A 5 yo is brought in for a new onset rash on her foot. The family has recently returned from summer vacation in Florida. The most likely diagnosis is?

A. Cutaneous larva migrans
B. Scabies
C. Tungiasis
D. Leishmaniasis
E. Jellyfish envenomation

Preferred response: A: Cutaneous larva migrans
Cutaneous larva migrans is caused by a hookworm, most commonly *Ancylostoma braziliense*. It tends to be seen in individuals living in or traveling to the southeastern United States and the Caribbean. The infestation occurs from contact with an environment contaminated with animal feces, usually at a beach. Larvae burrow through intact skin and symptoms begin 1 to 6 days after exposure, with an edematous, vesicular, linear streak creeping 1 to 2 mm per day. Humans are dead end hosts, and the hookworm dies in days to months. Treatment with a single dose of ivermectin or 3 days of albendazole is curative.

The linear lesions depicted in this photograph are far too large to be scabies burrows.

Tungiasis is characterized by focal very pruritic lesions at the site of infestation with a pregnant female sand flea.

Leishmaniasis:
Vector borne via Female sandfly: Lutzomyia (New World); Phlebotamus (Old World)
Rodents, canines are reservoirs
Leishmania protozoa - 3 variants: Cutaneous; Mucocutaneous; Visceral
Incubation avg. 9 weeks
Papule at site of bite becomes nodule that ulcerates - Painless - Local LA

Linear streaks could occur from jellyfish envenomation however the onset of discomfort is immediate upon exposure to the tentacles or shortly thereafter once the nematocysts discharge.

**References**

A 9 year old presents with a pruritic eruption in the distribution of her bathing suit. It began a few hours after swimming off the coast of Hawaii. There had been a storm the day before. The most likely diagnosis is:

A. Lyngbya dermatitis
B. Swimmer’s itch
C. Seabathers eruption
D. Sunscreen allergy
E. Bedbug (arthropod bites)
Preferred response: **A: Lyngbya dermatitis**

“Stinging seaweed disease” - Irritant contact dermatitis occurring after exposure to certain types of toxin containing seaweeds/cyanobacteria –

**Lyngbya majuscula** – Cyanobacteria

First described in Oahu, 1958; Has been reported from a wide variety of sites including: Hawaii; Australia; Florida

Rash occurs in a bathing suit distribution with itching / burning developing minutes to hours after exposure. Itching burning followed by rash – may vesiculate in severe cases. Typically the eruption heals in ~ 1 week; clinically it is similar to seabathers eruption but it occurs in different areas of the world. Not all strains are toxic - 2 toxins play role in outbreaks: a) Aplysiatoxin and b) Debromoaplysioxin

Strong currents dislodge the seaweed from ocean floor and break it apart – the fragments move to shore - typically this occurs when swimming in turbid roughened water – the fragments lodge in suits and then release toxins when drying onto the exposed skin.

Swimmer’s itch (cercarial dermatitis) typically occurs only in freshwater or brackish water. It is caused by the cercariae of certain schistosomes whose typical hosts are birds/mammals). These schistosomes attempt to and may enter human skin but are unable to penetrate further. There they elicit an inflammatory response leading to a dermatitis, which is typified by intense itching. One schistosome that often causes swimmer’s itch is thought to be Austrobilharzia variglandis, whose normal host is ducks. The intermediate host for these organisms are typically snails, such as Nassarius obsoletus. Swimmer’s itch/cercarial dermatitis typically affects exposed skin rather than covered skin.

Seabathers eruption; due to skin exposure to larvae of the thimble jellyfish, is reported along the atlantic coast primarily in Florida. It has been reported off the coast of Mexico, the Caribbean, and Brazil however its incidence in other areas is unknown. The incidence is seasonal with highest outbreaks occurring from May through August.

Sunscreen allergy – occurs after exposure and in either areas where sunscreen was applied (allergic contact dermatitis) or where, after application, it was exposed to the sun (photoallergic contact dermatitis). Often it is worse in areas with thinner more sensitive skin

Bedbug bites would be expected in exposed areas of the skin. They are focal urticarial hypersensitivity reactions, often following a pattern of three lesions in a linear distribution (“breakfast, lunch, dinner sign”)

**References**


Editor/Reviewer Queries:
A 45 yo university professor notes a non-healing bump on the scalp. He recalls a painful bite in the area while working in South America. He is concerned the site is infected, as it has not healed. Applying ointment to it worsens his symptoms. The most likely diagnosis is:

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<table>
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<tbody>
<tr>
<td>A. myiasis</td>
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<tr>
<td>B. cutaneous larva migrans</td>
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<tr>
<td>C. leishmaniasis</td>
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<tr>
<td>D. tungiasis</td>
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<tr>
<td>E. furunculosis</td>
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</tbody>
</table>

Preferred response: A: myiasis
Botfly: Dermatobia hominis; transmitted via Mosquito vector in Central and South America.

In Africa: vectors are Lund fly (Cordylobia rhodaini) - Rain forest; African tumbu fly (C. anthropophaga) - Mango fly/ putzi fly - Sub-Saharan, West, and Central Africa

Patients often recall a painful insect bite. Rather than healing the site often develops a furuncle like nodule, they may note itching or pain. Often there is a serosanguinous discharge. With occlusion of the opening, which the larva uses to breath through, it will often distress the larvae, which creates a moving/wiggling sensation.

Treatment is to remove the larva, taking care to not rupture it, which can contaminate the wound leading to secondary infection and/or inflammation. Occlusion of the larval opening can suffocate the larva leading to easier extraction. Surgical removal may also be performed with a variety of techniques described to aid access to the larvae while minimizing the chance that it would be ruptured. If secondary infection occurs topical/systemic antibiotics may be necessary.

Cutaneous larva migrans is caused by a hookworm, most commonly Ancylostoma braziliense. It tends to be seen in individuals living in or traveling to the southeastern United States and the Caribbean. The infestation occurs from contact with an environment contaminated with animal feces, usually at a beach. Larvae burrow through intact skin and symptoms begin 1 to 6 days after exposure, with an edematous, vesicular, linear streak creeping 1 to 2 mm per day. Humans are dead end hosts, and the hookworm dies in days to months. Treatment with a single dose of ivermectin or 3 days of albendazole is curative.

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Furunculosis tends to be associated with purulent drainage rather than serosanguinous and the evolution of the lesions is more rapid. Often there are other associated signs and sensation of movement in the skin is not present.

References

Editor/Reviewer Queries:
A Missouri farmer notes itchy/painful lesions on the sun exposed areas of his arms and legs after cutting weeds. Which of the following plants is the most likely cause?

A. Wild parsnip  
B. poison sumac  
C. queen anne’s lace  
D. lime  
E. black walnut  

Preferred response: A: wild parsnip
Furocoumarin exposure followed by sun - citrus juice; plants
Painful burning, erythema, vesicles, then painless hyperpigmentation
Mild pruritis

Of the plants listed poison sumac and lime do not naturally occur outdoors in Missouri. Poison sumac causes an allergic contact dermatitis. Queen Anne’s lace does not commonly cause a phytophotodermatitis. Black walnut can cause an irritant dermatitis with excessive exposure, but incidental exposure as described here would not result in the above rash.

References
1. http://www.mda.state.mn.us/plants/badplants/noxiouslist/~/media/Files/plants/weeds/wildparsnipbmp.ashx

Editor/Reviewer Queries:
A male patient reports fever, conjunctivitis, and a rash after vacationing in a zone with known Zika virus outbreaks. How long should he and his partner wait to try and get pregnant?

<table>
<thead>
<tr>
<th>Option</th>
<th>Time</th>
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<tbody>
<tr>
<td>A.</td>
<td>2 weeks</td>
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<td>B.</td>
<td>6 weeks</td>
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<td>C.</td>
<td>2 months</td>
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<td>D.</td>
<td>6 months</td>
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<td>E.</td>
<td>1 year</td>
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</table>

Preferred response: **D. 6 months**
CDC recommendations for time to wait before trying to get pregnant:

For possible exposure via recent travel or sex without a condom with a man infected with Zika:

Zika symptoms: Women: wait at least 8 weeks after symptoms start; Men: wait at least 6 months after symptoms
No Zika symptoms: Women: wait at least 8 weeks after exposure; Men: wait at least 8 weeks after exposure; talk with health care provider

For those living in areas with Zika:
Zika symptoms: Women: Wait at least 8 weeks after symptoms start; Men: Wait at least 6 months after symptoms
No Zika symptoms: Women: Talk with doctor or health care provider; Men: Talk with Dr. or health care provider

References

Editor/Reviewer Queries:
A female patient reports fever, conjunctivitis, and a rash after vacationing in a zone with known Zika virus outbreaks. How long after symptoms onset should she wait to try and get pregnant?

A. 2 weeks
B. 8 weeks
C. 2 months
D. 8 months
E. 1 year
Preferred response: **B. 8 weeks**

CDC recommendations for time to wait before trying to get pregnant:

For possible exposure via recent travel or sex without a condom with a man infected with Zika:

Zika symptoms: Women: wait at least 8 weeks after symptoms start; Men: wait at least 6 months after symptoms
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References


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