then established as a dermatology training centre within the Tamavua Twomey Hospital complex, containing the National Skin Disease referral unit, and the PGDD was approved by the Fiji National University (FNU) Senate. In 2019, the 4-year Masters of Medicine in Dermatology programme was also approved by the FNU senate for successful graduates from the Diploma of Dermatology who wished to pursue a further 3 years of study, including some time spent outside of Fiji in the third year.

Diploma course commences Feb 2019

In conjunction with Dr Mecuisela Tuicakau, Dr Margot Whitfeld (Fig. 1), Fiji Ministry of Health and Medical Services and the FNU, the PGDD commenced in 2019 with four students: two from Fiji; one from Kiribati; and one from Samoa. All successfully completed the year (Fig. 2). Dr Tuicakau, the course Director and the only specialist dermatologist in Fiji,

Fig 2. Successful graduates of Diploma of Dermatology year 2019. (Left to right: Dr Helena Va'a Fuiamaono from Samoa, Dr Temea Kibae Bauro from Kiribati, Dr Upendra Singh and Vinila Swarmy from Fiji)

supervised the students in the clinic and conducted many of the clinical lectures. To support Dr Tuicakau's clinical and academic education skills, the course was supplemented by overseas trained dermatologists. Six Australian dermatologists with tertiary hospital teaching experience travelled to Suva, Fiji, for a week each to supplement teaching in both clinics and lectures. Final year examinations were carried out in Suva by both Australian and Fiji examiners.

In 2020, the PGDD ran again with the enrolment of two Fijian doctors and one Papua New Guinean (PNG) doctor (Fig. 3), with two Australian dermatologists visiting Dr Tuicakau to undertake teaching of the first subjects in February.

Impact of COVID-19

The economic impact of this global pandemic has been severe. The sharp decrease in revenue from tourism has left a third of the workforce (a third of those women) unemployed and/or with reduced hours.[5] In Fiji there has been a reduction in attendance in the outpatient clinic, due to border closures and lockdown measures including temporary lockdowns of affected areas (Lautoka, Labasa and Suva). Inpatient numbers and community quarantine have severely limited healthcare access and presentations to clinics, and a recent analysis showed a 20% reduction in regional referrals for inpatient admission.

The global pandemic has also disrupted the education system, and the delivery of education globally has changed dramatically as a result. The Fijian Ministry of Health and Medical Services cancelled postgraduate education for all Fijian doctors in 2020, and no face-to face-medical education was allowed. The 4-week mid-year break (usually taken in July) was brought forward to April while the situation with COVID-19 was ascertained. Regional students were advised to return to their home countries and overseas specialists were no longer able to enter Fiji to run educational activities, including supervision of dermatologic procedures. Additional nurse and allied health staff education, initially provided by visiting dermatologists, was no longer conducted, and the PNG student was also unable to return home due to border closures.

Originally, week-long visits by Australian dermatologists to Fiji occurred six times a year, along with lectures and local clinic supervision provided by the sole Fijian dermatologist. The course was adapted to involve more clinic sessions, followed by online lectures between one and three times per week. Australian, Fijian and US dermatologists provided clinical and theory teaching sessions, as well as histopathology and discussions using videoconferencing tools such as Zoom. In preparation for when the PNG trainee could return to PNG, a local dermatology supervisor was approved by the FNU, and arrangements were made for exams to be conducted online. Once borders re-opened, the PNG student successfully completed her first semester in Fiji, completed the written exam in hotel quarantine in PNG then her viva examination from her home in Moresby, PNG, with online Zoom examiners in Fiji and Australia.

Challenges

The COVID-19 pandemic has presented a unique opportunity to discover other modes of education delivery, however, this has not been without its own challenges. One such barrier is technology infrastructure in a resource-limited setting. Teaching sessions have been fragmented at times due to poor internet connection. Another barrier has been the increase in faculty workload to both prepare and present these online sessions, with most staff members requiring upskilling electronically. We have found that regular communication and planning sessions with students, lecturers and co-ordinators has been key to a successful transition, with minimal disruption to the programme and to student learning.

The impact of COVID-19 on learning has been a challenge for students. Owusu-Fordjour *et al*.[6] recognize the difficulty of students studying from home, compounded by limited access to the internet. On the contrary, a meta-analysis by the U.S. Department of Education[7] reported that online education is as effective if not better than classroom-based education. Maintaining the quality of education, and achieving learning outcomes, irrespective of the mode of delivery, is crucial.

Fig 3. Pre-COVID-19, February 2020. Multi-national team celebrates the end of the week (Left to right: Edwin Kumar, Postgraduate Diploma in Dermatology (PGDD) student from Fiji, Monisha Shree, Fiji Albinism project coordinator, Dr Margot Whitfeld, Dr Dana Slape, invited Australian Dermatologist lecturer, Dr Cynthia Kuanch, PGDD student from Papua New Guinea, Mere Nabainivalu, Executive Assistant to director of Pacific Dermatology Training Center, Fiji).

Other than online lectures, students were supplemented with other educational sessions such as attending Australian dermatology journal clubs. Course content has been consistently monitored and supplemented to ensure topics were covered for the semester.

Dr Prasad Kumarasinghe, an Australian dermatologist/lecturer, who has delivered face-to-face teaching pre-COVID19 as well as online teaching during the pandemic, stated "online teaching has become a necessity in the COVID 19 era. We all need to find innovative ways to do the teaching effectively. I enjoyed face-to-face teaching last year as well as online teaching in the programme this year. The technical support provided by the organising team has been excellent. Ensuring good telephone connections and technical support where necessary are very important for the success of the programme." By no means will online teaching replace the value of on-the-spot diagnosis, however, as tactile learning is a critical component of skin assessment. To address this learning gap, immediate clinical management strategies have been adapted by having difficult cases from the clinic presented within a day or two of presentation.

Conclusion

The move to online teaching sessions through Zoom has provided an opportunity for interactive teaching from a greater number of dermatologists, while overcoming the physical barriers of border closures and minimizing costs associated with travelling. It has also provided an opportunity for some Fijian students (official enrolment was deferred due to COVID-19), to participate in the teaching sessions, providing accessibility to those unable to attend traditional face-to face teaching training centres[8] while also reducing the risk of COVID-viral transmission.

COVID-19 was a catalyst to shift gears towards online teaching to ensure the continuity of the curriculum. We recognize that support and training for both students and teachers is key in this new learning environment. This new method of educating has been a challenging task for the PGDD in Fiji. Nevertheless, we have witnessed the programme grow, and 20 international lecturers have been involved throughout 2020. Engaging with dermatologists for the PGDD has raised awareness for the roll-out of the Masters in Medicine (Dermatology) due to commence in 2022, which will also require supplementary Zoom teaching.

We anticipate online teaching sessions will be incorporated to supplement the programme in the future, post-COVID era. These have further strengthened the pre-existing international partnership, fundamental to the programme's success.

Acknowledgements

We would like to acknowledge the time, energy and expertise put in by both Fijian and *pro bono* international lecturers, from Australia, Fiji and USA, for their teaching visits and/or video conference teaching, or other contribution to the teaching programme. Additionally we are grateful to Ian and Barbara Jackson, Michael and Betty Little Trust and Marcus Rule for their financial support of this programme, as well as Pacific Dermatology Ltd (Aust), Pacific Dermatology Trust (Fiji), the Pacific Leprosy Foundation, World Health Organization, Ministry of Health and Medical Services Fiji, Fiji National University College of Medicine, Nursing and Health Sciences, Secretariat of the Pacific Community, Strengthening Specialised Clinical

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QUIZ

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Miss B, a 28-year-old from Anuradhapura, Sri Lanka presented with complaints regarding her nails. Her finger and toe nails seemed to grow very slowly and had acquired a peculiar curved shape with yellow discolouration since her late teen years (Fig. 1).

She often had swollen legs and a long-standing cough that produced copious amounts of phlegm.

Fig 1. Slow growing yellowish nails

QUESTION 1
What is the diagnosis?

QUESTION 2
Which investigation would help in the diagnosis?

a) Chest X-ray
b) Blood count
c) Liver profile
d) Nail clippings for fungal culture
e) X-ray hands lateral view

Answers on page 27.

ILDS DermLink GRANT AWARDS in 2021

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 2020, 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.

In 2020, nine ILDS DermLink Grants totalling $44,901 were awarded to projects from the following countries: Angola, Bulgaria, Dominican Republic, Ethiopia, Indonesia, Nepal, Nigeria, Tajikistan and Turkey.

The next round of DermLink grants closes on 28th February 2021. 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.

ILLUSTRATED REVIEW
Autoimmune skin diseases in Sub Saharan Africa: experience in Ethiopia and South Sudan and review of the prevalence

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Conflict of interests: None.

Key words: autoimmune, Sub Saharan Africa, blistering, pemphigus, pemphigoid, linear IgA disease, connective tissue diseases, localized scleroderma, systemic sclerosis, lupus erythematosus, dermatomyositis

Abstract
Objective
There are few reports about autoimmune skin diseases, a rare group of skin conditions, from African countries. We share our experience with these diseases during 5 years in Ethiopia and South Sudan.

Methods
The blistering and connective tissue diseases seen were analysed. Studies on the epidemiology of this group of diseases in Africa are reported and compared.

Results
Over the 5 year period, 27 cases of blistering diseases were diagnosed: pemphigus (10), pemphigoid (3), IgA linear dermatosis (14). Nineteen patients with scleroderma: segmental (13) and diffuse/systemic (6), and 15 patients with discoid lupus erythematosus were seen. At the health facilities more than 10,000 patients with different indications were seen per year.

Conclusions
Autoimmune diseases are present in rural areas of Africa (Northern Ethiopia and South Sudan), although under-reported. Their diagnosis is often missed due to lack of knowledge on skin diseases, lack of skin specialists and of diagnostic tools.

Introduction/Background
The scarce literature on the subject from Africa might suggest that autoimmune skin disorders, such as blistering and connective tissue diseases, are rare among Africans compared with other populations. Some publications suggest that the rarity of systemic autoimmune diseases among Africans is due to a protective role of malaria.[1] However, increasing reports about these conditions suggest they have been under-reported.[2]

Sporadic reports can be found in the Sub Saharan African medical literature.[3] Autoimmune skin diseases are present in studies that analyse the pattern of skin diseases. A study from Uganda reported 22 patients with subepidermal autoimmune blistering disorders over 2 years.[4] Another Ugandan study, of 232 patients surveyed over 2 months in a tertiary care hospital in the capital, identified 4 patients with blistering diseases (1.7%) and 2 patients with connective tissue disorders (0.9%), total autoimmune skin diseases (2.6%).[5] The histopathological diagnoses from skin biopsies (n=1554) collected at a dermatology teaching hospital in Tanzania over a 5-year period showed 53 cases of blistering diseases and 45 cases of connective tissue diseases (together 98 (6.3%)).[6] From a total of 895 dermatology patients seen between 2005 and 2010 in a Nigerian teaching hospital, the prevalence of autoimmune skin diseases was 3.5% (2.9% connective tissue diseases and 0.6% blistering diseases). This study excluded HIV-related skin diseases.[7] Recently, from Botswana, 4% of all new patients seen in different dermatology clinics were diagnosed with autoimmune skin diseases, with a preponderance of connective tissue diseases, in particular cutaneous lupus erythematosus.[8]

From all these data it is clear that autoimmune skin diseases are present among the African population, supporting the study of Adelowo *et al.*,[2] although it is still difficult to ascertain the prevalence in the whole population. Under-reporting of these diseases may be due to multiple factors. Rural people often do not seek skin care due to the difficult access to medical care, the cost of diagnosis and treatment (if available), difficulties in transport and the possible insecurity of the roads. Moreover, diagnosis is difficult in rural areas, where blood tests, immunofluorescence (IF) and histopathology are not available. Specialists are few or none and, where present, mostly concentrated in the capitals and certainly not easily available for the less privileged. Therefore, the correct diagnosis may easily be missed or not officially reported.

Methods
The autoimmune diseases were observed during 3 years (2008-2011) at the Italian Dermatological Center (IDC) in Mekelle, Northern Ethiopia, and during 2 years (2013-2015) at a hospital in Nzara, a small rural town in Western Equatoria state, South Sudan. Ethnic groups were Tigreans (a Nilotic tribe) in Ethiopia, and Azande (a Bantu tribe) in South Sudan.

A review of the literature reporting epidemiological data is given for each disease.

Autoimmune skin diseases can be divided into subgroups. Blistering diseases and connective tissue diseases are reported here.

Inflammatory blistering diseases
These rare conditions (around 25 new cases per million per year in Europe) are characterized by blisters and erosions of the skin and sometimes of the mucous membranes. Blisters are intraepidermal or subepidermal. The dominant clinical features vary, depending on the localization of the involved antigens. Internal (e.g. malignancies) and external factors (bacteria, drugs) may act as triggers.

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Intraepidermal blistering diseases: pemphigus group

Pemphigus is a severe auto immune disease involving skin and mucosa (Figs 1, 2). It is caused by autoantibodies directed against antigens on the surface of keratinocytes, most commonly desmogleins (Dsg) 1 (superficial epidermis) and Dsg 3 (mucosal, deep and mid epidermis), and sometimes plakin molecules, as in paraneoplastic pemphigus. The interaction of antibodies with their target antigens is responsible for the loss of cell adhesion (acantholysis) and the formation of intraepithelial blisters. The Nikolsky sign is positive (blisters appear after gently rubbing the skin). The global incidence is 0.7 to 5 new cases per million/year.[9]

The different types of pemphigus

- In pemphigus vulgaris (Figs 1a, 1b) and vegetans (Figs 2a, 2b) blisters develop just above the basal layer and autoantibodies are directed mostly against Dsg 3.
- In pemphigus foliaceus (PF) (Fig. 1c) and pemphigus erythematosus blisters are in the upper epidermis and autoantibodies are directed against Dsg 1. Dsg 1 is **not** present in mucosa (therefore PF has no mucosal involvement).

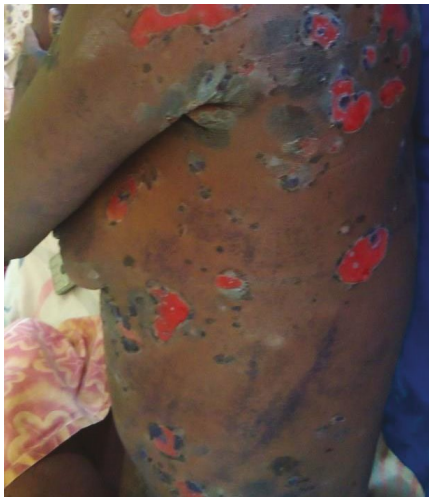


Fig 1a. Cutaneous features of pemphigus vulgaris

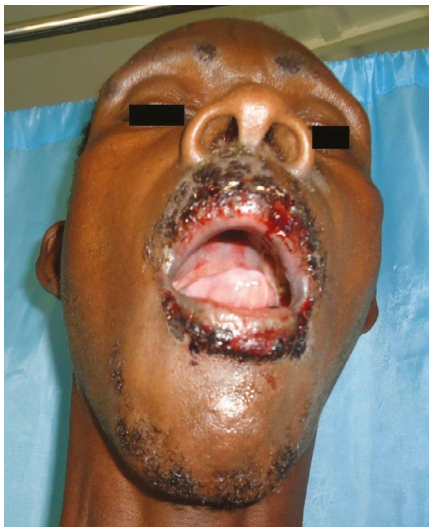


Fig 1b. Mucosal involvement in pemphigus vulgaris

- In paraneoplastic pemphigus[10] the autoantibodies are mostly directed against Dsg 1, Dsg 3 and plakin molecules; it is mainly associated with benign or malignant lymphoid proliferation.

The incidence and prevalence of different forms of pemphigus vary between countries and ethnic groups: while pemphigus vulgaris is most common in Europe and the USA, PF is more prevalent in Northern Africa, Tanzania, Turkey, Southern America and New Zealand[9,10] There are sporadic and endemic forms of PF. The sporadic form of PF is most common in Europe and the USA, where its incidence is about five to ten times lower than pemphigus vulgaris.

Endemic PF (also called "fogo selvagem") is frequently described in Brazil,[10] but is also seen in Tunisia,[11] Tanzania (personal observation of authors) and elsewhere.[12,13]

Both genetic and environmental factors have been associated with the occurrence of auto immune pemphigus.

- **Genetic:** various studies, performed in different ethnic populations, have shown that pemphigus vulgaris is associated with HLA class II alleles (DRB1*4 and DRB1*14). PF, whether the sporadic or endemic form, is also associated with HLA class II alleles (DR4, DR14 and DR1).
- **Environmental:** in Brazil, the black fly (*Simulium nigrimanum*) has been implicated in endemic PF, in addition to a genetic predisposition. Some suspect insect involvement in PF on the slopes of Kilimanjaro in Tanzania.

Most patients with auto-immune pemphigus are aged 40–60 years at the onset of the disease, whereas endemic PF usually affects teenagers and young adults.

The incidence of auto-immune pemphigus is higher in Jewish populations, in particular those of

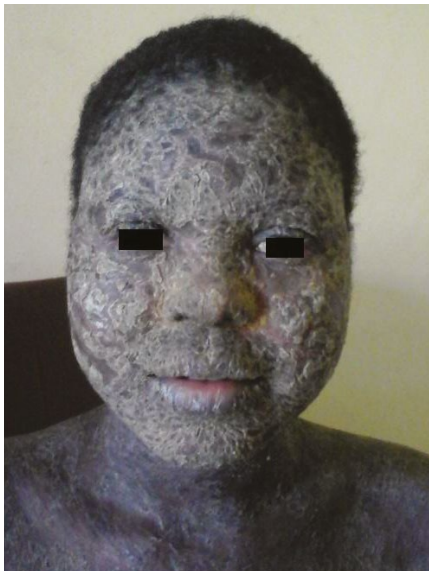
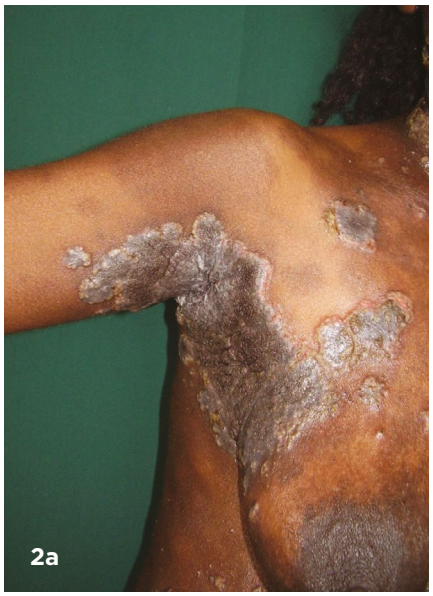


Fig 1c. Clinical features of pemphigus foliaceus



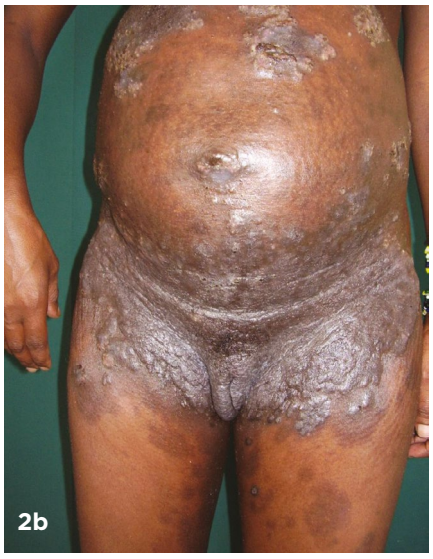


Fig 2a and 2b. Cutaneous features of pemphigus vegetans

Table 1

Intraepidermal blistering diseases observed

Disease	Number (Ethiopia), M/F	Median age	Number (South Sudan), M/F	Median age	Total	Biopsy performed
Pemphigus (total)	6 (3M, 3F) *	36y	4 (1M, 3F) §	40y	10	4 (Ethiopia), 1 (Uganda)
p. vulgaris	3 (1M, 2F)	48y	2 (1M, 1F)	35y	5	2 (Ethiopia)
p. vegetans	2 (1F, 1M)	18y	0	–	2	1 (Ethiopia)
p. foliaceus	1 (M)	40y	2 (F)	47y	3	1 (Uganda)

* 1 case with HIV coinfection, 1 leprosy coinfection. § 1 case with HIV coinfection.

Ashkenazi origin, in Japanese and in Indians, as compared with the incidence observed in Caucasians in North America or Western Europe. Epidemiological studies in various populations strongly suggest that the incidence of PF is higher at lower latitudes and reduced at higher latitudes. However, the exact epidemiology in Sub Saharan Africa is unknown.

We observed six cases of pemphigus during 3 years in Ethiopia (Table 1), (PF 1, pemphigus vulgaris 3 and pemphigus vegetans 2). Four patients with pemphigus were seen in South Sudan during a 2-year period, (pemphigus vulgaris 2 and PF 2). Two patients with pemphigus vulgaris were affected also by HIV, a highly endemic infection in both countries. One Ethiopian patient with pemphigus vulgaris was affected by leprosy, with visible deformity of hands/eyes and a previous leg amputation. One patient with PF was from Uganda, where the disease was confirmed by histology. Most of the diagnoses were only clinical and/or based on response to therapy, as histopathology is not available in rural areas of South Sudan.

PF was seen in small groups of people every few years, suggesting the presence of small epidemics. Since IF was not available, it was impossible in one patient to differentiate pemphigus from acquired epidermolysis bullosa. All diagnoses were made clinically; histopathology was possible in only a few patients.

Subepidermal blistering diseases: pemphigoid group

Autoimmune subepidermal blistering disorders include:

- bullous pemphigoid (BP)
- mucous membrane pemphigoid (MMP)
- Brunsting Perry cicatricial pemphigoid (CP)
- linear immunoglobulin A (IgA) disease (LAD or chronic blistering disease of childhood, CBDC)
- linear IgG/IgA bullous dermatosis
- pemphigoid gestationis
- epidermolysis bullosa acquisita
- lichen planus pemphigoides
- bullous systemic lupus erythematosus (SLE).

Autoantibodies are directed against proteins of the dermo-epidermal junction (hemidesmosomes), such as;

- BP180 and BP230 (BP, MMP, CP, LAD, linear IgG/IgA bullous dermatosis, pemphigoid gestationis, and lichen planus pemphigoides)
- laminin 5, α6β4 integrin (MMP, CP)
- type VII collagen (epidermolysis bullosa acquisita, bullous SLE).[4]

The relative frequency of autoimmune bullous skin diseases varies between different geographic regions. In Europe and Singapore, BP is the most common autoimmune subepidermal blistering disorder with an incidence of about 0.3 to 7 new cases per 1 million inhabitants per year, followed by MMP, pemphigoid gestationis and LAD.[14] In contrast, in South Africa, Tunisia, Tanzania and Mali, LAD was more frequent, whereas in China and Malaysia the incidence of autoimmune subepidermal blistering diseases in general seems to be lower. In particular, LAD of childhood (CBDC) has been reported frequently in African patients.[13,15-17] BP has been reported from Uganda and Nigeria[3,4], where it accounted for more than 40% of the total blistering diseases. The incidence of subepidermal blistering diseases in Uganda is slightly lower but does not differ greatly from that in Europe, allowing for underestimation.[4]

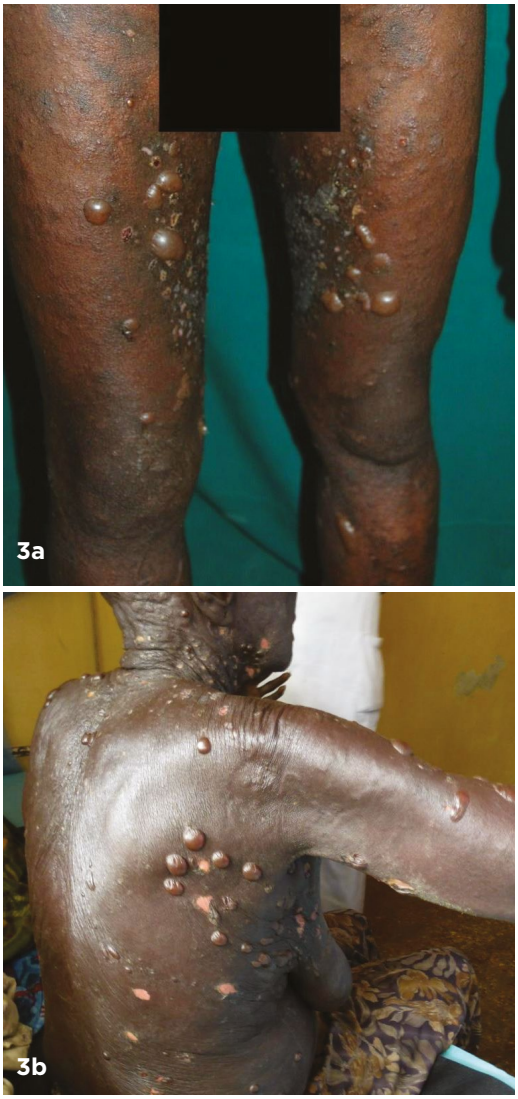


Fig 3a and 3b. Tense blisters in bullous pemphigoid

Bullous pemphigoid (BP) (Figs 3a, 3b) usually occurs in elderly people and is characterized by large tense blisters with

Continued overleaf…

immunopathological findings of linear deposits of C3 and IgG at the basement membrane zone. Nikolsky sign is negative. There are few studies reporting the incidence of BP from validated nationwide population-based registries. We observed 3 cases of BP in Ethiopia, one with cicatricial pemphigoid (Table 2). One case was confirmed histologically. No cases were seen in South Sudan.

Nine children with **LAD of childhood** (CBDC) were seen in Ethiopia over 3 years, and 5 children in South Sudan over 2 years (total 14 cases) (Table 2). The diagnosis was mainly based on clinical features (Figs 4a, 4b), the age of patients and the response to treatment (dapsone, tetracycline); histopathology was available only in Ethiopia. The most challenging differential diagnosis was congenital epidermolysis bullosa simplex (Dowling Meara type), which does not respond to this therapy. In this study a higher incidence of LAD was seen compared with BP, consistent with the literature from Africa.[4] As could be expected, most children had been treated with antibiotics before, with a supposed diagnosis of impetigo, without improvement.

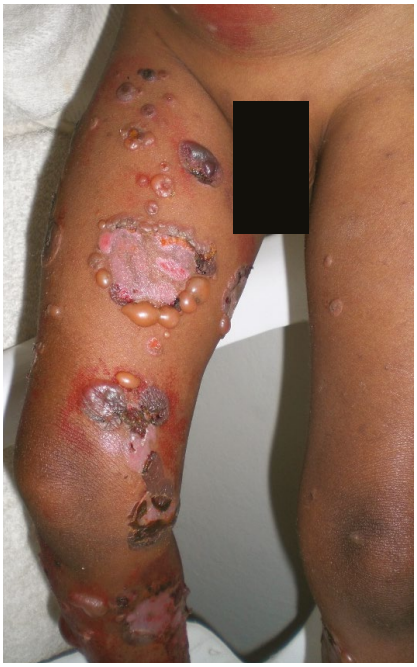


Fig 4a. Annular arrangement of blisters in chronic bullous disorder of childhood (linear IgA disease)

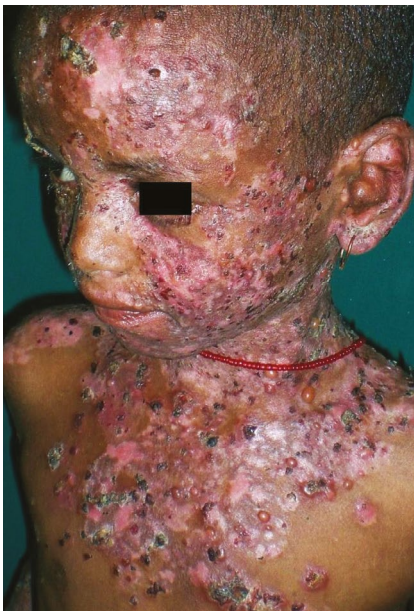


Fig 4b. Extensive linear IgA disease in a child

Other bullous diseases such as dermatitis herpetiformis were not seen, possibly because dietary gluten was limited or absent. In Ethiopia tef and in Sudan rice, corn and potatoes form the staple food.

Limitations of the study:

- No IF test was available.
- The number of patients was probably lower than the true prevalence, because of difficult access from surrounding villages and the presence of other small hospitals in the region.

Connective tissue diseases

Although connective tissue diseases are not often reported from Africa, this group of diseases is not that rare.[2] Their epidemiology in Africa is far from being known. Under-reporting may be due to the same reasons as for bullous diseases. Connective tissue diseases are reported to be more frequent in dark-skinned African and Asian populations in comparison with bullous diseases; their severity is considered greater. Their worldwide prevalence is reported lowest in African countries and highest among the African descendants in the Caribbean and North America.[18,19] Further studies of genetic and environmental risk factors are needed. In particular, epidemiological studies in Africa are considered essential by different authors.[3,4,6,7]

Among our patients with connective tissue diseases we observed 71 cases of cutaneous (discoid)lupus erythematosus (LED); (median age: 47 years), 26 cases of systemic sclerosis and morphea (median age: 24.5 years), and only 2 cases of suspected dermatomyositis (DM), (age: 43, 39). No cases of subacute cutaneous lupus erythematosus (SCLE) or SLE were seen, perhaps the condition was not recognised by referring health workers.

Scleroderma group

"Scleroderma" refers to a heterogeneous group of autoimmune fibrosing disorders. Cases have been reported from Nigeria,[2] Senegal[20,21] and Botswana.[8] Its nomenclature has changed in recent years; it includes at present;

- morphea; localized (circumscribed scleroderma), linear, generalized
- systemic sclerosis; limited and diffuse cutaneous systemic sclerosis, and overlap syndromes.

Systemic sclerosis is a chronic multisystem autoimmune disease characterized by vasculopathy, inflammation and fibrosis of different organs. There are two major subsets, limited cutaneous (previously CREST syndrome: **C**alcinosis, **R**aynaud's phenomenon, **E**sophageal dysmotility,

Table 2

Subepidermal blistering diseases observed

Disease	Number (Ethiopia), M/F	Median age	Number (South Sudan), M/F	Median age	Total	Biopsy performed
Bullous pemphigoid	2 (1M, 1F)	45	0	–	2	1 (Ethiopia)
Cicatricial pemphigoid	1 (M)	19	0	–	1	
IgA linear disease of childhood (CBDC)	9 (7M, 2F)	9	5 (1F, 4M)	5	14	7 (Ethiopia)

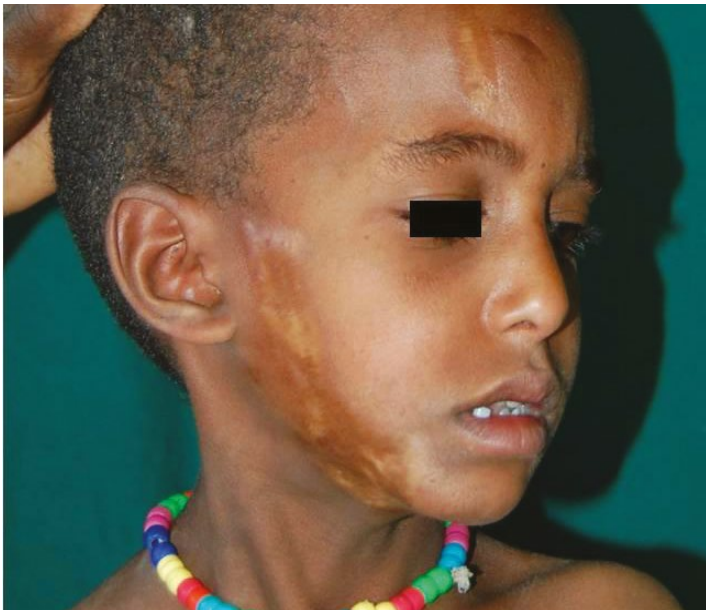


Fig 5. Linear scleroderma "en coup de sabre

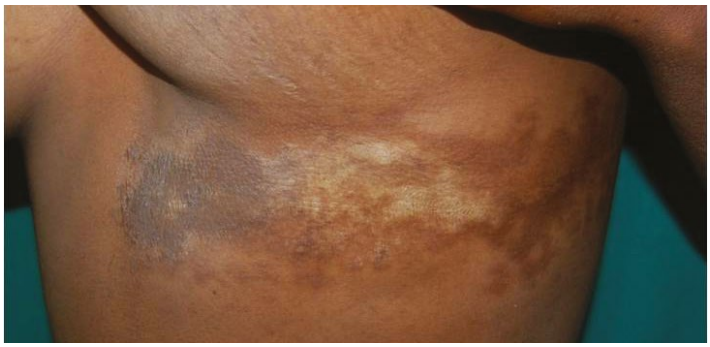


Fig 6. Plaque morphea

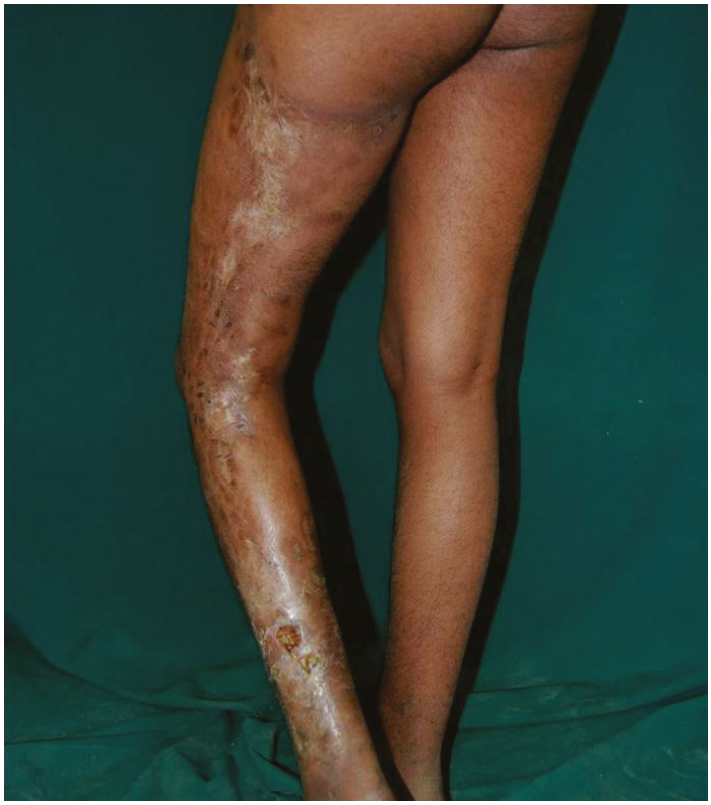


Fig 7. Segmental morphea

Sclerodactyly, **T**elangiectasia) and diffuse cutaneous scleroderma.

We observed 13 patients with localized morphea and segmental/linear morphea (Figs 5, 6, 7,) and 6 with diffuse cutaneous/systemic sclerosis (Fig. 8a) (5 in Ethiopia, 1 in South Sudan, all females) (Table 3).

Table 3

Morphea and systemic scleroderma cases seen

Disease	Number (Ethiopia), M/F	Median age	Number (South Sudan), M/F	Median age
Morphea and linear scleroderma	13 (6M, 7F)	30y	0	–
Diffuse/systemic sclerosis	5 (F)	24.5y	1 (F) §	27

§ 1 case with HIV coinfection

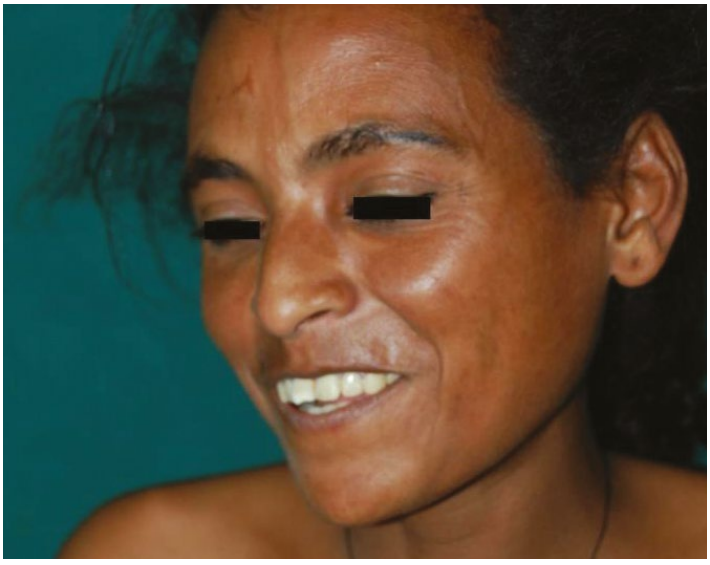


Fig 8a. Facial appearance in systemic sclerosis

One patient with systemic sclerosis had HIV coinfection.

The diagnosis was mainly clinical. Few biopsies were performed, seen by general pathologists, with non-specific results in spite of the striking clinical features. Differential diagnosis between generalized morphea and diffuse systemic sclerosis was not that easy, although sparing of the areolae is characteristic of generalized morphea (Fig. 8b). An equal proportion of males and females with morphea were seen, while systemic sclerosis was observed exclusively in women. A high incidence of focal hyper- and hypo pigmentation (100% patients with localized scleroderma, 84% (5/6) patients with diffuse/systemic scleroderma (Fig. 9a)) was seen, in agreement with other reports. The involvement of the fingertips and the paronychium helped in the diagnosis. "Salt and pepper" pigmentation of the skin (Fig. 9b) is one of the earliest features in systemic sclerosis. With the aid of this finding early diagnosis was possible in some patients.[22] It may also be a sign of DM. Examination of the nailbed capillaries with an ophthalmoscope or dermatoscope shows enlarged capillaries and areas of microhaemorrhage in systemic sclerosis (Fig. 10).

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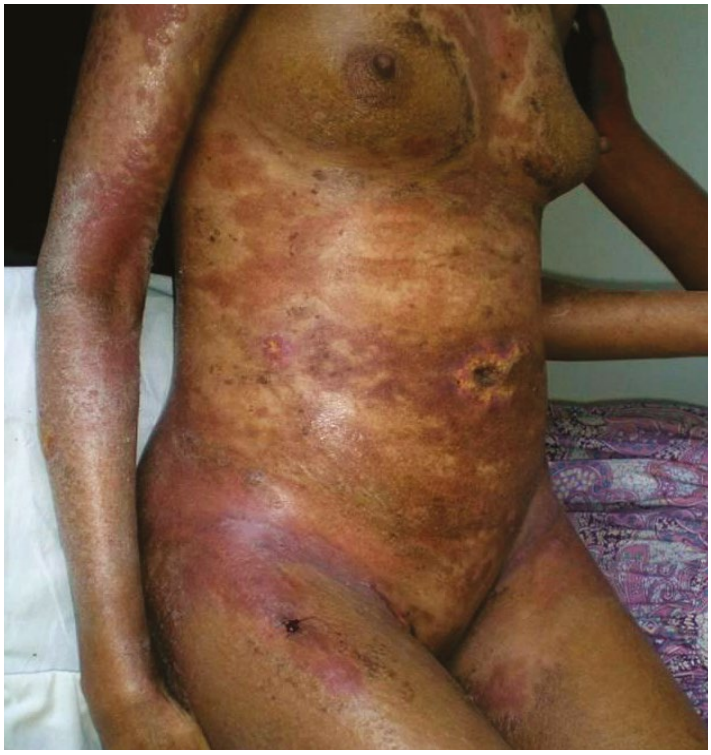

Fig 8b. Generalized morphoea with areolar sparing

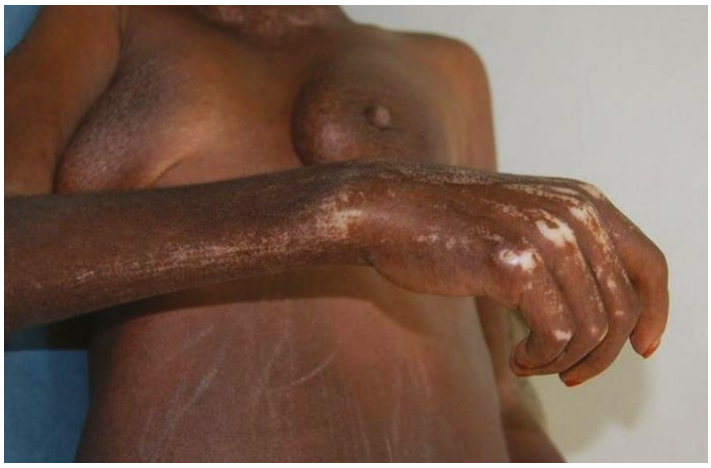

Fig 9a. Speckled hypopigmentation in systemic sclerosis

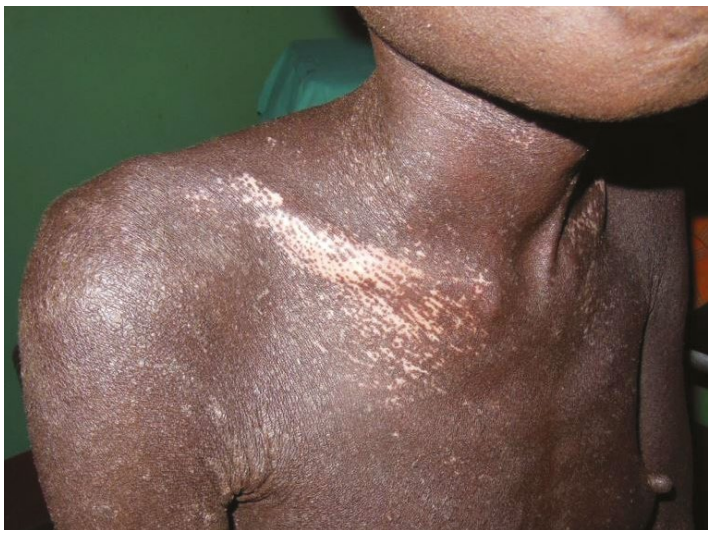

Fig 9b. "Salt and pepper" pigmentary changes in systemic sclerosis

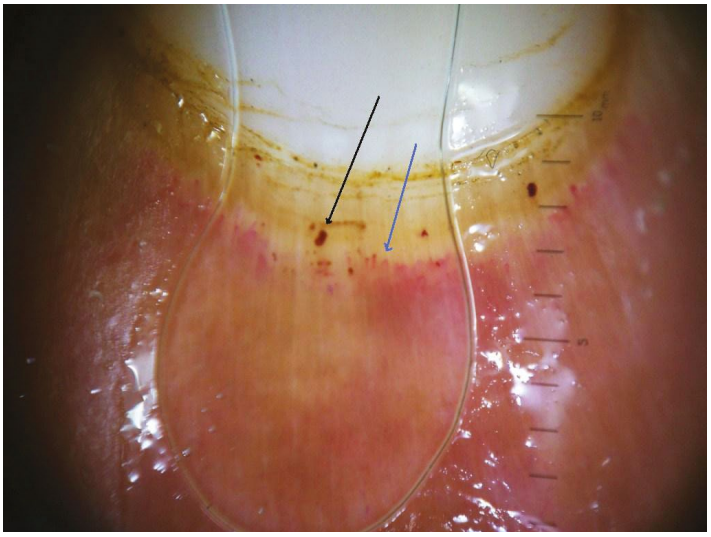

Fig 10. Nailfold abnormalities in systemic sclerosis

Lupus erythematosus

Various classifications are proposed, different variants and subtypes of the disease are described with three major forms:

- Discoid or chronic cutaneous lupus (DLE)
- Subacute cutaneous lupus (SCLE)
- Systemic lupus with involvement of the joints or visceral organs (SLE).[23]

SLE is a disease in which autoantibodies directed against DNA are found and complement is activated. This results in chronic inflammation with damage to blood vessels, the dermo–epidermal junction, and secondarily to the epidermis. Sun may initiate and exacerbate the disease in genetically predisposed individuals. Lesions occur on sun-exposed areas. On the face the famous "butterfly" rash presents on both cheeks with possible aggravation on the bridge of nose and lips. It is often over-diagnosed by non-dermatologists. Other sun exposed sites may be involved, including chest and back, and extensor aspects of the arms. Systemic involvement includes joint and kidney disease.

DLE is typically localized to the skin, although a few patients have systemic lupus.

The prevalence of lupus erythematosus in different countries has been estimated; mostly, however, in the developed world. The authors of one meta-analysis suggested an overall weighted mean prevalence of 24/100,000 population. It affects mostly women.[18] Although data on the prevalence of SLE among Africans and Asians living in the tropics are limited, SLE is reportedly more common and more severe in people of African and Asian extraction living in industrialized countries.[24,25]

Few reports are available on the incidence of cutaneous lupus erythematosus, whereas numerous epidemiological studies on SLE have been published. Most studies have shown a predilection of DLE for patients of African descent, and dark-skinned patients show skin damage early in the course of disease. Lesions are usually found on sun-exposed areas (e.g. the "butterfly distribution" on the cheeks and nose) and present with mostly brownish-blackish macules and papules in early stages, later lesions are scaly with hypopigmentation and

erythema (Figs 11a,b, 12). The scales show follicular plugging. Hyperpigmented borders and central atrophy evolve with the progression of the disease; the entire lesion may become fully depigmented. In lighter-skinned individuals lesions usually start with erythema. The lesions heal with scarring, and scarring alopecia may follow scalp lesions.

Among our patients, 15 cases of DLE were seen (3M, 12F) (Table 4). Clinical features were hyper- and hypopigmentation or depigmentation, with scarring and alopecia. All lesions were on sun-exposed areas. Associated diseases were scabies (1, F) and HIV (1, F). Diagnosis was confirmed with biopsy only in Ethiopia.

No confirmed case of SLE was observed. This may be due to the lack of diagnostic means, the difficult interpretation of systemic symptoms, and the challenging recognition of cutaneous signs on dark skin. It is likely that patients have been treated for systemic symptoms in other departments, without receiving a dermatological consultation.

Table 4

DLE cases seen

Disease	Number (Ethiopia), M/F	Median age	Number (South Sudan), M/F	Median age	Biopsy performed
DLE	12 (3M, 9F)*	45y	3 (F) §	50y	12 (Ethiopia)

* 1 case with scabies coinfection
§ 1 case with HIV coinfection

Dermatomyositis

DM is a rare inflammatory disease which affects women more than men. It is reported to be more severe in dark-skinned people than in Caucasians, although few reports from Africa have been found.[8,26] We observed two suspected cases but none of them was confirmed. In Moshi, Tanzania, however DM is more commonly observed, suggesting the presence of racial or environmental differences (BN personal observation).

Fig 11a. Discoid lupus (DLE) with pigmentary change

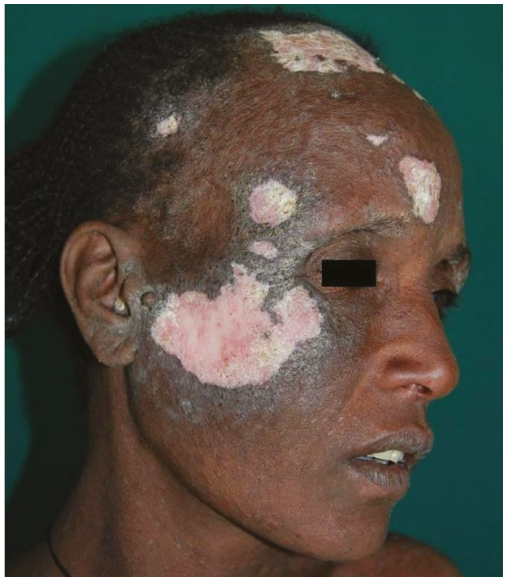

Fig 11b. Hypopigmented lesions in DLE

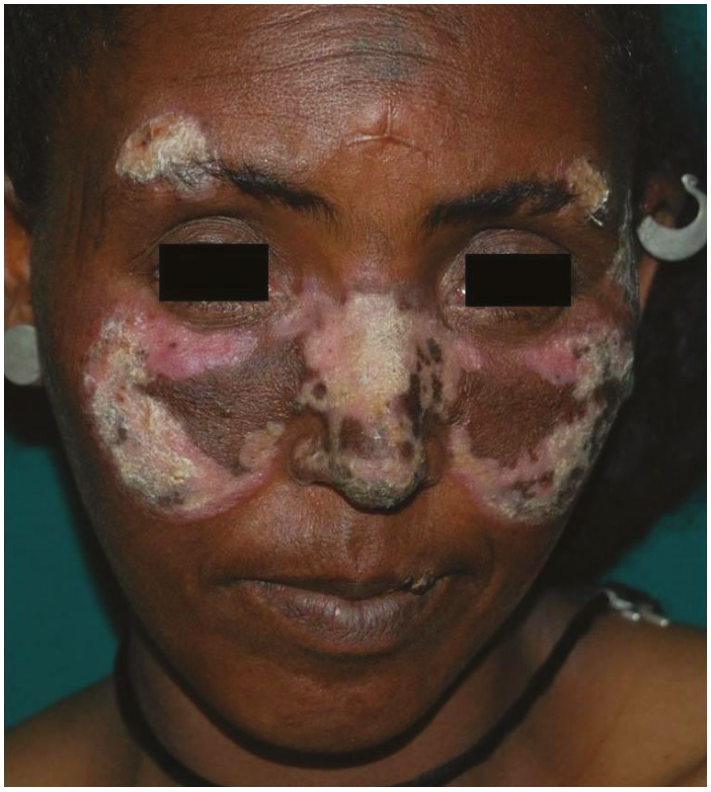

Fig 12. Butterfly distribution of lesions in DLE

Conclusions

- **Few reports are available about autoimmune skin diseases and their prevalence in Africa.**
- **This paper confirms the presence of such diseases in rural areas of Ethiopia and South Sudan over a 5- year period (Table 5), with similar clinical and epidemiological findings as other African reports.**
- **The most frequent autoimmune diseases were connective tissue diseases such as DLE, systemic sclerosis and morphea, followed by LAD (CBDC). Other blistering diseases were less frequent (pemphigus, BP).**

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Autoimmune skin diseases in Sub Saharan Africa: experience in Ethiopia and South Sudan and review of the prevalence...*continued*

Table 5
Total number of autoimmune diseases seen

Diagnosis	Number of patients	M:F
DLE	15	3:12
Morphea + systemic sclerosis	19 (13 + 6)	6:13
CBDC	14	11:3
Intraepidermal blistering diseases	10	4:6
Subepidermal blistering diseases	3	2:1

- **The higher number of CBDC cases probably reflects the younger age of African populations when compared with western high-income countries.**
- **Female preponderance was observed among connective tissue diseases (systemic sclerosis, cutaneous lupus erythematosus) but not for blistering diseases, confirming data in the literature.**
- **Autoimmune skin diseases are neglected in large areas of Africa. Challenges to documentation include lack of skin specialists, serology and histology, especially in rural areas and patients are often unable to travel long distances. Patients may present late with florid clinical signs.**

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Journal Club

A skin disease and needs assessment analysis of the displaced Rohingya population in the Kutupalong refugee camp, Bangladesh.
Khan SS, Padovese V, Maurer TA *et al. Clin Exp Dermatol* 2020; **45**:1051-4.

Kutupalong Refugee camp is the world's largest, housing around 800,000 Rohingya Muslims. These people were living as an ethnic minority in Rokhine State, Myanmar, but following an outbreak of violence in 2017 fled across the border to the *Cox's Bazar* district of Bangladesh; most now reside in the Kutupalong camp in overcrowded conditions. They have limited access to clean water and sanitation; 75% of families live in shared shelters, with 15 individuals sharing one latrine. Skin conditions are the fourth commonest presenting to health workers in the camp.

The authors held dedicated dermatology one-stop clinics from a single primary care facility in the camp. Any individual with a skin condition could self-present. Diagnoses were clinical, and where necessary and possible patients were referred on to secondary care.

380 patients were seen over 3 days. Infections and infestations were the commonest diagnoses; 215 had superficial fungal infections (dermatophytosis), 11 had impetigo, 39 cellulitis and 12 scabies. Dermatitis, eczema and related conditions were diagnosed in 81 cases. The predominant clinical pattern of dermatophyte infection was tinea corporis, which was typically extensive and especially seen in women of reproductive age. It is probable that the condition reflected underlying systemic disease, such as diabetes mellitus or HIV infection. There is a high incidence of HIV in the Burmese population; additionally, many Rohingya women were subjected to sexual violence.

There is great potential for point-of-care testing and education of health workers in the camp, and a pressing need for general health education. Skin diseases can be a useful entry point for studying and caring for systemic illness and for collaborative initiatives.

CR Lovell

A study on superficial fungal infection from Chhattisgarh, India: a brief report

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Conflict of interests: None.

Key words: superficial fungal infection, tinea, dermatophytosis, socio-economic status, socio-cultural factors, Chhattisgarh

Abstract
This study aimed to examine various demographic and socio-cultural variables among a symptomatic group of 205 out patients with superficial fungal infections in Bilaspur, Chhattisgarh, India. The results showed that tinea corporis was the most common type of infection and a frequent finding was the inappropriate use of over-the-counter creams containing topical corticosteroids.

Introduction
Superficial fungal infection (dermatophytosis) is caused by a pathogen which is restricted to the stratum corneum.[1] These fungi have the ability to produce keratinase, which helps them to metabolize and live on human keratins in skin, nail and hair. The infections, caused by fungi belonging to the genera *Trichophyton*, *Microsporum* or *Epidermophyton*, are referred to as tinea. Tinea is the Latin word for "worm" or "grub" because the infections were originally thought to be caused by worm-like parasites.[2] The clinical diagnosis is named after the affected body part i.e. tinea corporis or ringworm (trunk and limbs), tinea cruris or jock itch (groin), tinea unguium (nails), tinea capitis (scalp), tinea barbae (beard area), tinea manuum (hands) and tinea pedis (feet).

In the USA, dermatophytosis is one of the most commonly encountered skin diseases[3] and an estimated lifetime risk of having dermatophytosis is between 10 and 20%.[4] Five or six species within the three genera listed above account for most dermatophytosis globally.[5]

There is very little published literature on the epidemiological aspects of superficial fungal infections in the State of Chhattisgarh, India. The present study attempted to examine various demographic and socio-cultural variables among a symptomatic group of patients with superficial fungal infection.

Materials and methods
Consecutive symptomatic patients who visited the dermatology outpatient department of Usha Memorial Hospital, Bilaspur, Chhattisgarh, India, with clinically diagnosed fungal infection were included in the study, which was conducted over a 6-month period. As cases of dermatophytosis were very common, and the context of the survey was a private hospital where funds were limited, diagnosis by KOH smear or biopsy was not feasible.

A questionnaire was designed to collect data on demographic features (age, sex and occupation), history of previous fungal infection and history of self-medication with topical preparations, clinical patterns of infection and number of lesions, together with socio-cultural features (number of family members, type of water source, frequency of bathing and sharing of soap and same towel within a family).

Results
See Figs 1-4 for distribution by various socio-cultural variables.

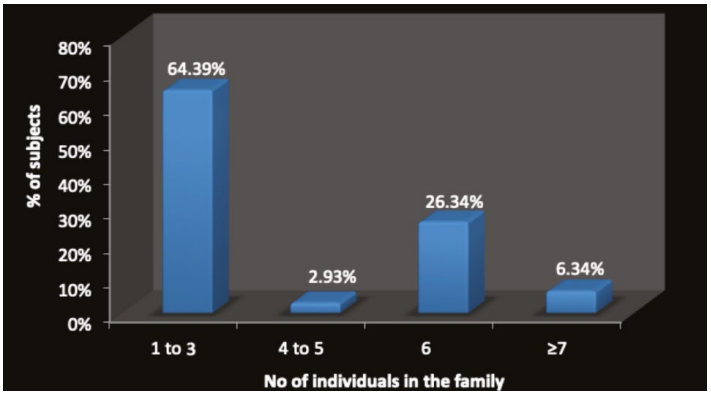

Fig 1. Distribution of individuals according to number of family members

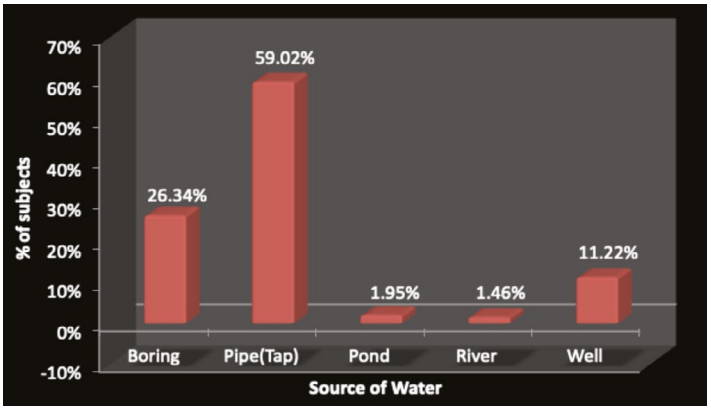

Fig 2. Distribution of individuals according to source of water

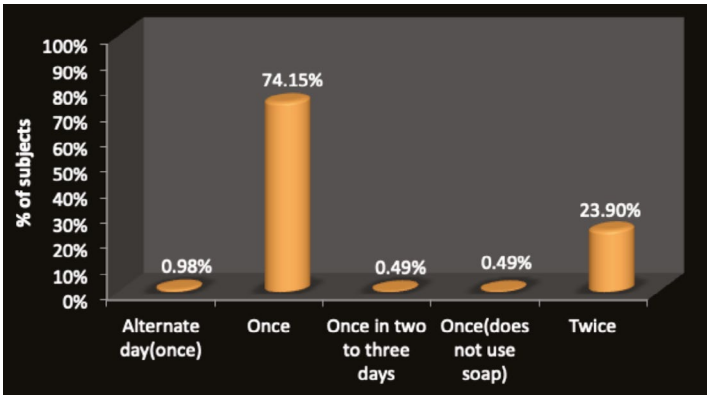

Fig 3. Distribution of individuals according to bathing frequency

The total number of patients included in the study was 205 and their ages ranged from 10 to 60 years. Males were more commonly affected (M:F 116:89) and 20/25 (80%) of tinea cruris cases were in males. There were only two cases of

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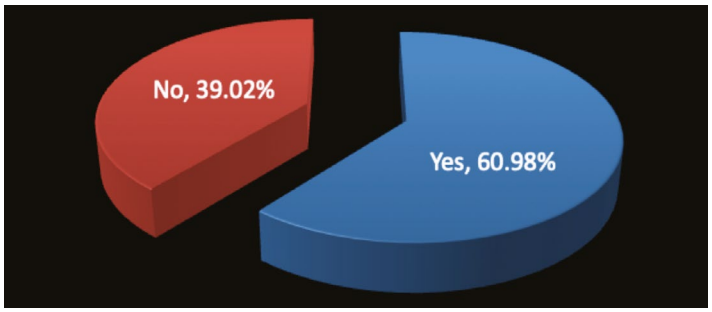

Fig 4. Distribution of individuals according to sharing soap and same towel within the family

tinea capitis, both were in patients below 20 years of age and there were only four cases of tinea faciei, all in patients aged less than 40 years. No cases of tinea manuum were seen. The most common presentation was tinea corporis (135/205; 66%), which was seen across all age groups and also had a male preponderance (76/135; 56%). Overall, the majority of patients had multiple lesions (170/205; 83%) and a majority (116/205; 57%) gave a history of using over-the-counter preparations containing topical corticosteroids (Fig. 5), such as Panderm® +, a topical steroid combination commonly used in India. Tinea faciei was only seen in patients who had a history of self-medication with topical steroids (Table 1). An additional finding was that 125/205 (61%) of patients shared soap and the same towel within the family.

Discussion

Previously, bacterial infections of skin used to be more common but fungal infections have become more common recently. The high prevalence of fungal infections in tropical

Fig 5. Examples of over-the-counter preparations containing potent corticosteroids

regions may be due to the hot and humid environment. Fungal infections can be cutaneous or systemic. Superficial fungal infections can have debilitating effects on a person's quality of life and in some circumstances spread to other individuals or become invasive. Most superficial fungal infections can be diagnosed clinically and can be treated easily.[6]

In India, people mostly try to self-medicate and they apply over-the-counter drugs before visiting a dermatologist and,

Table 1

Clinical presentations of fungal infection

N	P. Versicolor 32		Tinea Capitis 2		Tinea Corporis 135		Tinea Cruris 25		Tinea Faciei 4		Tinea Pedis 7		Total 205	
Age(yrs)		**Col %**		**Col %**		**Col %**		**Col %**		**Col %**		**Col %**		**Col %**
10-19 yrs	12	38	2	100	28	21	5	20	1	25	2	29	50	24
20-29 yrs	9	28	0	0	37	27	6	24	2	50	2	29	56	27
30-39 yrs	1	3	0	0	21	16	5	20	1	25	1	14	29	14
40-49 yrs	10	31	0	0	31	23	8	32	0	0	1	14	50	24
50-60 yrs	0	0	0	0	18	13	1	4	0	0	1	14	20	10
Gender														
Male	13	41	1	50	76	56	20	80	2	50	4	57	116	57
Female	19	59	1	50	59	44	5	20	2	50	3	43	89	43
Type of work														
Housewife	6	19	0	0	32	24	1	4	1	25	0	0	40	20
Skilled	7	22	0	0	27	20	7	28	1	25	3	43	45	22
Student	13	41	2	100	26	19	6	24	1	25	3	43	51	25
Unskilled	6	19	0	0	50	37	11	44	1	25	1	14	69	34
Lesion														
Single	5	16	1	50	26	19	1	4	2	50	0	0	35	17
Multiple	27	84	1	50	109	81	24	96	2	50	7	100	170	83
Steroid use														
Present	8	25	1	50	86	64	15	60	4	100	2	29	116	57
Absent	24	75	1	50	49	36	10	40	0	0	5	71	89	43
History of previous fungal infection														
Present	4	13	0	0	26	19	3	12	1	25	2	29	36	18
Absent	28	88	2	100	109	81	22	88	3	75	5	71	169	82

in contrast to developed countries like the USA and UK, creams containing potent corticosteroids with an antifungal agent are available without prescription. This alters the clinical picture and healing takes longer. Our study identified that 57% of symptomatic out patients with clinically diagnosed superficial fungal infections had used such preparations.

The number of tinea cases in India has increased in modern times. We found that tinea corporis was the most common dermatophytosis, with males being more commonly affected than females. In contrast, a study in Singapore found that the most common fungal infection was tinea pedis, followed by pityriasis versicolor and tinea cruris.[7] The trend in the distribution of tinea infection in the present study population also do not corroborate earlier findings from the USA.[3] Therefore it appears that either there is regional variation in the pattern of infection or that it may be changing worldwide.

Conclusion

- Tinea infection is commonly linked to use of creams containing potent corticosteroids; in India these can be bought without prescription.
- Take a careful drug history; counsel to avoid topical corticosteroids.
- Discourage family members from sharing soap and towels.

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Comment by RJ Hay

This report from India records a large number of cases of dermatophytosis, with the majority presenting as tinea corporis. The Indian outbreak of tinea is a major problem in the region and there are now reports of spread to other countries in Europe and the Middle East. Many of the cases are caused by a new strain of *Trichophyton mentagrophytes* although some are due to *T. rubrum*. Common features are the extensive skin lesions seen in the infection and the poor response to antifungals; many patients have also received topical antifungals combined with potent corticosteroids. However, there is also evidence that some of the fungi are resistant *in vitro* to antifungal agents such as terbinafine. The relentless spread of this new variant of ringworm both within and outside the country is a major cause for concern.

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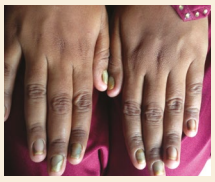

QUIZ ANSWERS:

Answer 1: ***Yellow nail syndrome;*** **Answer 2**: ***a) Chest X-ray***

Yellow nail syndrome (YNS) is considered a very rare disorder usually occurring after 50 years of age, with only a few juvenile cases reported. The diagnosis is based on the presence of the triad comprising yellow discolouration of nails, pulmonary manifestations (chronic cough, bronchiectasis, and pleural effusion) and lower limb lymphoedema. Sinusitis often accompanies it. The aetiology remains unknown but underlying lymphatic impairment is often thought to be implicated.

YNS frequently occurs as an isolated phenomenon but may be associated with other diseases involving the lymphatic system, autoimmune diseases or cancers. Management is symptomatic. The syndrome may resolve spontaneously. Anecdotal evidence supports the use of oral vitamin E with triazole antifungals in clearing nail discolouration.

Miss B had lymphoedema and her chest X-ray revealed bronchiectasis (Fig. 2) warranting chest referral. She had no other underlying co morbidities. Her yellow nails responded only partially to oral vitamin E for 6 weeks.

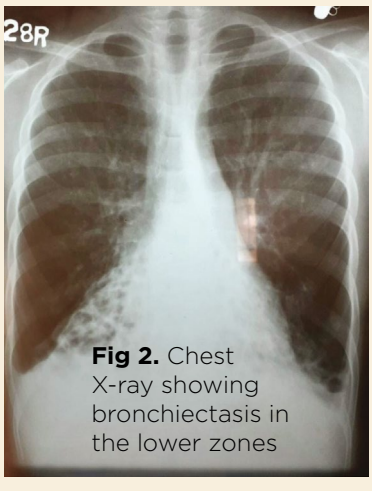

Fig 2. Chest X-ray showing bronchiectasis in the lower zones

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