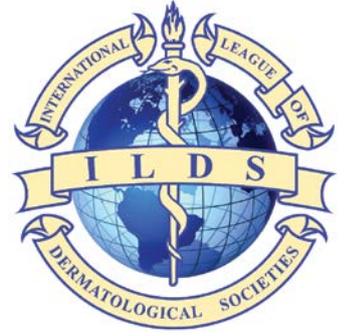


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BURULI ULCERS

present status and challenges ahead

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KEY WORDS

Buruli ulcer, Mycobacterium ulcerans, Japan, water-borne disease, mycolactone, antibiotic therapy

Buruli ulcer (BU), caused by *Mycobacterium (M.) ulcerans*, is a newly emerging disease that is not only seen in the tropics, but also in some sub-tropical or temperate climate countries. There have been significant advances in our understanding of this organism and the disease it causes, following its initial recognition a few decades ago. However several unanswered questions remain, including the route of transmission and some aspects of its pathogenesis. Treatment is now available with combinations of antibiotics but, even following successful therapy, the disease can leave a patient with life-long disabilities such as contractures and visible scars when diagnosed late. Due to its deleterious effects on children especially in West Africa, it is now considered a public health problem and listed as one of the neglected tropical diseases (NTDs). Nonetheless, the absence of easy measures for its prevention and management poses significant challenges for the control of this disease.

Epidemiology

BU cases have been reported from over 33 countries worldwide, particularly in West Africa, and Central and South America. Côte d'Ivoire, Ghana, and Benin are the top three West African countries, with a total of 20,663, 10,999, and 9,363 reported cases between 2002 and 2014, respectively.^{1,2} These account for approximately 75% of the total BU cases reported during the same period. In that region, children aged under 15 represent over 70% of the total cases.³ Interestingly, unlike many other tropical diseases, BU is also seen in countries outside the tropical climate zone. Australia,

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Fig 1. Subcutaneous nodule on abdomen.

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Fig 2. Plaque stage Buruli ulcer



Fig 3a. Deep necrotic undermined ulcer



Fig 3b. Packing a deep Buruli ulcer

a country where the first recognition of the disease was made during the late 1930s, has been reporting nearly 100 cases per year since 2011.^{1,2} Japan also reports several cases per year which have been confirmed as domestically acquired (caused by *M. ulcerans* subspecies *shinshuense*).^{4,5} However, it is known that there are still hidden BU cases due to the limited awareness of the disease and lack of reporting systems.¹ The reported figures therefore are likely an underestimate, and may not reflect the true epidemiological picture of this disease.

The mode of transmission of *M. ulcerans* is still unclear, as is the incubation period. The fact that most BU patients reside close to water sources and the distribution of BU lesion(s) (the limbs and the face) suggest direct contact with an aquatic environment to be the most probable mode of transmission. Studies have identified various aqueous insects, fish, and animals as possible reservoirs/vectors of *M. ulcerans*, but direct inoculation from the water also remains a possibility.

Clinical manifestations

BU begins with a painless dermal papule or a subcutaneous nodule, usually on the limbs, the face, or any other exposed areas on the body (Fig. 1). It gradually develops into a plaque (Fig. 2) then central erosions may develop. The disease then gradually progresses to form a deep ulcer with thick yellowish necrotic tissue and undermining, which are the characteristic features of BU (Fig. 3a, 3b). Usually, BU lesions are known to be painless or with limited pain despite their appearance. However, there are two conditions in which a patient may feel pain: one is when a bacterial superinfection of an ulcer occurs; the other one is when the lesion develops a distinctive swelling as the disease progresses, which may cause severe pain (Fig. 3a). This clinical course is usually 1 to 3 months. There have been unconfirmed reports of spontaneous healing. Systemic symptoms including fever and lymphadenopathy are rare. Osteomyelitis may sometimes happen at a late stage.

Pathogenesis

The characteristic features of BU, that is, extensive deep ulceration with thick yellowish necrotic tissue, undermining, and with no or limited pain, are known to be caused by mycolactone⁶, a polyketide-derived macrolide, which is a lipid toxin produced and secreted by *M. ulcerans*. Its major functions are:

- Cytotoxicity: Cell cycle arrest, necrosis and apoptosis of skin tissue cells leading to ulceration.^{6,11} The phenomenon mainly occurs in the subcutaneous fatty tissue as that is where *M. ulcerans* proliferate, hence the deep ulcer with undermining.
- Immunosuppression: Various cytokines, chemokines, and cell surface receptors needed for leukocyte migration and/or immune activation are significantly down-regulated in a BU lesion.^{8,12} This increases the cytotoxic effect of mycolactone 10-fold.⁷ When a BU lesion is observed histopathologically, one of the most



Fig 4. Scarring and limb contracture

striking features is lack of inflammatory cell infiltration around the lesion. The paucity of inflammatory cells correlates with the absence of pain.

- Inhibition of protein synthesis / cytokine secretion: This appears to enhance both the cytotoxicity and the immunosuppressive effects of mycolactone.

Diagnosis

Diagnosis can be made clinically in endemic areas given the distinctive clinical features of this disease. However, there is a wide range of causes for ulcer formation, and therefore polymerase chain reaction (PCR) to detect the insertion sequence IS2404 (specific to *M. ulcerans*), is now recommended by the World Health Organization (WHO) for all cases for a confirmation of diagnosis.¹³⁻¹⁶ Unfortunately, easier and less expensive methods to detect and to specify *M. ulcerans* are still under development. These would be better suited for use in countries where BU is most endemic. If available, culture and histopathology will aid to increase the accuracy of diagnosis.

Treatment

Several combinations of antibiotics are known to be effective against *M. ulcerans*. A combination of oral rifampicin (RFP) and intramuscular streptomycin (SM) for an 8-week course was recommended by the WHO since 2004.¹⁷ Although it was effective, it has raised concerns given the toxicity of SM (nephrotoxicity and hearing impairment), and the safety and logistic challenges of its administration, given poor access to health facilities and need for patient education to ensure adherence. As BU affects mainly children under the age of 15 years, these treatment-related toxicities may have a major impact on their future lives. So, a search for an easily administered and better tolerated treatment – with oral antibiotics and perhaps a shorter duration – is in progress. Some promising results have been reported for a combination of oral RFP with either clarithromycin (CAM) or fluoroquinolone (moxifloxacin or ciprofloxacin) and a combination with RFP, CAM and levofloxacin.^{18,19} However, some of these antibiotics do not have established safety in children, and a continuing effort is needed in this search. *Continued overleaf...*

Surgical intervention including debridement and skin grafting is another important element in treating advanced BU cases in combination with antibiotics. Indication of surgery, however, should be carefully considered because it is now known that antibiotic treatment alone is sufficient to achieve microbiological cure. It is only after the antibiotic treatment has been given (ideally more than 4 weeks) that surgical intervention should be performed if a patient is not showing improvement.²⁰ Proper wound care would also aid the healing process, and this should not be neglected when treating BU cases.

During the course of antibiotic treatment, a patient may experience a deterioration of the original lesion or a development of a new lesion on a different part of the body. This condition is now known as paradoxical reactions, and it is a host inflammatory response to *M. ulcerans*.²¹ It may also occur long after antibiotic treatment if fragments of the bacilli remain inside the body.²² It is difficult to differentiate recurrence or relapse from paradoxical reactions, but if tissue cultures or swab samples are taken, they usually are negative in these lesions. PCR results may turn positive in some cases. Paradoxical reactions may require the use of prednisolone.

It is essential to diagnose and treat BU cases as early as possible, ideally before ulceration; when a patient develops an ulcer, it takes longer to heal and may lead to life-long disability and scarring. (Fig. 4).

Prevention

Some protection against BU has been observed with *M. bovis* bacillus Calmette-Guérin (BCG) vaccination.^{23,24} However, there is as yet no established definite measure for preventing the disease. At present, the only preventative measures that can be taken are to avoid risky behaviors (swimming, fishing, agricultural works, etc.) and environmental contacts in endemic areas.

Conclusions

Introduction of antibiotic treatment in 2004 has made a big change in management of BU and ultimately changed the lives of those affected. Now, fewer patients need surgical interventions and amputations are no longer a treatment option. In order to achieve further improvement in the fight against BU, we need to understand the mode of transmission of the disease in order to establish preventative measures, a better antibiotic regimen to increase the quality of life of those affected but also for a better outcome, and development of easier and reliable diagnostic tools. In recent years, attention for NTDs has increased, but this attention mainly goes to such diseases that can be prevented with mass drug administrations including onchocerciasis, lymphatic filariasis, and schistosomiasis. With the absence of definitive measures to control the disease and also with limited number of patients, BU remains the neglected among the neglected. However, new strategies could bring about another big change in the control of this disabling disease.

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MANAGEMENT OF KAPOSI'S SARCOMA

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Introduction

Kaposi's sarcoma (KS) is a malignancy of the lymphatic endothelium resulting in angioproliferative lesions, which most commonly involve the skin. It is associated with Human Herpes Virus type 8 (HHV8), which is also known as Kaposi's sarcoma-associated herpes virus (KSHV). African endemic KS, which is unrelated to HIV infection, was first described in the 1950s. Before the emergence of HIV infection African endemic KS comprised less than 10% of all malignancies in sub-Saharan Africa (SSA). KS is the most common malignancy associated with HIV (HIV-KS) and with the HIV pandemic it is now the most frequently reported malignancy in some African countries, particularly where there is poor access to anti-retroviral therapy (ART).^{1,2} This article focuses on KS in SSA and describes treatment of KS at 2 principal centres for dermatology and oncology: Nelson Mandela School of Medicine in KwaZulu-Natal, South Africa, and the Uganda Cancer Institute in Kampala, Uganda.

Clinical features

Cutaneous KS usually presents with violaceous symmetrical macules, papules or nodules, which are usually asymptomatic. However, some lesions can be tumourous, vegetative or exophytic and these can be complicated by ulceration, bleeding, and secondary bacterial infection. KS is commonly associated with non-pitting oedema, which signifies lymphoedema, which most commonly involves the face, genitals, and limbs. KS lymphoedema can become painful and cause functional impairment. Visceral KS can lead to severe complications associated with bleeding and obstruction. The lymph nodes are the most commonly involved extra-cutaneous site followed by the gastrointestinal (GI) tract. Oral mucosal involvement, which particularly affects the hard palate, gingivae and tongue can be a useful indicator of visceral involvement and is believed to be associated with a worse prognosis. Pulmonary KS, although less common, is associated with the worst prognosis and can be life-threatening if patients develop acute airway obstruction. Systemic GI, pulmonary, and

KEY WORDS

Kaposi's sarcoma, skin, sub-Saharan Africa, HIV, human herpes virus 8, lymphatic malignancy, antiretroviral therapy.

lymphadenopathic KS may occur in the absence of skin lesions.

African endemic KS versus HIV-KS

These 2 clinical variants differ in epidemiology and prognosis.

African endemic KS has a distinct geographical distribution: it is most common in the equatorial belt of SSA, particularly East of the Democratic Republic of Congo, Western Kenya, Northern Tanzania, and throughout Uganda - all areas bordering Lake Victoria. It is uncommon in West Africa and occurs only sporadically north of the Sahara. It is a slowly progressive disease, which occurs most commonly on the legs in association with lymphoedema (figure 1). It is similar to 'classical KS', which is seen in Europe and North America, but occurs in a much younger age group. A subset of cases behaves aggressively and can be associated with systemic disease. A rare lymphadenopathic form of African endemic KS occurs in prepubescent children: it is associated with systemic disease is usually fatal.³

HIV-KS is an AIDS-defining diagnosis irrespective of the CD4 count. Its prevalence is related to HIV seroprevalence, HHV8 seroprevalence, and access to HAART. Cutaneous HIV-KS is the most common clinical presentation in adults whereas children more commonly present with enlarged lymph nodes. HIV-KS occurs at any CD4 count but is more common with advancing HIV immunosuppression and lower CD4 counts when it can be an aggressive disease associated with significant morbidity and mortality. Prior to the availability of HAART in SSA, the 12 month overall survival of HIV-KS was only 30-40%.⁴ Since the introduction of HAART there has been a general decline in HIV-KS incidence and a significant improvement in survival of patients with established HIV-KS.⁵ Although HAART can lead to a regression of KS it can also paradoxically be the cause of KS, a phenomenon known as immune reconstitution inflammatory syndrome (IRIS)-associated KS.⁶

IRIS-associated KS

IRIS-KS describes a paradoxical worsening of existing KS or the development of KS for the first time after the successful initiation of HAART in HIV patients (figure 2). It is associated with rapidly declining viral loads and improving CD4 counts. The risk of IRIS is highest amongst HIV patients who are commenced on HAART with low baseline CD4 counts, usually less than 200. The prevalence of IRIS-KS in SSA is 7%-31%. Onset is between 1-22 weeks but usually occurs within the first 3 months after ART initiation. IRIS-KS can present with rapid enlargement of existing cutaneous KS lesions and/or worsening of KS-associated oedema. IRIS-KS is associated

Continued overleaf...

Management of Kaposi's sarcoma *continued*

with a high risk of gastrointestinal and pulmonary involvement. HAART must still be continued in these patients.^{6,7}

Diagnosis

The cutaneous lesions of KS are often easily recognizable and pathognomonic. However, there is a wide differential diagnosis of cutaneous angiomatous lesions and diseases such as bacillary angiomatosis, lymphoma, haemangiomas, sarcoidosis, vasculitis and others have been misdiagnosed as KS. Therefore, if possible, a biopsy is recommended to confirm the diagnosis of KS. In resource-limited settings stools are usually evaluated for occult blood to screen for GI involvement. GI endoscopy establishes the diagnosis. Similarly a chest X-ray may identify pulmonary involvement, which can be confirmed by CT scan but a definitive diagnosis is obtained by bronchoscopy. An ultrasound may be useful to identify hepatosplenomegaly secondary to KS.

The most widely accepted staging system for HIV-KS in adults is the AIDS Clinical Trials Group (ACTG) criteria which classifies disease according to three criteria: tumour extent, immune status, and associated systemic illness, each of which is subdivided into good and poor risk indicators (table 1).⁸ The ACTG criteria originally used a CD4 count of 200 cells/ μ l to define good and poor risk but many studies today have modified this to 150 cells/ μ l.

Table 1. ACTG criteria for staging HIV-KS

	Good risk All of the following	Poor risk Any of the following
Tumour	Cutaneous KS and/or Lymph KS and/or Minimal oral KS	Cutaneous KS with ulceration KS lymphoedema Extensive oral KS GI KS KS in other non-nodal viscera
CD4 count (cells/ μ l)	≥ 150	≥ 150
Systemic illness	No history OI/ thrush No 'B' symptoms Karnofsky performance status ≥ 70	History of OI and/or thrush 'B' symptoms Karnofsky performance status ≤ 70 Other HIV illness (CNS/ cancer)

OI: Opportunistic infections

Treatment

KS can be treated with local or systemic cytotoxic chemotherapy and radiotherapy. In the case of HIV-KS, HAART alone can lead to a regression of KS as it reverses HIV immunosuppression and protease inhibitors have anti-angiogenic effects. HIV-KS is an indication for initiation of HAART irrespective of the CD4 count and early initiation of HAART considerably improves the prognosis of HIV-KS.

Treatment for cutaneous KS is indicated if it is associated with complications such as ulceration and bleeding. Systemic cytotoxic chemotherapy is necessary for advanced KS at risk of complications. This includes symptomatic visceral disease, IRIS-KS, and extensive and severe lymphoedema. Radiotherapy

can treat large, troublesome cutaneous lesions, localized painful lymphoedema and airways obstruction secondary to pulmonary KS. In some centres chemotherapy is deferred in patients with low CD4 counts who may not tolerate it until their CD4 count improves with HAART: radiotherapy may be given in the interim period to palliate these patients.

Studies have shown that HAART in combination with chemotherapy demonstrates greater efficacy in reducing HIV-KS progression compared to HAART alone in patients with severe or progressive KS. Several studies have demonstrated the efficacy of liposomal doxorubicin, liposomal daunorubicin, and paclitaxel in patients on HAART.⁹ However these drugs are unavailable in resource-limited regions where instead first line therapy still consists of combinations of vincristine, doxorubicin, and bleomycin (ABV). A randomized control trial using ABV with HAART in South Africa demonstrated 77% overall survival.⁵ When combination chemotherapy is not available, single agent vincristine is used. Oral etoposide is also used when intravenous drug therapy is not available or possible because of limitations of resource.

Management of KS at the Uganda Cancer Institute, Uganda

KS is the third most common cancer in Uganda in both men and women.¹⁰ At the Uganda Cancer Institute, 90% of KS cases are HIV-KS, the rest being endemic KS. ACTG staging is used and almost 60% of HIV-KS present with T1 stage disease.^{1,2}

Treatment of HIV-KS

Patients are initiated on HAART if not already on HAART. First line systemic chemotherapy is combination bleomycin and vincristine (BV). Adriamycin containing-combination ABV is not used primarily because it is costly and also because of associated toxicity. Six cycles of BV are administered at 2 weekly intervals and patients' responses are assessed after three and six cycles. Response is defined as reduction in number and size of KS lesions, reduction KS-associated oedema, and resolution of respiratory symptoms in those patients with pulmonary KS. Second line systemic chemotherapy is six cycles of paclitaxel 100mg/m². We observe a 30–60% response rate with these chemotherapy regimens.¹¹ In exceptional circumstances when patients can afford the cost of treatment pegylated liposomal doxorubicin is used. In patients with pulmonary KS, we use weekly single agent vincristine, which demonstrates good efficacy with minimal toxicity. As the pulmonary KS regresses and oxygen requirements reduce, we switch to BV. We are currently comparing the relative efficacies of BV, paclitaxel, and oral etoposide in an ACTG sponsored clinical trial. Radiotherapy is an option for localized disease only.

Treatment of endemic KS

Localized disease is treated with radiotherapy. More extensive disease is treated with systemic chemotherapy. The first line agent is the taxane paclitaxel as it is more efficacious than BV. Although there are publications reporting 100% response rates for classic KS using taxanes¹² there are no published studies describing treatment of endemic KS with taxanes. At the Uganda Cancer Institute, we have seen an overall treatment response rate of 10–30% with paclitaxel for endemic KS (unpublished).

Treatment of KS-lymphoedema

This often remains a problem in spite of chemotherapy and radiotherapy. It can cause significant physical disability as it limits joint movement. We offer physical therapy and rehabilitation to improve mobility.

Management of KS at Nelson Mandela School of Medicine, South Africa

Treatment of HIV-KS

Similar to the Uganda Cancer Institute our patients with HIV-KS undergo biopsy confirmation of their KS and are initiated on HAART. Patients are assessed based on the extent of KS lesions, concomitant TB, and CD4 counts. Radiotherapy is used for localized fungating or bleeding lesions. Chemotherapy is the best option for the majority of HIV patients with extensive cutaneous KS, lymphoedema, oral and visceral KS. However, if they have TB, chemotherapy for HIV-KS is deferred until they complete anti-TB therapy. Because of the high burden of HIV-KS in our setting and difficulties in administering parenteral drugs, our first line chemotherapy agent is oral etoposide for patients with 'good risk' HIV-KS based on the ACTG criteria. Patients receive 50-100mg etoposide daily for 21 days before returning to be assessed for haematological toxicity. If patients demonstrate good response without toxicity, daily etoposide is continued until KS resolves. If patients have 'poor risk' HIV-KS they receive ABV 3 weekly for approximately 6 cycles. Due to the risk of cardiotoxicity with adriamycin, patients are assessed with MUGA scans at baseline. Poor responders to ABV receive paclitaxel every 3 weeks for 6 cycles.

Treatment of IRIS-KS

The risk of IRIS-KS is high in SSA due to advanced HIV immunosuppression at the time of HAART initiation in the majority of patients. Therefore patients should be warned that their existing KS may deteriorate or they may develop new skin lesions and symptoms. Healthcare professionals need to recognize IRIS-KS especially pulmonary KS, which can be fatal. Patients should not be given steroids but require chemotherapy whilst continuing HAART. Thorough screening with chest xray, sputum, and chest CT scan is important to exclude underlying TB and pulmonary KS before initiating HAART.

In conclusion, HAART is mandatory for all HIV-KS patients. The ACTG criteria are used to define prognosis. In resource-limited



Fig 1. Endemic KS (courtesy of Dr Alex Bakenga)



Fig 2. IRIS-KS: Patient developed KS within 3 months of commencing HAART

regions of SSA, chemotherapy regimens for HIV-KS are determined by availability, practicability, and affordability. Education of healthcare workers is important as early recognition ensures better outcomes.

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JOURNAL CLUB

Tania M. Gonzalez-Santiago MD and Lisa A. Drage MD

Dermatologic Clinics

Volume 33, Issue 3, (July 2015)

Granulomatous Disorders of Adult Skin

Edited by Joseph C. English

Nontuberculous Mycobacteria: Skin and Soft Tissue Infections

Review Article: Pages 563-577

This extensive review article discusses the increasing incidence of skin and soft tissue infections caused by environmental non tuberculous mycobacteria. The usual presentation of each type is set out clearly, i.e. abscesses, sporotrichoid nodules or ulcers. It is good that the also less distinctive signs are included. The different types of organisms are reviewed and the clinical signs of each type of organism clearly presented. The slow-growing mycobacteria described include - *Mycobacterium marinum*, *Mycobacterium ulcerans*, *Mycobacterium kansasii*

and *Mycobacterium haemophilum*. The rapid growing types include *Mycobacterium fortuitum*, *Mycobacterium abscessus* and *Mycobacterium chelonae*.

There are helpful descriptions of different predisposing factors for each species. For example *M marinum* is seen in immunocompetent patients with minor trauma followed by exposure to fresh or salt water. This may be in the course of employment and/or hobbies with exposure to a marine environment or aquatic animals (fish, shells, aquaria). In contrast *M kansasii* is usually seen in immunocompromised patients after local trauma followed by exposure to contaminated water. The importance of obtaining tissue for mycobacterial culture and histopathology to aid diagnosis is emphasized.

Optimal therapy is not well-established, but is species-dependent and generally dictated by susceptibility studies. Management often includes use of multiple antibiotics for several months and potential use of adjunctive surgery.

P K Buxton 14.XII.2015

BOOK REVIEW

Critical Care in Dermatology

Authors. Arun C Inamadar and Aparna Palit, pp 259, 2013

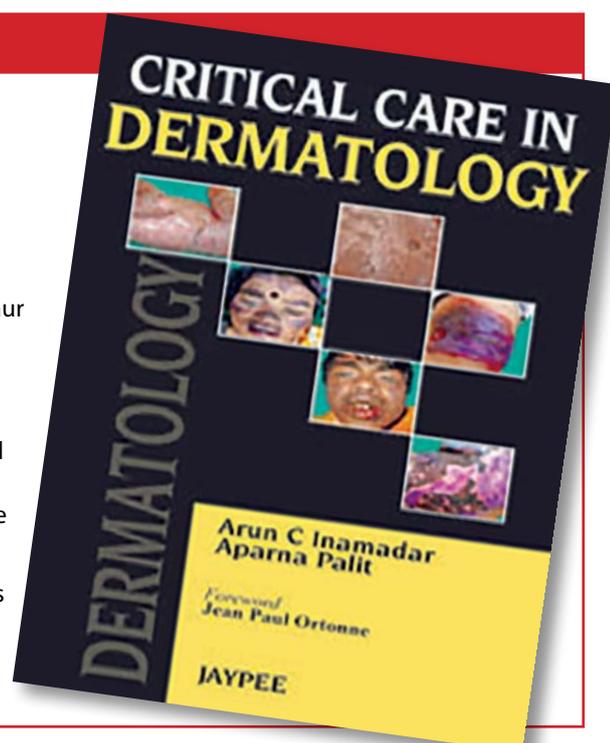
Jaypee Brothers Medical Publishers(p) Ltd, New Delhi, India
www.jaypeebrothers.com \$60.

This excellent pocket book has 10 authors and manages dermatological emergencies with authority and in sufficient detail. Its authors include Vineet Kaur and Laxmi Nair, who lead India's upgrading of dermatology nursing.

The disorders managed include psoriasis, adverse drug reactions, anaphylaxis, collagen vascular disorders, vesiculobullous disorders, bites, stings, acute graft versus host disease and leprosy reactions. The provision of fluid, electrolytes and nutrition, drugs used in pregnancy and lactation or in children are covered as used in emergencies. Clinical and laboratory procedures and techniques and the use of the intensive care unit are well covered.

The layout of the book is easy to read, the index is full and the many illustrations are excellent. It is one of my most favoured additions to my library.

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HAZARDS OF STEROID-CONTAINING LIGHTENING CREAMS

An Indian perspective easily recognizable in all developing countries.

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This is a short review of topical steroid containing combination creams (TSC) and their unpleasant and hazardous consequences based upon the current scenario in India. We presume, after random enquiries and reviewing the literature, that a similar or worse situation prevails in many other resource-poor countries.

In India, preparations containing topical steroids, especially potent fluorinated steroids, are available to all. They are used for wide ranging skin ailments, the commonest and the most alarming being superficial fungal infections, and as skin lightening creams. The popularity of these drugs is owing to their free availability at the pharmacists who sell them as over the counter drugs.

Pharmacists often suggest these drugs to people who come to them and describe their symptoms and thereby double up as retailers as well as primary skin care personnel without any qualifications or training to do so. Once they are purchased they most commonly get refilled or circulated to relatives and friends of the primary user. Topical steroid combinations are nonchalantly prescribed by "general practitioners", a category that includes hundreds of thousands of people who practice as family practitioners despite being formally qualified in homeopathy or ayurvedic medicine. India has, for the past few years, been facing an epidemic of sorts of difficult to treat and extensive fungal infections and one of the most important reasons is the widespread use of topical steroid containing combinations that are irrational and needless to say hazardous, such as the ridiculous combination of clobetasol+ornidazole+ofloxacin+

KEY WORDS

topical corticosteroids, steroid potency, skin lightening, pigmentation, tinea, resource-poor regions

Topical steroid class	Topical steroid class	Common representative topical steroids	Indications
American classification	British classification		
I Superpotent corticosteroids	I Very potent	Clobetasol propionate 0.05% cream or ointment Halobetasol propionate 0.05% cream or ointment	Alopecia areata Atopic dermatitis (resistant) Discoid lupus
II Potent corticosteroids	II Potent	Betamethasone dipropionate 0.05% ointment Betamethasone dipropionate 0.05% cream Fluocinonide 0.05% ointment Halcinonide 0.1% cream Mometasone furoate 0.1% ointment	Hyperkeratotic eczema Lichen planus Lichen sclerosus (skin) Lichen simplex chronicus Nummular eczema
III Upper mid-strength corticosteroids		Betamethasone dipropionate 0.05% lotion Fluticasone propionate 0.005% ointment Triamcinolone acetonide 0.1% ointment Halometasone 0.05% cream	Psoriasis Severe hand eczema
IV Mid-strength corticosteroids		Fluocinolone acetonide 0.025% ointment Mometasone furoate 0.1% cream or lotion	Asteatotic eczema Atopic dermatitis
V Lower mid-strength corticosteroids	III Moderate	Betamethasone valerate 0.1% cream Fluocinolone acetonide 0.025% cream Fluticasone propionate 0.05% cream Hydrocortisone butyrate 0.1% cream	Lichen sclerosus (vulva) Nummular eczema Scabies (after scabicide) Seborrheic dermatitis Severe dermatitis Severe intertrigo (short-term) Stasis dermatitis
VI Mild corticosteroids		Alclometasone dipropionate 0.05% cream or ointment Desonide 0.05% cream Fluocinolone acetonide 0.01% cream Triamcinolone acetonide 0.025% cream	Dermatitis (diaper) Dermatitis (eyelids) Dermatitis (face) Intertrigo Perianal inflammation
VII Least potent corticosteroids	IV Mild	Hydrocortisone 1% or 2.5% cream, 1% or 2.5% lotion, or 1% 2.5% ointment Hydrocortisone acetate (1% or 2.5% cream, 1% or 2.5% lotion, or	

Courtesy *Adapted from Ference JD, Last AR. Choosing topical corticosteroids. Am Fam Physician 2009;79:135-140

Continued overleaf...



Fig 1. Inappropriate use of a potent topical steroid on the groin of an infant



Fig 3. Pustules on the trunk caused by potent topical steroid.



Fig 2a (above) Fig 2b (below). Facial pustulation following use of a potent topical steroid



Fig 4. Telangiectasia caused by potent topical steroid.

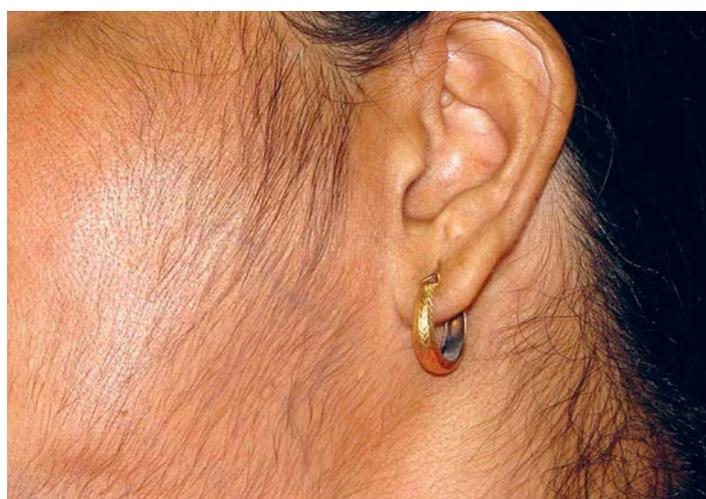


Fig 5. Topical steroid – induced hirsutism.



Fig 6a (above) 6b (below). Topical steroid-induced striae.

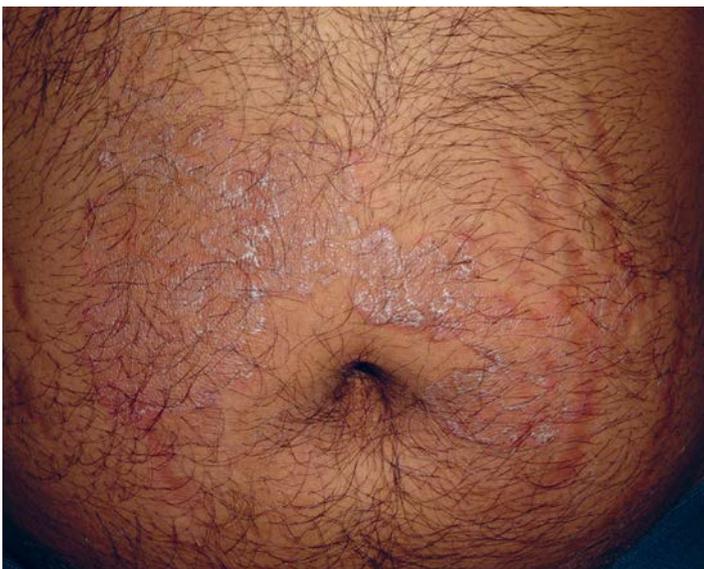


Fig 7. Striae and tinea associated with topical steroids.

terbinafine which has been the top selling combination product in India the past two years. One wonders how and on what basis these products are allowed to be manufactured and sold and this is only because of the drug control authorities who have allowed this

situation to go out of control either due to corruption, ignorance or both. Pharmaceutical companies are quick to take advantage of loop holes that are easy to find in the drug laws. Once permission has been granted to one company to manufacture a product like this other companies waste no time in marketing their own similar brands that are sold widely. Lack of knowledge of skin related drugs in the drug control department as well as in the population and the ignorance of the importance of dermatology all contribute to the chaos that prevails in India today. We are sure that it is the same in other countries with similar problems. Potent steroids are also added for treatment of pigmentary disorders in India and such preparations are also very popular in most countries with a dark population like Africa and South America. Dark skinned people are extremely colour conscious. Most want to attain a fairer/lighter skin, which is a biological impossibility, but are often willing to go to any length to try topical medications or have cosmetic procedures in beauty parlours and salons or with dermatologists. Such is the social pressure to attain a 'fair and flawless' skin that the original Kligman formula (dexamethasone+tretinoin+hydroquinone) for treatment of localized acquired pigmentation like melasma (with its newer modification of replacing dexamethasone with fluocinolone acetonide 0.01%) has been replaced by the much more potent steroid, mometasone-containing creams. These have suggestive names implying that they be used for lightening the complexion of the user. Though this is unscientific, irrational and dangerous, companies continue to make these products and also advertise them in the media. This has led to multiple temporary and permanent side effects.

Antibiotic and antifungal resistance are becoming issues of increasing importance and such local combinations containing topical steroids with antibacterials should not be forgotten.

There are many side effects of topical steroids which can either be temporary or permanent and knowledge of the relative potencies of topical steroids is important. Table 1 is an important tool for general practitioners, non dermatology colleagues, and health care workers who provide primary care in rural areas.

Certain important points need to be considered by the non dermatologists while prescribing steroids and their combinations. One should avoid the temptation to prescribing combined creams containing potent steroids. It is important to explain to the patient the dangers of such preparations. On the other hand, a mild topical steroid combined with an antifungal may be useful initially to mitigate the symptoms of inflammation like redness, itching and oozing. However we do not advocate these either because once they are brought into a household they can be repurchased as per the patient's wish in developing countries. It then becomes akin to a gun in a child's hand.

To summarise:

- 1) **No** topical steroids should be used without consulting a physician who is aware of the classification of steroids.
- 2) Steroids should be prescribed for **as short a time** as possible. They should be applied in small quantities and not more than twice a day. Often once a day application has the same beneficial effect as compared to twice a day.
- 3) Steroids should not be shared with others under any circumstances.

Photographs courtesy of the author, Koushik Lahiri and Resham Vasani



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Eve Arnold

We are sorry to say goodbye to Eve, who has administered the IFD, almost since its inception. She has supported the work of the journal in many ways, including its distribution lists and finances, always with good humour, enthusiasm and tact! We wish her a happy, healthy and peaceful retirement. CRL.

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