

COVID-19 and the skin

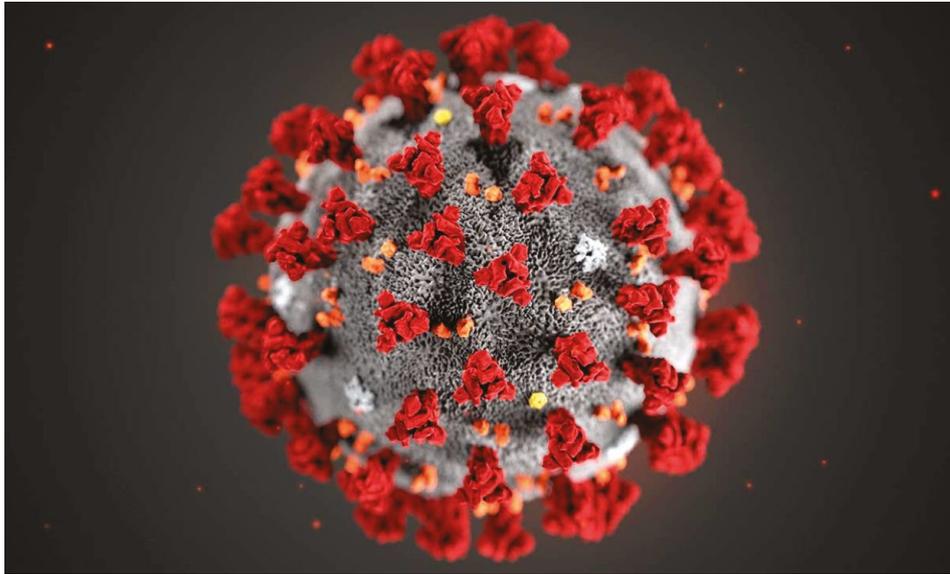


Fig 1. COVID-19 model (© newscientist.com)

Severe Acute Respiratory Syndrome (SARS)-CoV-2 is the third novel coronavirus (Fig 1) to cause pneumonia in humans in recent years. Originating in Wuhan, China, it has spread rapidly and was declared a global pandemic by the World Health Organisation in March 2020. Comparative analysis of genomic data suggests that it is a zoonosis (probably derived from bats sold as food) and not the product of laboratory manipulation¹. Although patients infected with COVID-19 may be asymptomatic or have a trivial illness, a few develop acute respiratory distress associated with a distinctive systemic thrombotic disorder linked to complement activation². This has resulted in numerous deaths worldwide, particularly in the elderly in care homes in affluent countries, where the obese, males and ethnic minorities appear to be especially at risk.

Several case series and a multicentre survey from Spain³ have identified distinctive skin lesions in patients infected with COVID-19. These include lesions resembling chilblains on the feet ("COVID toes", Fig 2)^{3,4}, affecting children and young adults without a history of peripheral vascular disease. The lesions have a lichenoid histology,

seen in autoimmune conditions linked with type 1 interferon (IFN-1) activation. Early activation of IFN-1 in these individuals may prevent viral replication; they are otherwise asymptomatic or have mild disease and should be isolated as they may transmit infection⁴. In



Fig 2. Chilblain-like lesions ("Covid Toes") (©minnpost.com)

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contrast, skin lesions due to vascular occlusion, such as livedo or necrotic ulceration, are seen with severe systemic vasculopathy, such as late onset respiratory distress^{2, 4}.

Another form of presentation is with symptomatic or mildly pruritic vesicles primarily affecting the trunk; they are small and monomorphic, resolving in 8-10 days without scarring, unlike the polymorphic lesions seen in varicella. Vesicular lesions typically precede other symptoms in middle-aged patients and are associated with moderately severe disease^{3, 5}. Other early pointers to the diagnosis include acral erythema resembling erythema multiforme or erythema elevatum diutinum. Less specific features, which may lead to a misdiagnosis of dengue fever, include purpura, urticaria or maculopapular lesions³. A syndrome resembling Kawasaki Disease has been reported in a few children. They may present with erythema of skin and mucous membranes, sometimes with cracked lips; systemic features include myocarditis and coronary arteritis⁶.

In addition to the risk of exposure to coronavirus, healthcare workers are at increased risk of occupational irritant dermatitis from frequent and prolonged handwashing with detergents; alcohol hand gels are less irritant, and the use of moisturisers should be encouraged. Prolonged use of protective goggles and respirators can cause traumatic injury to the nasal bridge in particular^{6, 7}.

The coronavirus pandemic has distorted the delivery of healthcare in many countries, and many patients with sinister skin lesions, as well as other medical conditions, risk delayed diagnosis. Governments of affluent countries have tried

different approaches to prevention of viral transmission, with varying success. Widespread lockdown and social distancing have been enforced brutally in parts of Africa and Asia. This policy is detrimental to the poor, who may be unable to travel to work or receive deliveries of food, medical supplies or insecticide-treated mosquito nets. Such draconian measures may be inappropriate in resource-poor regions with a younger population, and where the elderly are not sequestered in care homes. Community-based local projects to control Ebola in West Africa may form a more useful model⁸.

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The ILDS is taking an active role supporting the dermatological community to protect individuals and populations around the world during the COVID-19 pandemic. You can find ILDS guidance notes on COVID-19 and the management of skin diseases along with details of international dermatologic registries which aim to assist dermatologists in better understanding the consequences of COVID-19 for patients on our COVID-19 Hub: www.ilds.org/covid-19

2020 – International Year of the Nurse and Midwife

The World Health Assembly has designated 2020 the Year of the Nurse and Midwife, in recognition of the huge contribution that nurses and midwives make in the pursuit of global health. For many communities these are the health professionals who are the first point of contact for a population's health needs. If the world is to achieve universal health coverage, 9 million more nurses and midwives must be trained.

Regardless of their job title, nurses and midwives care for skin health. Whether a neonate or an octogenarian, humans need skin care at all stages of life. Skin care may involve encouraging hygiene through washing practices, looking after a post-surgical wound, advising patients with chronic skin conditions how to use their treatments or preventing skin cancer through public health campaigns.

At *Community Skin Health* we value the role that our nursing and midwifery colleagues play. We recognise that they make up over 50% of the global workforce and that for patients with skin health issues, their care and support impacts hugely on well-being. In coming issues we will look to include more articles aimed at our nursing and midwifery readership.

For further information about International Year of the Nurse and Midwife, visit the WHO website for information and resources that you can download. <https://www.who.int/news-room/campaigns/year-of-the-nurse-and-the-midwife-2020>

Rebecca Penzer-Hick

Myanmar and the Burma Skincare Initiative

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Abstract

Healthcare in Myanmar, previously known as Burma, is ranked amongst the lowest in the world by the World Health Organisation (WHO). There is poor access to skincare with only three dermatology training centres in the country; underprivileged individuals living in rural parts of Myanmar may travel for days to obtain dermatological care. The Burma Skincare Initiative (BSI), a UK registered charity, was founded with the vision of helping remove barriers to access to skincare in Myanmar by establishing active and sustainable links between Myanmar and international dermatology communities for mutual benefit. We review the unmet needs in skincare in Myanmar and the background, aims, progress to date, including the first international dermatology meeting in Myanmar, and future directions of the BSI.

Introduction

Burma, officially the Republic of the Union of Myanmar, is a country in Southeast Asia with a population of approximately 53 million. There are 135 ethnic groups, with their own languages and cultures, within the country. Myanmar transitioned to a civilian government in 2011 after five decades of military dictatorship. Healthcare in Myanmar is one of the poorest in the world, ranking 190/191 for the overall health system performance as assessed by the World Health Organisation (WHO) in 1997¹; the government spent 2.3% of the country's GDP on healthcare in 2014², compared to 3.7% in Thailand³ – one of the neighbouring countries of Myanmar – and 9.8% in the UK⁴ in 2014. Consequently, resources and clinical services for skincare are extremely limited. There are only three dermatology training and tertiary care centres in the country – two in Yangon (the economic capital located in the South) and one in Mandalay (the second largest city located in central Myanmar). The two dermatology centres in Yangon are based at the Yangon General Hospital (YGH) at University of Medicine (UM) 1 in downtown Yangon and the North Okkalapa General Hospital (NOGH) at UM2 in the north of Yangon. Beyond Yangon and Mandalay, consultant dermatologists provide services in the larger towns and cities only; those living in rural areas have to travel for hours and sometimes days to reach the nearest dermatology centre. The Global Burden of Disease (GBD) study estimated that in 2010, an average of 496 years was lost due to disability per 100,000 population in Myanmar as a result of nonfatal skin disease⁵. However, there are extremely limited data on the epidemiology of skin diseases in Myanmar.

The Burma Skincare Initiative (BSI)

CEMG (University of Manchester, UK) developed a deep interest in global health and migrant skin health following his involvement with: the International League for Dermatological Societies (ILDS); his Directorship of the Global Psoriasis Atlas (GPA); and membership of the International Foundation for Dermatology's (IFD) Migrant Health Dermatology Working Group. His interest in global skincare was further crystallised following his visit to the Syrian refugee camps in the Bekaa Valley, Lebanon in July 2018⁶. These interests were recognised by his appointment as a Special Advisor to the ILDS on global health research and policy. SML is a Burmese dermatology registrar (St John's Institute of Dermatology, King's College London, UK) who travels to Myanmar annually to teach the junior doctors and volunteers at the mobile clinics in underprivileged communities in Yangon through a Myanmar based charity – Better Burmese Health Care (BBHC; www.betterburmesehealthcare.org). Her medical elective experience at the Mae La refugee camp on the Thai-Myanmar border in 2007, combined with her volunteer work through the BBHC over the years have inspired her to help build the foundation for skincare in Myanmar.

In May 2018, the authors (SML and CEMG) serendipitously met at the quinquennial International Investigative Dermatology meeting in Orlando, Florida USA. We discussed our respective humanitarian work; this subsequently led to our visit to the dermatology departments in Myanmar in December 2018. We visited both the MGH/UMM and the YGH/UM1 with



Fig 1. The logo of the Burma Skincare Initiative (BSI). The three golden horizontal bars represent the three domains in dermatology that the BSI strives to help improve: education, research and clinical services.

the objective of identifying unmet needs in skincare in Myanmar and to help address these by establishing active and sustainable links between Myanmar and international dermatology communities for mutual benefit. With this vision in mind, we co-founded the Burma Skincare Initiative (BSI) which has been awarded charitable status by the Charity Commission in the UK in January 2020 (Registration no. 1187197) (Fig. 1). The Dermatology Leads and the Rectors (Deans) of UM1 in Yangon and UMM in Mandalay are fully apprised of the

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Table 1. The goals of the Burma Skincare Initiative (BSI)

	Short-term (2 years)	Medium-term (5 years)	Long-term (10 years)
Education	<ul style="list-style-type: none"> • Inaugural BSI meeting (21-24 Feb 2020) • Educational fellowships • Myanmar Dermatological Society 	<ul style="list-style-type: none"> • Annual BSI meetings • Curriculum • Training pathway 	<ul style="list-style-type: none"> • Regional Dermatology Training Centre (RDTC)
Research	<ul style="list-style-type: none"> • MACADAMIA* • Global Psoriasis Atlas 	<ul style="list-style-type: none"> • Ongoing collaborative research 	<ul style="list-style-type: none"> • RDTC
Clinical	<ul style="list-style-type: none"> • Exchange fellowships • Diagnostics 	<ul style="list-style-type: none"> • Teledermatology • General clinics in rural areas • Specialist clinics 	<ul style="list-style-type: none"> • RDTC • Clinical Nurse Specialists

* Mycetoma and Chromoblastomycosis – a Dermatology Access in Myanmar Initiative

objectives of the BSI and have provided their full support. It is crucial that such an initiative is founded on close collaboration and communication with the local Myanmar dermatology teams as the goals of the BSI are targeted towards their specific unmet needs (Table 1).

A Visit to the Dermatology Departments at the Mandalay and Yangon General Hospitals

December is one of the coolest months in Myanmar. On 10 December 2018 in Mandalay, however, it was equivalent to a hot summer's day in the UK at ~35°C when we arrived at the MGH dermatology department. We were welcomed by the dermatology team led by Professor Khin Mya Lwin and promptly commenced a tour of the department with a ward round (Fig. 2a). There are 4 consultants, 8 trainees and 4 nurses in the department with an 8-bed inpatient ward, of

the entrance to the hospital (Fig. 2b) with limited resources to ensure privacy and confidentiality for the patients.

Most skin diseases in Myanmar are diagnosed clinically although there are histopathology services in both Yangon and Mandalay. Interestingly, several of the patients with pemphigus on the ward travelled from the rural Irrawaddy delta region. Clinically, these patients with pemphigus had the foliaceus subtype (Fig. 3), possibly with a similar aetiology to the Amazonian endemic pemphigus foliaceus or fogo selvagem through exposure to haematophagous black flies in the river valleys⁷. This deserves further research to provide a specific taxonomy. One of the significant unmet needs is that there is no immunodiagnostic service in Myanmar and therefore dermatologists are unable to satisfactorily diagnose and classify immunobullous diseases including pemphigus.



Fig 2a. Attending a ward round.

which 5 were occupied by patients with pemphigus and one with erythroderma secondary to psoriasis at the time of our visit. Most of the patients on the ward had had to travel for several hours or even days to seek specialist help for their skin diseases. The outpatient clinic at the MGH was conducted in



Fig 2b. Outpatients at Mandalay General Hospital, Mandalay, Myanmar.



Fig 3. A patient with pemphigus on the ward at Yangon General Hospital, Myanmar.

Another unmet need is that although psoriasis is “commonly seen” by Myanmar dermatologists, systemic therapies are few and not widely available whilst biologics are non-existent. To date, there are no robust data on either the prevalence or the incidence of psoriasis in Myanmar.

Although there is no formal specialist training for the dermatology nurses in Myanmar, those working in dermatology had learned their skills and acquired their knowledge “on the job” on a wide range of topics such as topical therapies for psoriasis to skincare for emergency dermatological cases. Despite the busy clinics, the nurses meticulously collect the data of all cases presenting at the MGH dermatology inpatients and outpatients on a daily basis. Following the departmental visit, we met with the Rector of UMM, Professor Khin Maung Lwin before a group discussion with the dermatology team to explore the challenges they face on the ground in Mandalay and how the BSI could help address these needs. These included limited patient education on skin diseases, the need for an immunodiagnostic service, limited training, local guidelines and resources for systemic therapies such as methotrexate and ciclosporin, and lack of technical support and maintenance for phototherapy equipment. The team, including the Rector of UMM, was enthusiastic about the opportunity of working with the BSI to ensure sustainability of this initiative.

The dermatology department at the YGH/UM1, led by Professor Khine Khine Zaw, was the only national training centre for dermatology in Myanmar (Fig. 5) until 2004 when a second training centre was established at the NOGH/UM2, and a third at the MGH/UMM in 2018. The YGH is the largest dermatology centre in Myanmar with 9 specialist clinics run on a daily basis. During December 2018, we visited the dermatology inpatient and outpatient departments at the YGH, met with the Rector of UM1 – Professor Zaw Wai Soe, and discussed the challenges faced by the dermatology community in Myanmar and brainstormed on strategies to tackle these challenges. There was also an opportunity for some of the dermatology trainees to present challenging and interesting cases seen at the YGH, including deep mycoses including mycetoma and chromoblastomycosis. A similar theme of challenges and unmet needs emerged during the discussion with the team at the YGH/UM1. Additional topics explored included standardisation of dermatology training and the dermatology curriculum in Myanmar, establishing



Fig 4. Dr Lwin and Professor Griffiths with the dermatology team at Yangon General Hospital, Yangon, Myanmar.



Fig 5. Nurses’ Day, 1st International Meeting of the Burma Skincare Initiative, Yangon, Myanmar. More than 70 nurses and 200 delegates from across Myanmar attended the Nurses’ Day and the Main Meeting respectively.

mutually beneficial exchange fellowships with UK dermatology centres, setting up a Myanmar Dermatological Society and collaboration on research in Myanmar.

BSI: Progress to date

In the year since the founding of the BSI in December 2018, considerable progress has been made to achieve many of its short-, medium- and long-term goals (Table 1), including the inaugural BSI meeting and European Society for Dermatological Research (ESDR) Myanmar fellowships.

The Inaugural BSI meeting: the first International Dermatology Meeting held in Myanmar

As one of the first steps in achieving the BSI goals, it was proposed to hold annual BSI educational meetings as a platform for Myanmar and international dermatology communities to exchange knowledge and experience on the management of, and the latest research in, common and rare skin diseases for mutual benefit. Furthermore, networking opportunities will enable local and international dermatologists to work together to conduct crucial research such as the epidemiology of skin diseases in Myanmar and to address the long-term sustainable goals of the BSI to remove barriers to skincare access in the country. This will be accomplished in collaboration with partners from industry and non-governmental organisations (NGOs), such as Medical Action Myanmar (MAM; www.medicalactionmyanmar.com). The BSI meetings will also provide the stage for Myanmar and international dermatology trainees to showcase their work through oral and poster presentations. Indeed, the first international meeting of the BSI took place in Yangon, Myanmar on 21–24 February 2020 (www.bsi2020.com). The meeting was attended by more than 70 nurses and 200 dermatologists, GPs and physicians across Myanmar, and was a resounding success, academically, socially and culturally. The first day of the meeting was devoted to dermatology nursing, whilst the second and third days – the main meeting, were developed specifically for Myanmar dermatologists, consisting of plenary lectures by eminent international speakers from the UK and Germany, important presentations by Myanmar dermatologists, and oral and poster presentations by Myanmar and UK dermatology trainees

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The ESDR Myanmar Fellowships

As its President-Elect, CEMG introduced a Global Health theme to the ESDR and, as a collaborative initiative with the BSI, two Myanmar dermatology trainees: Dr Hlaing and Dr Thu were awarded the first ESDR Myanmar fellowships to enable them to attend the 49th Annual Meeting of the ESDR, held in Bordeaux, France in September 2019 (Fig. 6). This provided a significant opportunity for Myanmar dermatology trainees to attend an international dermatology meeting to learn the latest skin science from the world's experts and to network with international colleagues. The two ESDR Myanmar fellows subsequently shared their experiences and knowledge gained from the meeting with their respective dermatology teams at the UM1 and the UM2 in Myanmar, thus allowing dissemination of learning from a world-class dermatology meeting. The BSI aims to continue its collaboration with the ESDR.



Fig 6. Dr Thiri Hlaing (University of Medicine 1 Yangon) and Dr Phyo Min Thu (University of Medicine 2 Yangon) were the first Myanmar dermatology trainees to be awarded ESDR Myanmar fellowships. Photograph taken at the 49th ESDR annual meeting in Bordeaux, France.

BSI: Future Directions

In terms of research, there is a major gap in knowledge on the epidemiology of skin diseases in Myanmar, including that of mycetoma and chromoblastomycosis, which are chronic disabling diseases of the skin and underlying tissues, and are most prevalent in tropical/subtropical countries. Both were added to the list of Neglected Tropical Diseases by the WHO in 2017. Although Myanmar lies within the high-risk geographic area known as the 'mycetoma belt', there are no surveillance or prevention programmes for these diseases in the country. As the first BSI exchange fellowship programme, Dr Tina Tian – a dermatology specialist registrar from Salford Royal Hospital NHS Foundation Trust in Manchester has obtained funding from the European Academy of Dermatology and Venereology (EADV) and the IFD's DermLink programme to establish rural skin clinics and quick "field" diagnostics and research on deep mycoses in Myanmar in 2020–2021, in a programme entitled "Mycetoma and Chromoblastomycosis – a Dermatology Access in Myanmar Initiative (MACADAMIA)". Similarly, the prevalence and incidence of psoriasis in Myanmar will be assessed through collaboration with the GPA.

As with psoriasis, there are significant challenges in managing immunobullous diseases such as the pemphigus cases we observed during our visits to the MGH and YGH dermatology departments. As the first step to address these challenges, the BSI, in collaboration with Professor Detlef Zillikens – an expert in immunobullous diseases from the University of Luebeck, Germany – and the dermatology teams at UM1 and UM2, aim to establish the first immunodiagnostic services in Myanmar in the near future.

Other unmet needs in Myanmar dermatology that the BSI will strive to tackle in the next 5 to 10 years include: limited access to skincare outside of Mandalay and Yangon; lack of clinical nurse specialists and specialist clinics; and lack of standardisation in dermatology training and curriculum. To address the sustainability of the BSI and its next steps, a multi-disciplinary Roundtable Discussion was held on the last day of the BSI 2020 meeting in Yangon (24 February 2020). Rural communities appear to be a population of interest and will need focused dermatology training of community healthcare workers and township medical officers probably by incorporating dermatology into the curriculum of a new MSc in Family Medicine perhaps supplemented by teledermatology services.

We will also explore ways of introducing specialist training for the nurses in Myanmar in collaboration with the British Dermatology Nursing Group (BDNG); and working closely with the British Association of Dermatologists (BAD) to explore the possibility of developing UK-Myanmar joint training and curriculum in dermatology. A further opportunity is for the BSI to become a member of the Myanmar UK Health Alliance led by Dr Thinn Thinn Hlaing (Regional Director for the Tropical Health Education Trust (THET)). The ultimate vision of the BSI is to establish a regional dermatology training centre (RDTCC) in Myanmar that will ensure the quality of both clinical and research training in dermatology in South East Asia.

Summary and Key Messages

Healthcare in Myanmar is ranked amongst the lowest in the world by the WHO and poor access to skincare is prevalent. With the many challenges that the country faces in dermatology, Myanmar is a land of opportunities for the international community to help develop education, research and clinical services by building the foundation of dermatology together with the Myanmar dermatology community in a sustainable manner. This is the very vision on which the BSI is founded. Perhaps this is just the beginning of a long journey, but certainly one worth embarking on, primarily for the benefit of the underprivileged people of Myanmar. Through a collective effort with its partners, including industry, NGOs such as MAM, and the international dermatology community, the BSI strives to facilitate connections between the Myanmar dermatology community and the outside world and to access world-class education, research and clinical training opportunities in a sustainable manner. The vision is that one day Myanmar will have a first-class dermatology service for all of its population.

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QUIZ

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CASE 1

Mr A, a 45 year old Sri Lankan man, presented with an indurated area of subcutaneous papules, nodules and small abscesses on the left side of his abdomen for 8 months (Figure 1). Some had formed sinuses, draining pus with yellowish granules.

He was perfectly healthy, worked as an office clerk and enjoyed gardening as a hobby.

His blood count, liver chemistry, Chest X-ray and ultra sound scan of the abdomen were normal. A skin biopsy was performed (Figure 2). Culture of the purulent material yielded *Staphylococcus aureus*.

What is the diagnosis?

- a) Eumycetoma
- b) Sarcoidosis
- c) Cutaneous Tuberculosis
- d) Cutaneous Botryomycosis
- e) Pyomyositis



Fig 1.

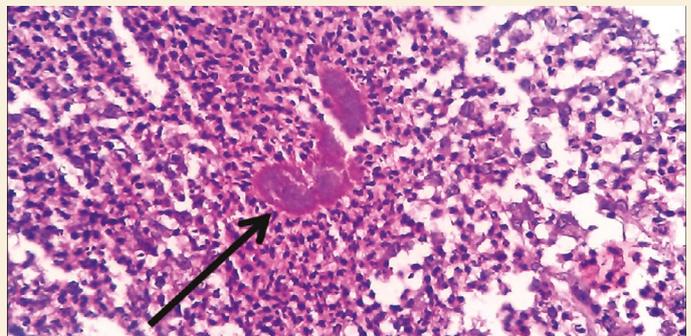


Fig 2.

CASE 2

A 35 year old female school teacher from Anuradhapura, Sri Lanka presented with a recurrent eruption of itchy papules on the arms in a photosensitive distribution (Figure 1). Topical corticosteroids and broad-spectrum sunscreens seemed to help only temporarily.

Physical examination also revealed an asymptomatic ulcerated skin-coloured nodule on the right elbow (Figure 2). Slit-skin smears were obtained from the nodule for microscopy.

What is the clinical diagnosis?

- a) Subacute cutaneous lupus
- b) Dermatitis herpetiformis
- c) Giant molluscum with immunodeficiency
- d) Cutaneous Leishmaniasis
- e) Phytophotodermatitis



Fig 1.



Fig 2.

Answers on page 11.

Principles Of Wound Management In Resource-Poor Areas

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Key words: wound care, skin barrier, burns, skin ulceration, dressings, antiseptics, resource poor areas

Abstract

The aim of wound management is to minimise the risk of infection, promote optimal healing, reduce pain and discomfort, minimise loss of function and optimise cosmetic outcome.

This article provides information on the assessment of both the patient's general health status and the wound, both of which are crucial if optimum wound healing is to be achieved. The dressings and topical applications cited are low cost and generally available.

Introduction

Skin is vital to sustaining life. It has many functions, but most importantly it provides a protective barrier against mechanical, thermal, physical injury and infective agents such as viruses and bacteria; it also prevents water loss. When skin is damaged, these vital functions are jeopardised, and it is therefore essential to heal any skin breaches as soon as possible.

Wounds cause varying levels of pain depending on their cause, site, depth and extent. Damaged skin, especially on areas which are visible such as the face, may also have a psychological impact.

Wound management in resource-poor countries can be challenging due to lack of up to date knowledge and lack of medications and equipment. A Ghanaian study observed that hygiene and wound care deficiencies were a major cause of deterioration of wounds, in addition to a lack of identifying complicating underlying conditions¹.

METHOD

Assessing the patient

It is very important to assess the general health of the patient for factors which may influence the wound's ability to heal and to give any prophylactic treatment if required. For example:

- **Pain** control is sometimes not perceived as an important component of wound management, yet pain inhibits wound healing due to production of stress hormones that delay the inflammatory response and thereby healing. Pain also impairs the patients' quality of life leading to reduced appetite and sleep deprivation, which further aggravate the stress responses.
- **Underlying Disease:** Anaemia, for example, results in delayed wound healing, due to its impact on tissue oxygenation. Diabetes is one of the most frequent adverse factors that impairs wound healing
- **Nutrition** plays a key role in the pathology of wound healing. Wounds place a high metabolic demand on patients, so it is important that they receive adequate calories to redress the balance and prevent malnutrition. It is not the quantity of food that is important, but the quality.

Diets rich in protein and Vitamin C have been shown to promote wound healing.

- **Smoking** decreases tissue oxygenation and delays wound healing.
- **Medications** may affect wound healing; for example, warfarin, an anti-coagulant, may make the wound bleed more easily.

Assessing the wound

Wound assessment should be undertaken systematically and documented initially and at frequent intervals to ascertain if the wound is healing as expected and to act as a record for other clinicians who may attend to the wound. The assessment should include:

- The **cause** of the wound, such as trauma, pressure, post-operative, burn or diabetes. If the wound has been contaminated with soil, tetanus toxoid (vaccine) may be required. If the wound is caused by a bite from a rabid animal, rabies immunoglobulin/vaccine may be necessary. Burns result in loss of body fluids which require replacing either orally or intravenously.
- The **size** of the wound, including its depth.
- The amount and type of **exudate**. Normal exudate is thin and pale in colour. If it is thick, coloured or smells, it is infected.
- The condition of the **surrounding skin**. Excess exudate will cause the surrounding skin to become macerated (wet) leading to skin breakdown.
- The state of the wound **margins**. Raised wound edges may indicate malignancy and undermined wound edges suggest a Buruli Ulcer.
- The **type** of wound (figures 1-6):



Fig 1. Necrotic wound – typified by black/grey necrotic tissue.



Fig 2. Sloughy wound – a mixture of dead white blood cells, dead bacteria, necrotic and fibrous tissue.



Fig 3. Sloughy wound – a mixture of dead white blood cells, dead bacteria, necrotic and fibrous tissue.



Fig 4. Granulating wound - typified by pink /pale mauve coloured tissue.



Fig 5. Epithelizing wound - new pink tissue.



Fig 6. Malignant wound - often with raised edges, bleeds easily and emits an offensive odour indicating infection or colonisation by bacteria.

There may be a combination of different wound types within a wound as shown in figures 1-5. If so, record the percentage of each type for example 80% granulating and 20% epithelizing.

Burns

Burns are damage to skin and deeper tissue caused by contact with fire (such as that required for cooking), heat, electricity, radiation, or caustic chemicals. Burns are classified according to depth and extent of skin damage (figures 7-9).



Fig 7. First degree burn. Skin is red, painful and sensitive to touch. Damaged skin may be slightly moist from leakage of the fluid in the deeper layers of the skin.



Fig 8. Second degree burn. The damage is deeper and blisters usually appear on the skin which is very painful and sensitive.

Fig 9. Third degree burn. Tissues in all skin layers are dead. Usually there are no blisters. The burnt surface can appear normal, white, black (charred), or bright red from blood in the bottom of the wound. Damage to the sensory nerves in



the skin can mean that third-degree burns may be painless as the burned skin lacks sensation to touch. A skin graft is usually necessary for significant areas of third-degree burns.

The Rule of Nines (figure 10) should be used to quickly assess how much body surface area has been burned on a patient. The rule is only applied to second and third degree burns. For children over the age of one year, for each year above one, add 0.5% to each leg and subtract 1% from the head. This formula should be used until the Rule of Nines is reached. For example, a five year old child would be +2% for each leg and -4% for the head.

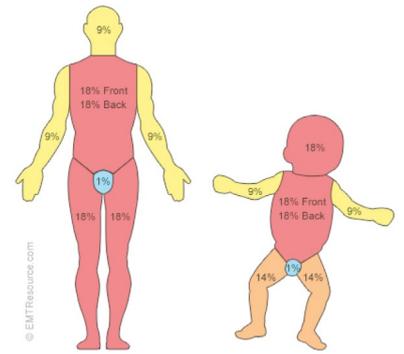


Fig 10. Rule of Nines in an adult and child.

Most second and third degree burns cause some degree of scarring. This can be minimized by early physiotherapy. This helps keep the muscles and joints of the burned limbs flexible and the scar area stretched preventing a thick, hard, tight contracture.

Cleaning and dressing the wound to optimise wound healing

Dressings should be sterile. Autoclaving is often used to achieve this (figure 11). Sterile instruments should be used to remove dressings from the drum. When not in use drum lids should be kept firmly closed to prevent dust and insects entering.



Fig 11. Autoclave drums in a Ugandan Hospital.

Dressing procedure

Administer pain relief if required to the patient prior to dressing the wound. Clean the dressing trolley or have a sterile or clean area available and a receptacle for dressing disposal. Thoroughly wash hands with soapy water for at least 20 seconds, rinse well under clean running water, dry hands using a clean towel or air dry them. Wear sterile gloves.

Clean the wound to minimise trauma when removing adherent dressing materials, remove debris, and rehydrate a wound to provide a moist environment. Drinkable quality water is used in the Western world to clean wounds²; however 42% of healthcare facilities in Africa do not have access to safe water³ and this may be true of other resource-poor areas. Boiled and cooled water may be a reasonable alternative.

Continued overleaf...

If drinkable quality water is not available, use the lotion in line with the policy of your hospital or clinic. Undiluted antiseptics such as povidone iodine and chlorhexidine gluconate are best avoided as they adversely affect wound healing. The common wound cleaning products used in resource-poor countries in my experience are:

- Sterile saline 0.9%
- Savlon Antiseptic Liquid (Cetrimide 3.0% w/v and Chlorhexidine Gluconate 0.3% w/v). A dilution of 1 in 20 is sometimes used to clean wounds.
- Povidone iodine 10% (Betadine) requires the dressing to be changed at least once a day. It is therefore recommended for use on infected wounds with low levels of exudate or wounds that need frequent dressing changes. Based on evidence from clinical trials the effect of iodine is not inferior to that of other antiseptic agents and does not impair wound healing⁴.
- Hydrogen peroxide 3% may be used at half strength for infected wounds. The surrounding skin should be protected by applying white soft paraffin. It is not recommended for irrigating deep wounds or within body cavities as air emboli have been reported⁵. It is now rarely used in the western world for wound cleansing.

Gently clean the wound from inside to out with sterile cotton wool discarding the wool after each wipe. This is to prevent harmful bacteria on the skin entering the wound and to remove any wound exudate which may be on the skin surrounding the wound. Gently irrigate the wound using a syringe if it is deep.

Dressings should keep the wound moist but not wet. In resource-poor countries sterile gauze is commonly applied directly to wounds but may cause pain and trauma unless carefully removed. For wounds with high exudate cotton wool padding is applied over the gauze. Hard black necrotic tissue requires removal before healing can occur. This can be achieved with moist dressings or by surgical debridement.

Changing the dressing every 2-3 days will normally be sufficient. Wounds with severe infections or with heavy exudate, such as burns, may require daily or three times daily changes. As wounds heal, the exudate will lessen so dressing changes may be reduced.

Dressings for burns and infected wounds

The following may be used directly on the wound and covered with sterile gauze and, if required, cotton wool to absorb exudate:

- **Vaseline gauze.** This may adhere to the wound if not changed frequently causing pain and trauma to any new tissue on removal. It has no antimicrobial properties. It is not recommended for burns.
- **Silver sulfadiazine.** This is the most broadly used treatment for the prevention of infection in patients with burn wounds. It can be used under Vaseline gauze preventing infection and allowing easier removal⁶. It should be applied in a layer about 1/16 of an inch thick, or 1.6 millimetre once or twice daily. It should not be used on premature babies or any child younger than 2 months old or during late pregnancy.

- **Honey.** This is antibacterial and anti-fungal. Medical-grade honey is recommended as raw honey can carry harmful bacteria such as clostridium botulinum which is rare but occurs when the spores get into an open wound and are able to reproduce in an anaerobic environment⁷. Honey is non-adhesive to the wound making it particularly useful for burns. For ease of application it is usually applied to the dressing first (figure 12). Typically 20 mls of honey is needed for a 10cm x 10 cm wound ensuring a layer of honey 1cm to 2 cms thick. For deeper wounds and/or very exudative wounds much more honey may be required. Only fill wound sinuses/wound cavities with the honey if you are sure they do not connect with other body structures. Ensure the honey dressing is in contact with the whole of the wound and extends beyond the wound margins by at least 0.5 cms. Cover the dressing with gauze and padding. Secure the dressing with a bandage or tape. Avoid too much tape as this may damage skin on removal. Frequent dressing changes may be required due to heavy exudate.



Fig 12. Medicinal honey from a tube being applied to gauze dressing in Ethiopia

Gauze soaked in acetic acid (vinegar) 0.5%-5% applied for ten minutes daily has been successfully used on wounds infected with *Pseudomonas aeruginosa*⁸.

Conclusion

To achieve optimum wound healing it is important to assess and document the general health of the patient and address any health needs prior to assessing and documenting the status of the wound. Re-assess the patient and wound at regular intervals, altering treatment as required. Dressings should be changed regularly to keep wounds moist but not wet. Adequate pain relief is important.

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A heartfelt thank you from the Community Skin Health Editorial Board

The CSH Editorial Board would like to express our sincere gratitude for the translation work that has been carried out on behalf of the Community Skin Health journal.

The CSH has a committed team of highly skilled dermatologists fluent in French, Spanish and Simplified Chinese who review each translation of the journal before publication. We are hugely grateful for their time, insights and expertise.

We are very excited that the journal is now being translated into each of these languages. It means that more readers than ever across the globe can now access and read the CSH.

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Dr Sam Gibbs FRCP, DTM&H

We are very sad to report the death of Sam Gibbs, for many years an active member of our Editorial Board.



After working in Tanzania for 7 years, Sam was a Consultant Dermatologist at Ipswich and, more recently, Swindon, UK. He was an editor of the Cochrane Reviews for skin and his own review of treatments for viral warts, demonstrating that liquid nitrogen conferred no significant benefit over topical therapies, has influenced clinical practice. In addition to his academic prowess, Sam was a wise physician who cared greatly for his patients and put his Christian principles into good practice. He expressed concern that modern medicine, with all its technological benefits, runs the risk of becoming depersonalized, that the art of medicine may be lost¹. Sam died peacefully at home, surrounded by his family. We have all lost a good friend.

1. Gibbs S. Losing touch with the healing art: Dermatology and the decline of pastoral doctoring. *J Am Acad Dermatol* 2000; 43:875-8.

The ***Atlas of Basic Dermatology***, by Roberto A Estrada Castañón, Maria de Guadalupe Chávez López and Guadalupe Estrada Chávez, is now available in English translation via the following link;
<http://dermatologiacomunitaria.org.mx/projects.html>

CASE 1 Answer

d) Cutaneous Botryomycosis

Cutaneous Botryomycosis is a rare condition with a misleading name. It is a chronic inflammatory response to a bacterial infection (*Staphylococcus aureus*, *Pseudomonas aeruginosa* etc.) rather than a fungal infection.

Often limited to the skin, Botryomycosis may rarely affect muscle, bone and internal organs when associated with underlying immunodeficiency. There is often a history of preceding trauma.

Diagnosis requires a high degree of clinical suspicion with microscopic/ culture evidence of bacterial growth. Histological examination of the yellow granules of Botryomycosis demonstrates clumps of bacteria surrounded by a highly eosinophilic matrix with club like projections (H&E). This appearance is referred to as the Splendore - Hoeppli phenomenon.

Treatment of Botryomycosis is with long term systemic antibiotics based on culture and sensitivity. Surgical debridement may be required.

Mr A was treated with oral trimethoprim-sulfamethoxazole for 8 weeks with complete clearance.



CASE 2 Answer

d) Cutaneous Leishmaniasis

Leishmaniasis is a vector-borne parasitic disease affecting the skin, mucous membranes or the internal organs, depending on the parasite species. An endemic disease in over 70 countries, the cutaneous form is present in Sri Lanka, caused by the species *Leishmania donovani* mon 37. Phlebotomine sand flies are considered the vector.

Cutaneous Leishmaniasis often presents as an asymptomatic cutaneous nodule, indurated plaque or a non-healing ulcer on exposed sites of the body. Mucous membranes may be affected. As there is no pain or itch, patients may be unaware of the presence of the skin lesions. Reactive photodermatitis accompanies the infection in some cases and resolves when the cutaneous Leishmaniasis heals. Slit-skin smears and skin biopsies demonstrate the parasite in the tissue confirming the clinical diagnosis.

Intralesional antimonials (sodium stibogluconate) remain the mainstay of treatment for cutaneous Leishmaniasis in Sri Lanka. Topical paromomycin, cryotherapy and heat therapy have also been used. Although simple cutaneous Leishmaniasis may heal spontaneously, treatment is often advocated to minimise scarring.



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The International Foundation for Dermatology (IFD) was created in 1987 to carry out the global health dermatology activities of the ILDS. Today, the IFD supports projects in Africa, AsiaPacific and South America. CSH is the official journal of the IFD.



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