Tropical Dermatology
A Case-based approach

Philippe Lagacé-Wiens
MD, DTM&H, FRCPC
Conflict declarations

- Accepted honoraria from Bayer.
- Travel grants from Siemens Healthcare Diagnostics and Sanofi-Pasteur.
- Owns shares in Astra Zeneca as part of a diversified portfolio.
- None are relevant to the content of this presentation.
Objectives

- Name 3 common dermatological complaints and 3 serious dermatological complaints
- Describe the cutaneous presentation, diagnosis and management of bedbug bites, tinea, leishmaniasis, phytophotodermatitis, Buruli ulcer, strongyloidiasis, tungiasis and dengue.
- Understand the importance of laboratory tests in the diagnosis of some dermatological problems.
Skin disorders and travel

- Skin complaints are very common among travellers.
  - 17-18% of presentations to travel clinics.
- Some travel-related skin disorders (up to 10% is some series) require hospitalization.

Tropical dermatology

- Evaluation of skin complaints in the returned traveller (or immigrant).
  - Onset, timing, duration
  - Geographic, physical and environmental exposures
    - Includes plants, animals, medications, drugs
  - Duration of stay, reason, sexual history
  - Location and appearance of lesions
  - Associated symptoms (pruritus, numbness, pain, fever)
  - Previous treatments and outcome

<table>
<thead>
<tr>
<th>Diagnosis (n)</th>
<th>% of all dermatologic diagnoses</th>
<th>% Female</th>
<th>% Pediatric (age 0–17)</th>
<th>% Geriatric (age &gt; 65)</th>
<th>Country-specific proportionate morbidity (fraction)¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>All (4742)</td>
<td>100</td>
<td>50</td>
<td>6.0</td>
<td>4.7</td>
<td>Barbados (39/65)</td>
</tr>
<tr>
<td>CLM (465)</td>
<td>9.8</td>
<td>48</td>
<td>9.9⁺</td>
<td>2.0⁺</td>
<td>Belize (49/85)</td>
</tr>
<tr>
<td>Insect bite (388)</td>
<td>8.2</td>
<td>62⁺</td>
<td>3.1⁺</td>
<td>6.5</td>
<td>Jamaica (81/116)</td>
</tr>
<tr>
<td>Skin abscess (366)</td>
<td>7.7</td>
<td>43⁺</td>
<td>3.9</td>
<td>3.3</td>
<td>Malaysia (13/42)</td>
</tr>
<tr>
<td>Superinfected insect bite (324)</td>
<td>6.8</td>
<td>54</td>
<td>6.2</td>
<td>3.1</td>
<td>USA (12/54)</td>
</tr>
<tr>
<td>Allergic rash (263)</td>
<td>5.5</td>
<td>62⁺</td>
<td>6.1</td>
<td>2.3</td>
<td>Kenya (14/85)</td>
</tr>
<tr>
<td>Rash, unknown etiology (262)</td>
<td>5.5</td>
<td>52</td>
<td>4.2</td>
<td>6.9</td>
<td>Philippines (13/84)</td>
</tr>
<tr>
<td>Dog bite (203)</td>
<td>4.3</td>
<td>47</td>
<td>12.0⁺</td>
<td>3.0</td>
<td>Mexico (11/150)</td>
</tr>
<tr>
<td>Superficial fungal infection (190)</td>
<td>4.0</td>
<td>45</td>
<td>5.8</td>
<td>2.1</td>
<td>Brazil (12/152)</td>
</tr>
<tr>
<td>Dengue (159)</td>
<td>3.4</td>
<td>48</td>
<td>1.3⁺</td>
<td>0.6⁺</td>
<td>Sri Lanka (7/121)</td>
</tr>
<tr>
<td>Leishmaniasis (158)</td>
<td>3.3</td>
<td>34⁺</td>
<td>8.3</td>
<td>7.0</td>
<td>Thailand (3/468)</td>
</tr>
<tr>
<td>Malaria (126)</td>
<td>2.7</td>
<td>49</td>
<td>3.2</td>
<td>5.6</td>
<td>Indonesia (13/120)</td>
</tr>
<tr>
<td>Spotted fever group rickettsiae (72)</td>
<td>1.5</td>
<td>42</td>
<td>0.0⁺</td>
<td>11.4⁺</td>
<td>Bolivia (5/105)</td>
</tr>
<tr>
<td>Scabies (71)</td>
<td>1.5</td>
<td>47</td>
<td>4.2</td>
<td>7.0</td>
<td>Costa Rica (5/105)</td>
</tr>
<tr>
<td>Cellulitis (70)</td>
<td>1.5</td>
<td>39</td>
<td>2.9</td>
<td>14.3⁺</td>
<td>Brazil (4/222)</td>
</tr>
</tbody>
</table>
Utility of lab studies

• Most dermatological problems are diagnosed by history and clinical examination.
• Some cases require lab studies for definitive diagnosis.
  – Pathology
  – Microbiology
  – Serology
  – Haematology
• Especially important to secure a definitive diagnosis when potentially toxic therapy is needed or response to treatment is poor.
• Important when diagnosis is in question or response to empiric treatment is poor.

Case 1
The nodular ulcer

- 26y previously healthy plastic surgery resident.
- Presented with a non-healing nodule of 4 weeks duration on his medial right heel.
- Returned from Peru three weeks ago where he engaged in adventure travel, including the Andes, Lake Titicaca, the Amazon jungle and Lima.
- Frequently walked with open sandals.
Nodule contents
Nodule contents 100x
Clinical findings

- Nodule with opening/ulcer.
- Small egg-like structures found inside nodule.
- Barefoot exposure in South America (Peru).
Tungiasis

- Ectoparasitic infection caused by the sand flea *Tunga penetrans*.
- Originally endemic to South America.
  - Also found in Central America, the Caribbean, Asia and Africa.
- Prevalence amongst local inhabitants of some regions reaches 50%.
- Infestation typically occurs on the feet.
- The fertilized female burrows into the patient’s skin, with its anal-genital opening near the surface.

Tungiasis

- Feeds on blood and enlarges to a pea-size, producing a whitish nodule with a central black dot corresponding to the anal-genital opening.
- One to three weeks after penetration, the flea expels eggs from the central opening.
- Approximately five weeks following penetration, the flea dies and is sloughed off, leaving an ulcer that heals slowly.
- Secondary infections (sometimes severe) can occur.

Management

- Surgical removal of flea with subsequent antiseptic washes.
  - Alternative is to surgically remove the whole nodule.
- Antibiotic for secondary infections if present.
  - Consider tetanus prophylaxis if indicated.
- Lesion heals slowly over weeks.
- Anti-parasitic agents (Ivermectin, Thiabendazole) may be effective but are not indicated unless there are numerous lesions.

Not your average ulcer

- 57 year old man from Peru presents with ulcerating lesion to his right hand.
- Slowly progressive over a year.
- Not painful, minimal drainage, no fever, chills, night sweats, cough or constitutional symptoms.
- Unresponsive to multiple antibiotics.
Examination

- Lesion is deeply undermined, but is not purulent or foul smelling.
- Culture from GP grew coagulase negative staph and diphtheroids.
Clinical features

- On hand, slowly progressive, ulcerative, non-inflammatory.
- Residence in jungle area of Peru.
- Differential diagnosis is broad.
  - Includes infectious (parasitic, fungal, mycobacterial) and non-infectious (malignancy – especially BCC)
- Biopsy and culture is recommended to direct therapy.
Biopsy (ZN)
Diagnosis?

- Buruli ulcer caused by *M. ulcerans*!
- *Mycobacterium ulcerans* is a slow-growing mycobacterium acquired by exposure to water (or possible water insects) in tropical regions.
  - Deeply undermined, slowly progressive non-inflammatory ulcers are characteristic.
  - May involve huge parts of the body.
- Treatment is by surgical excision and long term therapy with anti-mycobacterial drugs.
  - Rifampin + Amikacin or Streptomycin
  - Ethambutol, Co-trimoxazole, ciprofloxacin

Case 3
The migrating rash

- A 54 year old woman from Guyana presents for evaluation of eosinophilia.
  - Absolute count 1.8 x 10^8/L
  - Relative 20%
- Emigrated to Canada 28 years prior. No return to Guyana, no travel except occasional resort areas in Mexico.
- Denies any symptoms until specifically asked about rash.
  - “Well...I do get this itchy rash on my bum every few months. GP gave me antihistamines because it was so itchy...”
As luck would have it...
Clinical features

- Recurrent, several days duration, then disappears. Happening for >20 years.
- **Geographic, physical and environmental exposures:** Guyana, >20 years ago.
- Location of lesions: Buttocks, sometimes lower abdomen.
- Associated symptoms: Intense pruritus, eosinophilia.
Larva currens (Strongyloidiasis)

- Caused by the nematode *Strongyloides stercoralis*
  - Common and persistent infection (last for decades)
- 30–100 million people worldwide
- Endemic in Africa, Asia, Southeast Asia, and Central and South America
- Can result in fulminant dissemination with case-fatality rates of over 70% in the setting of compromised cellular immunity.
- Rash and eosinophilia basically diagnostic, but serology also ordered and very positive.

Distribution of *Strongyloides stercoralis*
How big of a problem in Canada?

- Data is sporadic and few systematic studies have been done.
- One study showed that Southeast Asian arriving Canada had seroprevalence rates between 11.8% (Vietnamese) and 76.6% (Cambodians).
- In 2002, a series of 10 consecutive cases of disseminated or fatal *Strongyloides* infection were identified in 2 academic hospitals in Toronto over a 7-month period.
- All were immigrants: 3 (Asia), 6 (Caribbean), 1 (Africa)
- One patient had lived in Canada for 56 yrs before symptoms developed.

Life cycle

1. Infective stage
2. Rhabditiform larvae hatch from embryonated eggs.
3. Development into free-living adult worms.
4. Rhabditiform larvae develop into infective filariform.
5. The filariform larvae enter the circulatory system, are transported to the lungs, and penetrate the alveolar spaces. They are carried to the trachea and pharynx, swallowed, and reach the small intestine where they become adults.
6. Infective filariform larvae penetrate the intact skin initiating the infection.
7. Eggs are produced by fertilized female worms.
8. Adult female worm in the intestine.
9. Eggs deposited in intestinal mucosa, hatch, and migrate to lumen.
10. Autoinfection: Rhabditiform larvae in large intestine, become filariform larvae, penetrate intestinal mucosa or perianal skin, and follow the normal infective cycle.
Diagnosis

- Confirmation of diagnosis using the laboratory can be done using various tests:
  - Serology (high sensitivity and specificity, cross reactivity might occur)
  - Microcopy (stool): 100% specificity but low sensitivity. Need multiple specimens, duodenal aspirate.
  - “Culture”
“Culture”
Severe consequences

- Immunocompromise can lead to hyperinfection syndrome.
  - Disseminated infection with larvae in lungs, CSF, bone marrow...
  - High mortality due to polymicrobial sepsis.
- HTLV-1, prednisone, cytotoxic agents and malignancy are common associations.
  - Good idea to screen patients from endemic areas before immunocompromising regimen started.
  - Good idea to screen patients with *Strongyloides* for HTLV-1 if from HTLV-1 endemic country.

CMAJ. 2007 Aug 28;177(5):451-3
Treatment

- **Normal immune system:**
  - *Single drug:* albendazole x 7d OR ivermectin 200 μg/kg daily x 1-2 d

- **Immunosuppressed:**
  - *Combination therapy:*
    - albendazole 400 mg twice daily x 7d AND ivermectin 200 μg/kg daily x 1-2 d
  - In cases of disseminated strongyloidiasis, albendazole and ivermectin are continued until there is evidence that the parasite is cleared

- **Follow-up serology**
  - Follow-up serology should be ordered at 6 month intervals until serological cure is documented.
  - Reversion to negative or post-treatment/pre-treatment OD ratio of <0.6.

CMAJ. 2007 Aug 28;177(5):451-3
Case 4
A child in Mexico

- 7 year old boy with itchy progressive lesions over trunk of body for 6 weeks.
- Returned from Cancun 2 months ago.
  - All inclusive trip in “luxury resort”.
  - No tick bites, a few mosquito bites.
  - Swam in the ocean only.
  - Exposure to monkeys (on “Jungle tour”), horses (Horse back riding excursion) and dog (the resort’s mascot Beagle).
Clinical features

- Progressive, red, raised with central clearing.
- Travelled to Mexico, exposed to horses, monkey, dogs
- Location of lesions: Trunk
- Associated symptoms: Pruritus, alopecia
Tinea corporis

- Caused by a variety of fungi collectively known as *dermatophytes*.
  - *Trichophyton rubrum*, *T. mentagophytes*, *T. tonsurans* are common, and anthropophilic (usually spread from person to person)
  - *Microsporum canis* is a common cause, associated with domestic animal exposure (dogs and cats)
    - *Also a common cause of tinea capitis.*
  - *Microsporum nanum* (pigs) and *Microsporum gypseum* (soil, thorns, wood) also seen.

On dark skin – a bigger challenge
Further investigations

- Presentation is fairly typical and trial of therapy is often curative and diagnostic.
- Fluorescence under UV light can help:
  - *Microsporum* species fluoresce green, blue-green or yellow-green.
- If atypical, recalcitrant to therapy, progressive despite therapy, consider lab studies:
  - Scrapings or hair for microscopy and culture is usually sufficient.
  - Biopsies should be considered if lesions unusual or atypia, actinic changes, malignancy, or alternative diagnosis is suspected.
Skin scrapings
Management

- Many topical therapies exist:
  - Ciclopiox
  - Topical azoles
  - Turbinafine
  - Apply twice daily for 3 – 6 weeks. Compound with 0.5 – 1% hydrocortisone for symptomatic relief.
- If there are multiple lesions, hard to reach areas, poor response to topical therapy, involvement of nails, hair or scalp, use oral therapy.
  - Oral azoles: Weekly Fluconazole or daily intraconazole or ketoconazole.
  - Turbinafine daily
  - Griseofulvin
- Oral treatment should be 4-6 weeks for tinea corporis, 8 weeks for tinea capitis and 3 – 6 months for tinea unguium.

Case 5
The itchy bumps

- 36 year old woman presents complaining of itchy bumps on her legs, arms and shoulders.
- Started last week while travelling in Egypt. Returned home 3 days ago.
- Lesions are intensely pruritic and have a red border and raised centre.
Clinical features

- Acute presentation, red, raised, wheal-like with central vesicle.
- Travel to Egypt. No other significant exposures elicited.
- Location of lesions: Arms, shoulders, legs (frequently exposed areas)
- Associated symptoms: Pruritus
Bedbug bites

- Insect bites/stings cause variable reactions in people.
  - Asymptomatic to wheal/hive.
  - Systemic reactions may occur with toxic stings.
- Bedbug bites typically occur in clusters (Breakfast, lunch, dinner) and typically on the extremities (areas poorly covered by clothes/blankets).
- Fleas can cause similar lesions.

Clin Infect Dis. 2011 Jan;52(2):200-10
Bed bugs – much ado about nothing?

- Bed bugs get a bad rap...
- Little more than a nuisance.
  - Currently no evidence that they are vectors for disease (unlike mosquitoes)
  - Do not have toxins, but do have allergens, sensitizers.
  - Generally keep out of sight from guests!
- Rare cases of anaphylactic reactions
- Lesions can become superinfected.
- Heavy infestations can lead to anaemia
  - Especially in children.
- Social stigma

Clin Infect Dis. 2011 Jan;52(2):200-10
Management

- If the infestation is in the home (as opposed to travel related) – insecticides are required.
  - Pyrethrins are generally used. Possible increasing tolerance.
- Bugs live in walls, furniture (beds, couches) and carpets.
  - Can live ~6 months without food.
- Bugs travel in suitcases.
  - It travel-related cases, it is wise to freeze/heat clothes on arrival.

Clin Infect Dis. 2011 Jan;52(2):200-10
Case 6
The photographer

- 30 year old male.
- Works as a wildlife photographer, most recently in the area of Madidi National Park (Bolivia) for a 2 month photography assignment.
  - Returned two months ago.
- Noticed a raised lesion on his leg 3 months ago.
- Treated with steroid creams, antibiotics (cephalexin) and antifungals (clotrimazole)
  - No improvement, progressive.
Clinical features

- On leg, slowly progressive, scaling, minimally inflammatory.
- Exposure to jungle area of Bolivia.
- Unresponsive to antimicrobial, antifungal and steroid therapy.
- Differential diagnosis is broad.
- Includes infectious (parasitic, fungal, mycobacterial) and non-infectious (malignancy – especially BCC)
- Biopsy should be performed.
Aspirate of lesion
Leishmaniasis

- Parasitic disease transmitted by the sand fly.
- Common throughout the world.
- In the New World, endemic in most areas Central America, Peru, Bolivia, Columbia and Brazil.
- In the Old World, endemic to Mediterranean areas, Middle East, ‘stans, North Africa, East Africa, India.

Sand fly – The stealthy vector
Leishmania spp. – One genus, many syndromes

- Dozens of species exist, each associated with a geographic distribution.
  - Overlap occurs.
- Each species is associated with a limited number of “typical” clinical syndromes:
  - Simple cutaneous, diffuse cutaneous, mucosal/mucocutaneous, visceral (kala-azar).
- Prognosis and optimal treatment may depend on species.

<table>
<thead>
<tr>
<th>Clinical Syndromes</th>
<th>Leishmania Species</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visceral leishmaniasis</td>
<td>L. (L) donovani</td>
<td>Indian subcontinent, northern and eastern China, Pakistan, Nepal,</td>
</tr>
<tr>
<td>Kala-azar: generalized involvement of the reticuloendothelial system (spleen, bone marrow, liver)</td>
<td>L. (L) infantum/chagasi</td>
<td>eastern Africa, Sudan, Kenya, Middle East, Mediterranean littoral,</td>
</tr>
<tr>
<td></td>
<td>L. (L) donovani (archibaldi)</td>
<td>Balkans, central and southwestern Asia, northern and northwestern</td>
</tr>
<tr>
<td></td>
<td>L. (L) spp.</td>
<td>China, northern and sub-Saharan Africa, Latin America</td>
</tr>
<tr>
<td></td>
<td>L. (L) chagasi</td>
<td>Sudan, Kenya, Ethiopia</td>
</tr>
<tr>
<td></td>
<td>L. (L) amazonensis</td>
<td>Kenya, Ethiopia, Somalia</td>
</tr>
<tr>
<td></td>
<td>L. (L) tropica</td>
<td>Latin America</td>
</tr>
<tr>
<td>Post-kala-azar dermal leishmaniasis</td>
<td>L. (L) donovani</td>
<td>Brazil (Bahia State)</td>
</tr>
<tr>
<td></td>
<td>L. (L) spp.</td>
<td>Israel, India, and viscerotropic disease in Saudi Arabia (U.S. troops)</td>
</tr>
<tr>
<td>Old World cutaneous leishmaniasis</td>
<td>L. (L) major</td>
<td>Indian subcontinent, East Africa and Sudan</td>
</tr>
<tr>
<td>Single or limited number of skin lesions</td>
<td>L. (L) tropica</td>
<td>Kenya, Ethiopia, Somalia</td>
</tr>
<tr>
<td></td>
<td>L. (L) aethiopica</td>
<td>Ethiopian highlands, Kenya, Yemen</td>
</tr>
<tr>
<td></td>
<td>L. (L) infantum/chagasi</td>
<td>Mediterranean basin</td>
</tr>
<tr>
<td></td>
<td>L. (L) donovani (archibaldi)</td>
<td>Sudan and East Africa</td>
</tr>
<tr>
<td></td>
<td>L. (L) spp.</td>
<td>Kenya, Ethiopia, Somalia</td>
</tr>
<tr>
<td>Diffuse cutaneous leishmaniasis</td>
<td>L. (L) aethiopica</td>
<td>Ethiopian highlands, Kenya, Yemen</td>
</tr>
<tr>
<td>New World cutaneous leishmaniasis</td>
<td>L. (L) mexicana (chiclero ulcer)</td>
<td>Central America, Mexico, Texas</td>
</tr>
<tr>
<td>Single or limited number of skin lesions</td>
<td>L. (L) amazonensis</td>
<td>Amazon basin and neighboring areas, Bahia and other states in Brazil</td>
</tr>
<tr>
<td></td>
<td>L. (V) braziliensis</td>
<td>Multiple areas of Central and South America</td>
</tr>
<tr>
<td></td>
<td>L. (V) guyanensis (forest yaws)</td>
<td>Guyana, Suriname, northern Amazon basin</td>
</tr>
<tr>
<td></td>
<td>L. (V) peruviana (uta)</td>
<td>Peru (western Andes) and Argentinian highlands</td>
</tr>
<tr>
<td></td>
<td>L. (V) panamensis</td>
<td>Panama, Costa Rica, Colombia</td>
</tr>
<tr>
<td></td>
<td>L. (V) pijanoi</td>
<td>Venezuela</td>
</tr>
<tr>
<td></td>
<td>L. (V) garnhami</td>
<td>Venezuela</td>
</tr>
<tr>
<td></td>
<td>L. (V) venezuelensis</td>
<td>Venezuela</td>
</tr>
<tr>
<td>Diffuse cutaneous leishmaniasis</td>
<td>L. (V) colombiensis</td>
<td>Colombia and Panama</td>
</tr>
<tr>
<td>American mucocutaneous leishmaniasis</td>
<td>L. (L) infantum/chagasi</td>
<td>Central and South America</td>
</tr>
<tr>
<td></td>
<td>L. (L) amazonensis</td>
<td>Amazon basin and neighboring areas, Bahia and other states in Brazil</td>
</tr>
<tr>
<td></td>
<td>L. (V) pijanoi</td>
<td>Venezuela</td>
</tr>
<tr>
<td></td>
<td>L. (L) mexicana</td>
<td>Mexico and Central America</td>
</tr>
<tr>
<td></td>
<td>L. (V) spp.</td>
<td>Dominican Republic</td>
</tr>
<tr>
<td></td>
<td>L. (V) braziliensis (espundia)</td>
<td>Multiple areas in Latin America</td>
</tr>
</tbody>
</table>
Diagnosis

- Definitive diagnosis by visualizing the amastigotes in the tissue.
- Serology is available but is of limited value. Better for visceral disease.
- PCR and proteomic analysis can be used to differentiate between species of Leishmania.
- Timely diagnosis is important!
  - Most cutaneous cases spontaneously resolve over time but mucocutaneous and visceral variants may have severe sequelae.

Mucocutaneous leishmaniasis

- Long-term sequela of untreated *L. braziliensis* infection.
- Frequently, the scared cutaneous lesion is still visible.
Treatment

- Evolving field...! Effective treatment also depends somewhat on species.
- Pentavalent antimonials are generally effective for cutaneous diseases and is some areas for visceral disease.
- Amphotericin B (liposomal) is a better choice for visceral forms.
  - More effective, less resistance.
  - Also consider for mucocutaneous variants – less relapses.
- Miltefosine is a relatively new oral addition to treatment options for visceral leishmaniasis
  - 97% cure rate in an Indian series of visceral disease.

Topical treatments

- Thermal therapy, cryotherapy, imiquimod, pentamidine and intra-lesional antimonials have been used for cutaneous variants.
  - Success rate is variable.
- Difficulty in speciation, risk of geographic overlap in species associated with sequelae (mucocutaneous, visceral, diffuse cutaneous) limits use of topical treatment.

Another Mexican vacation

- 9 year old girl returns from a Christmas vacation in Mexico with “a weird sunburn” on her face.
- Started off as “sunburn”, on both cheeks, pigmentation present since return.
- Stayed at all-inclusive resort, only went to beach, poolside and hotel restaurants.
Cheek lesions
Clinical features

- On face, bilateral, sudden onset, initially sun-burn like quality.
- Exposure resorts in Mexico.
- Localized, linear pattern, streaks.
What question should be asked?

Did you eat or drink anything with lime or lemon juice?
The answer...

- “I ate lemons all day!”
Phytophotodermatitis

- Cutaneous phototoxic inflammatory eruption resulting from contact with light-sensitizing botanical substances and long-wave ultraviolet (UV-A 320-380 nm) radiation.
- Usually begins approximately 24 hours after exposure and peaks at 48-72 hours.
  - Following initial symptoms, persistent hyper or hypo pigmentation of variable duration occurs.

Pathophysiology

- Exposure to plant psoralens and related compounds and UV light is critical.
- Psoralens are activated by UV light bind to DNA and create cross-links in the DNA structure.
  - Leads to cell death and a clinical syndrome similar to sunburn (erythema, blistering, inflammation).
- Many plants contain psoralens and related compounds.
  - Common culprits are citrus (limes, lemons), parsnips, celery, carrots, fennel, fig leaves, hogweed, Queen Anne’s Lace.

Management

- Reassurance is typically all that is needed.
- Phytophotodermatitis is a self-limited problem.
- Avoid the agent if possible, especially if exposed to UV light.
- Sunscreens helpful to prevent cases.
- Topical steroids or anti-inflammatory may be prescribed during the painful initial phase if required.

Case 8
The trip to Thailand

- 24 year old female on a trip to Thailand with girlfriends.
- 4 days after return to Winnipeg from “Phuket” leg, develops sudden onset fever, rash, headache and back pain.
  - Friend from Australia with similar symptoms
- Clinically stable, rash distributed on whole body, but prominent on chest, abdomen.
- Took malaria prophylaxis where appropriate and used bed nets at night when appropriate.
Clinical features

- Rapid onset, acute, diffuse rash, erythematous with white patches, fever, headache, back pain.
- Exposure to Thailand in past week.
- No coagulopathy, clinically stable.
Dengue Fever

- Classic symptoms and exposures.
- Highly prevalent in Thailand (#1 diagnosed cause of fever in travellers to SEA).
- Most mild cases (no features of haemorrhage, coagulopathy, shock) can be managed expectantly.
- Always consider malaria and typhoid and order appropriate investigations if needed.
- This patient had negative serology at the time of presentation and IgG and IgM positive 6 weeks later.

Dengue virus

- Flavivirus transmitted by the day-biting mosquito *Aedes aegyptii* and *A. albopictus*.
- Disease varies from asymptomatic infection (more common in young children), Dengue fever (“Break bone fever”) to Dengue Haemorrhagic Fever.
- Generally diagnosed clinically and by excluding other conditions. Serology is helpful, and PCR diagnosis is possible early in disease.
- Common laboratory findings are lymphocytosis, neutropenia, elevated liver enzymes and thromobocytopenia.

Dengue virus danger signs

- Obvious mucosal haemorrhage, petechiae, easy bruising.
- Jaundice
- Haemodynamic lability
- Positive tourniquet test
  - >20 petechiae per square inch (3/cm²) after inflating a BP cuff to the midway point between diastolic and systolic for 5 minutes.
- Restlessness, lethargy, cyanosis...
- Should prompt immediate referral to hospital.


- Light grey: Areas infested with *Aedes aegypti*
- Dark grey: Areas with *Aedes aegypti* and dengue epidemic activity

Management

- Supportive for Dengue fever.
  - Analgesics, antipyretics.
  - Convalescence may be long (4 – 6 weeks) and associated with weakness, depression, pruritus.

- Dengue Haemorrhagic Fever/ Shock
  - Rapid fluid resuscitation, blood products as needed, supportive care.
  - Steroids not helpful.
  - No effective anti-virals exist.

Thank you!
Questions?