

## Dermatology in Uganda: Experiences at the University Hospital Mbarara, Uganda

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The author, Elke Weisshaar, spent 2.5 weeks working as a dermatologist in the Department of Dermatology at the University Hospital Mbarara. Below she shares her experiences and gives us a glimpse of the Ugandan surroundings.



Uganda is an East African country and, together with Burundi, Kenya, Rwanda and Tanzania, a member of the East African Community (EAC). It covers an area of 241,139 km<sup>2</sup>, which is roughly three-quarters the area of Germany or half that of Sweden. The population, registered as 30.2 million in 2006, is increasing, and reached 40 million at the end of 2009 according to Ugandan statistics. Uganda is bordered on the east by Kenya, on the north by Sudan, on the west by the Democratic Republic of Congo, on the southwest by Rwanda, and on the south by Tanzania.

Uganda achieved independence from Great Britain in 1962 and developed a complex federalist system under the leadership of Milton Obote until 1971. From 1971 until 1979, the country was ruled by Idi Amin whose regime brought civil war, mass murder, eviction and other atrocities to the Ugandan population. It has been estimated that 300,000 Ugandans met with violent death under his regime. This era was followed by Milton Obote's second period of government (1980–1985), which was also marked by terror, civil war and conflicts between the army and various parts of the population. During Obote's second regime, some 500,000 people were killed.

Since the end of this regime, Tito Okello subsequently took government for 6 months, followed by Yoweri Museveni of the National Resistance Movement, who has held power ever since. Uganda has attempted to move towards democracy and to become, once again, the "Pearl of Africa", as Sir Winston Churchill described the country in his travel diaries.

Except for the dry northern savannah region, the Democratic Republic of Congo is fertile and has a high rainfall, which allows extensive agriculture. In the western region, on the border with Congo, there are still large areas of rainforest, which are home to the so-called mountain gorillas.

Due to its high altitude, Uganda, and with it Mbarara, has a mild tropical climate. The main rainy season lasts from mid-March to June, with a second short rainy period from October to December. The other months are relatively dry, especially in the period between June and September (Figs. 1 and 2).

### Health and medical care

Uganda has a very low income-per-person ratio and is one of the world's poorest countries. It is also one of the ten poorest



Fig. 1. Landscape around Queen Elizabeth National Park, Uganda.



Fig. 2. Landscape in South-western Uganda.

countries in Africa. This difficult financial situation is reflected in the Ugandan healthcare system. The annual national healthcare budget is lower than the annual budget of a German university hospital. Every Ugandan spends an average of only approximately 12 USD per year on health.

The most important infectious diseases in Uganda are HIV, malaria, tuberculosis, dysentery and meningitis (1). Bilharziasis is also prevalent in many regions, as are hepatitis A and B, typhoid and typhoid fever, and the venereal diseases syphilis and gonorrhoea. In the context of the African AIDS epidemic, tuberculosis has also increased. Therefore, the local population presents a high rate of infections.

Other infectious diseases to be taken into account are yellow fever, dengue fever, meningitis (caused by *Neisseria meningitides*), poliomyelitis, and rabies, which occurs predominantly in rural areas after contact with animals. Dermatoses, which have a prevalence of 32.4%, are among the most frequent diseases in Africa (2).

It is estimated that there are approximately 2000 physicians working in Uganda (3). Fewer than 10 of them are dermatologists; thus dermatological healthcare is practically non-existent in Uganda (personal communication, Grace Mulyowa, MD). Dermatology departments exist at the University Hospital of Kampala and, as described below, in the Dermatological University Hospital in Mbarara.

### University Hospital Mbarara

Mbarara is a fast-growing city in south-western Uganda with an estimated 140,000 inhabitants. After the end of the military regimes, the university was founded in 1989 as the second university in Uganda, consisting of a School of Medicine and faculties for Science and Economy. The university hospital has departments for internal medicine, including a tuberculosis ward, general surgery, paediatrics, gynaecology and obstetrics, and, thanks to the outstanding work and commitment of Gerold Jäger, MD, since September 1998, a department for dermatology. Thanks to Gerold Jäger's strong commitment and financial donations, the outpatient building today comprises four large examination rooms. In September 1999, the Georg Klingmueller Clinic for Dermatology was inaugurated. The clinic is named after Georg Klingmueller (1919–1987), Gerold Jäger's admired teacher, who worked as a dermatologist and leprologist in Würzburg, Germany. Inpatient dermatological care in Mbarara can be provided at the inpatient wards of internal medicine. The number of patients is increasing, and most patients receive outpatient care. The number of outpatients has been increasing rapidly and was estimated to have reached 5000 by 2009.

Medical care comprises a detailed dermatological examination and medical history of the patient, laboratory tests including routine testing, HIV testing, diagnostics for venereal diseases including Gram staining (dark-field microscopy), syphilis Treponema pallidum haemagglutination (TPHA) test, mycological and bacterial smears and biopsy of the skin. Biopsies are analysed in friendly cooperation with the department of dermatology in Würzburg and Lübeck (Dr Ch. Rose) Germany, and now also in the department of dermatology in Jena (medical director: Professor Peter Elsner). After conservation in formalin, the biopsies are usually transferred to Germany by German colleagues (including myself) when returning from their working stay in Mbarara.

An important issue in the department of dermatology of the University Hospital Mbarara is the education of students. A one-hour lecture is held each week. The students are strikingly interested, disciplined and extremely attentive, and they ask a lot of interesting questions. Divided into small groups, they are affiliated to the department for 4 weeks. Each student is assigned one patient each day, to examine and collect a patient history. At noon the student introduces the patient to the group. The skin is examined by the whole student group under the guidance of an experienced dermatologist, and diagnosis, relevant differential diagnoses and therapy are discussed. The patient is given the necessary medication or prescription directly during the student's teaching class. The patients are usually very shy, do not speak unless directly invited to and are highly disciplined. They are clearly very grateful for the medical attention and care they receive.

The current head of the department of dermatology is Grace K. Mulyowa, MD, who was the first physician in Uganda to be trained as a dermatologist by Gerold Jäger, MD, in cooperation with the department of dermatology in Würzburg. Further dermatological care in the Mbarara department of dermatology is provided by a clinical officer (nurse) trained in the Regional Dermatology Training Center in Moshi, Tanzania. The department is currently recruiting to a training position for medical specialization as a dermatologist.

The outpatient clinics last the whole morning and end around 1 or 2 pm. One of the reasons for this timetable is the fact that the salary of most of physicians at the university hospital is not sufficient for their upkeep, or that their salaries may not be paid for several months; thus physicians need a second or third job in order to earn a living. Therefore, the physicians in the hospital, and this is true for all disciplines, usually have a private medical office in the city centre to ensure their livelihood. Consequently, the dermatology clinics at the hospital are limited to the mornings.

## Dermatological diseases

Pruritus in acute or chronic form is the symptom most frequently reported in daily clinical practice at the department of dermatology in Mbarara. Past studies have shown that pruritic dermatoses are frequent in Uganda (3, 4). Among the most frequent itchy dermatoses are prurigo, seborrhoeic eczema, mycoses, atopic eczema and folliculites of diverse aetiology (3, 4). However, in contrast to the European patient population, pruritic dermatoses of infectious aetiology predominate in Uganda (10). The percentage of HIV-positive patients in the outpatient clinic is high, according to my own observations it is certainly approximately 40%. Pruritic papular eruption (PPE) predominates (5–8), a disease rarely seen in European countries (Fig. 3). The aetiology of this disease is not clear, a possible causation by arthropods has been suggested (6, 8). Thanks to extensive European and US support programmes, Ugandan HIV patients now have access to antiretroviral therapy. A recent US study showed folliculitis to be the most frequent cutaneous manifestation of HIV in the times of antiretroviral therapy (9). However, I did not make the same observation in Uganda. Folliculitis has various causes there, in particular the use of over-the-counter petroleum jelly (Vaseline®) products on the legs, head hair and scalp.

Remarkable for European dermatologists is the high prevalence of keloids. These may occur after ritual skin incisions or spontaneously (Fig. 4).

Children frequently present to the department of dermatology in Mbarara, predominantly with impetigo, mycosis, eczema and scabies. Younger adults often present with acne, which in a rather high number of patients involves the development of keloids, as for example acne keloidalis nuchae. Leprosy and leishmaniasis seem to be less frequent in Mbarara. At least, I saw no patients with these diseases during my two and a



Fig. 3. Pruritic papular eruption, a frequent itching skin disease in HIV infection and AIDS in Uganda.

half week stay in Mbarara. Patients with venereal diseases are also frequent among the patient population of the hospital, especially patients with condylomata accuminata.

Another noticeable difference from European dermatology is the lack of melanocytic and epithelial tumours. Among the soft tissue tumours, neurofibroma and Kaposi's sarcoma predominate. The latter is recurrent due to improved antiretroviral therapy. In Uganda, Kaposi's sarcoma is almost always related to HIV infection. Due to skin colour, the diagnosis is more difficult than in Europeans, as Kaposi's sarcoma does not show the typical livid red colour, but presents itself as diffuse infiltrations which, in Europeans, may also be considered as dermatofibroma-sarcoma protuberans.

There is no information about the prevalence of allergic diseases in Uganda. One can only speculate about the characteristics and frequency of type I allergens. It is likely that the prevalence of mould fungus and house dust mites is similar to that in Europe, but there are no reliable data regarding aero-gen allergens. For this reason, I brought prick test solutions (provided by the companies Bencard, ALK Scherax, Allergopharm, Germany) to Uganda, with the support of these companies. Several atopy prick tests were performed, but were altogether without any pathological findings. Further research needs to be done to determine whether the European test substances are relevant in Uganda.

For allergological diagnostics, since February 2009 a standard patch test has been available, provided by Professor Elsner,



Fig. 4. A large keloid on the left ear in a 40-year-old patient, possibly caused by piercing of the left earlobe.



Jena. The reading on dark skin is a challenge, as positive test reactions can be assessed only through the appearance of papules and vesicles, and by palpation. In summary, besides these two diagnostic approaches, allergology is practically non-existent at the University Hospital Mbarara. Occupational skin diseases do not appear to be frequent in Mbarara; at least I did not see a single case of hand eczema during my stay.

### Therapeutic options

Therapy for dermatological patients consists of systemic and topical medication, provided by the department of dermatology as a sample, handed out by the hospital pharmacy, or bought by the patients at a local pharmacy. The latter is not an option for most patients as they do not have the means to pay for medication.

The outpatient clinic provides hydrocortisone and betamethasone in the form of an ointment. Preparations of other classes of cortisone are not available. The most frequently administered antihistamine is cetirizine; other antihistamines are not available. The clinic was therefore grateful for samples of desloratadine and fexofenadine, as these products are well known in Uganda in the therapy of urticaria, but are not available due to their price. Antihistamines are also used as a standby medication in pruritic diseases, such as prurigo nodularis and PPE. According to a recent study, the oral antihistamine promethazine was significantly more effective against pruritus than topical steroids (10).

When treating psoriasis, dermatologists in Uganda are almost helpless. Topical anti-psoriatic medicaments, such as calcipotriol, are not available; thus the samples I had brought with me were received with gratitude, and were completely used up by the time of my departure. The dermatologists are also completely helpless in severe cases, as systemic therapeutic options such as methotrexate are practically unavailable. This is very sad because severe cases of psoriasis occur in HIV-positive patients. Interestingly, the clinical picture differs widely from those of non-HIV and European patients (Fig. 5).

As a topical therapy for pruritic diseases, for example prurigo nodularis and PPE, an ointment with 0.05% capsaicin is applied, which is provided to patients. Moisturizing skin care products, e.g. creams containing urea, are not available. Hence, skin care is left to the patients themselves, who have to find their own supplies in the local "shops". This is often problematic as the local products usually contain a high percentage of petroleum jelly (Vaseline®), which, reinforced by the climatic conditions, leads to occlusional effects on the skin, resulting in increased rates of folliculitic skin reactions.



Fig. 5. Severe psoriasis in a 32-year-old HIV-positive man.

There is a limited number of antimycotics. Topical preparations containing ketoconazole are available, as is, for example, ketoconazole shampoo. Its price is 6 USD, however, corresponding to 10,000 Ugandan Shilling. The systemic antimycotic griseofulvin is available, at a price of 15,000 Ugandan Shilling for 100 tablets. Regarding the therapy of keloids, dermatologists are more or less helpless. The only treatment option is removing the large masses of tissue, at the risk of inducing a new keloid. Small keloids are treated by intralesional injection of glucocorticosteroids; other therapeutic options do currently not exist.

### Summary and future prospects

The demand for dermatological care in Uganda is high due to the broad range and the high prevalence of dermatoses (2, 3). This is in contrast to the extremely small number of dermatologists. For this reason, the Dermatological University Hospital Mbarara is a bright star in the south-western Ugandan sky, attracting many patients from all corners of the country. The department's founder, Gerold Jäger, MD, retired from active support in summer 2004 and transferred the directorship of the clinic to Grace K. Mulyowa, MD. There is a continuous close cooperation between the dermatological hospital in Mbarara and a number of German hospitals. Thanks to the commitment of Gerold Jäger, German colleagues continue to join the Mbarara hospital for working stays, to learn about the local situation and to support the hospital in the training of the Ugandan students. Experienced dermatologists are always welcome. Interested candidates may contact Gerold Jäger at his German address (Dr Gerold Jäger, Wagnerstr. 13, DE-74722 Buchen, Germany. E-mail: [gerold@jaegerweb.net](mailto:gerold@jaegerweb.net)).

The assignment of the hospital directorship brings independence and a continuation of the work. However, the depart-

ment still depends strongly on foreign financial support. Therefore, it is very welcome that, during the Conference of the German Dermatological Society in Dresden in April 2009, an association was founded to support dermatological care in Africa ("Gesunde Haut für Afrika" – "Healthy Skin for Africa"). Donations are always gratefully received. Interested persons may contact Gerold Jäger, MD, Peter Elsner, MD, in Jena, Germany, or the author. The demand for topical therapy is especially high, as the hospital can provide this only to a very low extent. This has been funded largely by donations from the former head of the department of dermatology, Gerold Jäger, MD, since the department's foundation. The hospital also lacks the financial means to carry out essential construction work; private donations for this purpose would also be very welcome.

I can only recommend a working stay to Mbarara to every interested dermatologist. You will be deeply impressed by the broad range of dermatoses and the high significance of dermatology in the struggle against HIV and AIDS. The friendliness and gratefulness of the patients are enormous. The high level of interest and the intense attention the Ugandan students bring to their teachers are very impressive. This is something German university teachers can only dream about. In addition to financial support and the transfer of topical and systematic medication to Uganda, support for student training is a very important contribution to the development of the Ugandan healthcare system. European university teachers have the opportunity to show the Ugandan students and doctors in training photographs of dermatoses and allergological diseases that are not usually seen in Uganda, and this is always received with gratitude. Our hopes for the future are that cooperation with German hospitals will be further intensified and extended, that private donations will be made to Mbarara, and that, in April

2010, a long-desired "ointment machine" will be installed in Mbarara by "Pharmacists without Frontiers" (Apotheker ohne Grenzen e. V., <http://www.psfde.org/>) in order to provide a higher level of independence. With this ointment machine, the hospital pharmacy in Mbarara will be able to produce its own topical preparations, which are so clearly needed in daily practice in dermatology.

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