The opinions or assertions contained herein are the private views of the author, and are not to be construed as official, or as reflecting true views of the Department of the Army or the Department of Defense. Research was conducted in an AAALACi accredited facility in compliance with the Animal Welfare Act and other federal statutes and regulations relating to animals and experiments involving animals and adheres to principles stated in the Guide for the Care and Use of Laboratory Animals, NRC Publication, 2011 edition.
Tropical Dermatology

... the skin diseases that one sees when traveling
Tropical Dermatology

... and the skin diseases one sees in returned travelers
Tropical Dermatology

General dermatology
Infectious Disease
Common dermatoses in rural, tropical, developing nations

- Eczematous dermatitis
- Infestations
- Pyodermas
- Superficial fungal infections
- Pigmentary disorders
Herpes Zoster
Leishmaniasis
Dermatophytosis – Tinea Corporis
Eczema herpeticum
Leishmaniasis
Dermatophytosis – Tinea Capitis

Histoplasmosis
Eczematous dermatitis
Eczematous dermatitis

- Bathing Instructions
- Lubrication is key – emollients/vaseline
- Bleach baths
- Topical steroids for flares
You are stationed at a refugee camp in southern Africa. This 32 yo woman presents with a symmetric dermatitis of the face, upper chest, and arms.
Pellagra (niacin deficiency)

Dermatitis
Dementia
Diarrhea

Treatment:

• Correct malnutrition, especially protein
• Nicotinamide 100 mg TID for several weeks (skin should improve within 24 hours)
• Correct electrolyte loss
Scabies

Intraepidermal infestation by *Sarcoptes scabei*
Child and her mother
Nodular scabies
Scabies

• Scabies leads to secondary streptococcal infection

• Post-streptococal glomerulonephritis is a major cause of renal failure in tropical, developing nations

• There is huge morbidity, mortality, and economic costs

Hypertension $\rightarrow$ stroke
Hematuria $\rightarrow$ anemia $\rightarrow$ poor maternal outcome
Proteinuria $\rightarrow$ hypoalbuminemia $\rightarrow$ worsens malnutrition
Pediculosis Capitis - Head Lice
Pediculosis Pubis
Pubic Lice
Pediculosis Corporis - Body Lice
Scabies / Lice

• Disinfect all clothing and bedding
• Treat entire family
• Topical Rx: Permethrin 5% cream, benzyl alcohol 5%, precipitated sulfur 10% in petrolatum, Pyrethrin Systemic Rx: Ivermectin 0.2 mg / kg as a single dose
• Repeat treatment (topical or systemic) in one week
• Itch can continue for weeks until the skin clears the dead mites
Bacterial Pyoderma - MRSA abscess
Bacterial Pyodermas
Bacterial Pyodermas

- It is probably *Staph aureus*
- If tender and fluctuant --> incise, drain, and leave open
- Dicloxacillin 500 mg PO QID for 2 weeks
- Doxycycline 100 mg PO BID for 3-4 weeks for MRSA (also Septra and Clindamycin)
Dermatophytosis - Tinea Corporis
Tinea Manuum

"Two foot, One Hand"

Tinea Pedis
Tinea Infections

- Clinical diagnosis
- KOH if possible
- Topical terbinafine or azole BID until clear, then for one more week (usually 4-6 weeks)
- Oral terbinafine 250 mg PO daily x 10-20 days
37yo woman noticed light spots on her chest

- Tinea versicolor or Pityriasis versicolor
- Ubiquitous fungal organism (*Malessezia furfur* or *Pityrosporum ovale*)
- Treat with Azoles (oral or topical), selenium shampoos
Postinflammatory hypo- and hyperpigmentation
28yo Zambian woman with asymptomatic, hypopigmented plaque on thigh
Hansen’s disease - Leprosy

- It may be **HANSEN’S DISEASE**.
- Hansen’s Disease is caused by a bacteria (germ).
- It affects the skin and can damage the nerves.
- If Hansen’s Disease goes untreated, feelings in the hands and feet will be lost.
- Bruises, ulcers and other damaged skin can result from loss of feeling.
- Other disabilities can occur.
• Atypical mycobacterial infection of cutaneous nerves. Invades lipid-laden myelin in cooler regions of body.

• Causes motor and sensory deficits.
Varicella
Variola (Smallpox)
Monkeypox

Monkeypox is a rare disease that is caused by infection with monkeypox virus, similar to smallpox, but with swollen lymph nodes.

Lymphadenopathy is a distinguishing feature of monkeypox from smallpox.

The incubation period (time from infection to symptoms) for monkeypox is usually 7–14 days but can range from 5–21 days. Pt may be asymptomatic during this time.

http://www.cdc.gov/poxvirus/monkeypox/symptoms.html
Prodrome
Persons with monkeypox will develop an early set of symptoms. A person may sometimes be contagious during this period.
The **first symptoms** include fever, malaise, headache, sometimes sore throat and cough, and lymphadenopathy.

This typically occurs with fever onset, 1–2 days before rash onset, or rarely with rash onset. Lymph nodes may swell in the neck (submandibular & cervical), armpits (axillary), or groin (inguinal) and occur on both sides of the body or just one.

Rash
Following the prodrome, lesions will develop in the mouth and on the body. Lesions progress through several stages before falling off. A person is contagious from the onset of the enanthem through the scab stage.

**PREVENTION:**
Do not consume bushmeat and avoid direct contact with rodents and other animals in affected regions. Virus enters the body through broken skin, respiratory tract, or the mucous membranes.

Human-to human transmission via respiratory droplet or by contact with skin lesions is possible. (Respiratory droplets generally cannot travel more than a few feet, )
CURRENT OUTBREAK in Democratic Republic of the Congo

FEB 2016: 51 cases of monkeypox have been reported in Aketi Territory, Oriental Province since early February 2016; approximately 190 cases have been reported in an unspecified time frame. Preliminary data suggests a large, widespread outbreak. In the past, limited outbreaks have occurred sporadically throughout the Congo Basin and West Africa.
Ugly feet in the Tropics
Foot ulcers in the tropics
Foot ulcers in the tropics

Ecthyma
Anthrax
Malignancy
Buruli ulcer
Tropical ulcer
Diabetic ulcers
Leprotic ulcers
Sickle cell disease
Deep fungal infection
Tuberculosis
16yo boy in refugee camp, Congo/Zaire
Mycetoma
Madura foot
Mossy foot

Clinical triad
Tumefaction
Draining sinuses
Extruded grains

Etiology
True fungal (Eumycetoma) vs bacterial (Actinomycetoma)
Other causes of fungating lesions on the legs & feet?
Chromoblastomycosis

Several species of dematiaceous fungi
16yo boy returns home from Venezuela
Tungiasis
*Tunga penetrans*
(chigoe or jigger flea)
Embedded gravid flea
Gravid female burrows into flesh, leaving uterine pore open.
Tungiasis

- Prevention is key - wear shoes!
- Curettage or excision of the burrow is recommended to remove organism
- Thiabendazole 25 mg/kg/day for several weeks for heavy infestation
44 yo Peace Corps volunteer returned from Ghana with this "pimple"...
Myiasis
the infestation of human tissue by fly larvae
Cordylobia anthropophaga

Dermatobia hominis
Myiasis

• Incise lesion and remove larva with forceps
• Inject local anesthetic under larva to force out
• Anesthetic will paralyze the larva and make for easier extraction
• Occlude opening of breathing hole which will cause larva to migrate outwards
34 yo anthropologist returning from a mission in rural Laos, Cambodia, and Vietnam.

Developed oddly-shaped itchy rash after returning home.
Cutaneous larva migrans

Dog hookworm

*Ancylostoma Brazilense*

Albendazole 400mg/day x 3 days

Ivermectin 0.2mg/kg single dose
18yo Guyanese male reporting for medical entrance exam
Lymphatic Filariasis

Estimated 120 million people affected
More than 80 countries endemic
Physical, Economic, Social and Psychological Impact
Global burden

- Total infected (microfilaria positive) 45 million
- Lymphoedema/ elephantiasis 15 million
- Hydrocele/ Urogenital 25 million
- Acute inflammatory attacks 15 million

* WHO, World Health Report
Global campaign to eliminate lymphatic filariasis uses ivermectin and albendazole to treat cases. DEC Salt (diethylcarbamazine) to treat low levels of filaremia.
15yo girl complains of chronic ankle pain and swelling . . .
... and is being evaluated for delusions of parasitosis
Loaiasis – subcuatenous filariasis
Loa loa
Loaiasis - Tropical Swelling

- Found in West/Central Africa
- First sign is painful subcutaneous swellings (Calabar swellings)
- Transmitted by the Mango fly
- Diethylcarbamazine kills adults and microfilariae and is given for 3 weeks
Children in Ghanaian village
Buruli Ulcer

- Caused by mycobacterium ulcerans
- Painless early nodule, late ulcer
- Produces toxin, little or no inflammation
- Treatment is wide, deep, excision
Common Dermatology
Acne
Herpese Simplex Virus
Herpes Zoster
Psoriasis
Vitiligo
Warts
Molluscum
Keloids
Prurigo Nodules