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Swimmer's itch

What is it?

Swimmer's itch, also called cercarial dermatitis, is a skin rash caused by an allergic reaction to an infestation with certain parasites of birds and mammals. Immature larval forms (cercariae), of parasitic flatworms (schistosomes), are released from infected snails into fresh and salt water, such as lakes, ponds, and lagoons. Swimmer's itch develops on exposed areas of the skin after contact with these larval forms when they mistakenly penetrate the person's skin (rather than its usual host, a duck).

How do you get it?

Swimmer's itch occurs when a film of cercariae-infested water dries on exposed skin. The life history of the dermatitis-producing worms is cyclic. When cercariae contact a suitable bird or mammal, they penetrate through the skin, migrate through various organs such as the liver and lungs, and then reside in the blood vessels of the host, particularly those surrounding the intestine. There, the parasites develop to adulthood, when the female worms lay eggs that work their way into the host's intestine. When the host defecates into the water, the eggs of the parasites hatch. This stage is called the miracidium.

These miracidium swim in the water in search of a specific species of aquatic snail, commonly, Lymnaeidae or Physidae. Some members of a small snail (Planorbidae) can also serve as intermediate hosts. Once the miracidium come in contact with the correct snail it will either penetrate into the snail via the integument (skin) or it may enter through its mouth. Within the snail, the miracidium will elongate to form the sporocyst.

In approximately a month, the sporocysts produce another stage, called the cercaria. This stage burrows out of the snail, and must once again enter a bird host to repeat the life cycle. It does this either by penetrating the skin of the bird or by being ingested and then entering the blood vessels in the walls of the pharynx or esophagus.

If someone is unfortunate enough to be in the wrong place at the wrong time, the cercariae can penetrate the outer layer of human skin. After the parasite enters the skin, it dies and may cause dermatitis in individuals who have been previously sensitized. Larvae are generally infective for 24 hours only, once they are released from the snail. However, an infected snail will continue to produce cercariae throughout the remainder of its life-cycle (usually 2 months).

Waterfowl, eg ducks, geese, gulls, and swans, are the usual hosts of these flatworms, with humans only infected accidentally. In some countries such as North America, certain aquatic mammals such as muskrats and beavers can also be an intermediate host.

Several factors maybe important. In summer:

1. The water temperature reaches the appropriate level for snails to reproduce and grow rapidly
2. Migrating aquatic birds infected with the trematode parasite return from their winter habitats or domesticated aquatic birds return to full activity
3. People go out swimming.

What symptoms do you get and what does the rash look like?

A swimmer's first exposure to infested water may not result in any reaction. However, after repeated exposure, sensitivity to the cercariae may develop. Symptoms include an initial itchy or tingling sensation that usually settles

quickly, leaving the infected individual with tiny red spots at the sites of penetration of the larvae. After a number of hours, intense itching may develop and the red spots enlarge to form pimple-like bumps (papules) and occasionally, hives. Blisters may develop over the next 24 to 48 hours. Untreated, the rash usually settles within several weeks. The rash is usually limited to areas of the body that get exposed directly to water, so skin under swimwear is often protected. People who have suffered swimmer's itch before may be more severely affected on repeated exposures.

Specific diagnosis is difficult. Skin biopsies are not helpful. There is no widely available blood test that gives specific indication that cercariae have caused the itching.

Father and son with swimmer's itch



How do you treat it?

For some species of schistosomes that cause swimmer's itch, toweling off may help; with other species, it will not do any good because the cercariae have already penetrated the skin while the person was in the water.

Treatment may not be necessary when there are only a few itching spots. Once the reaction has occurred, the skin should be lightly rinsed with isopropyl (rubbing) alcohol and then coated with calamine lotion. An antihistaminic or mild corticosteroid cream (1% hydrocortisone) can be beneficial. If the initial itching is severe, then scratching can cause abrasions and skin infections may develop. Antibiotics may be used to treat secondary infections. If the reaction is severe, [oral steroids](#) (prednisone) may be appropriate.

Other treatments that have been recommended include cool compresses, bath with baking soda, baking soda paste to the rash, and colloidal oatmeal baths.

How can you prevent it?

Because the cercariae are present in greatest concentration in shallow, warmer water (where the snails are), swimmers should try to avoid these areas. This is often why small children seem to get worse attacks. Swimmer's itch may be diminished by briskly rubbing the skin with a towel immediately after leaving the water, to prevent the cercariae from having time to penetrate the skin.

Since swimmer's itch is really a disease of aquatic birds, the target should be to reduce the possibilities of the birds getting infected. In some small ponds and lakes, the intermediate snails can be killed by chemical molluscicides (copper sulfate or copper carbonate). A newer approach has been to place a drug for treatment of the parasite into food bait for the aquatic birds. Indirectly, it is important that any vegetation in the pond or the lake be kept to a minimum so that the snails do not have the ideal environment to grow.

Do not attract birds by feeding them to areas where people are swimming.

Other information

The technical name for swimmer's itch is cercarial dermatitis. In developing countries, swimmer's itch has been called 'rice paddy itch', 'clam diggers itch', 'sawah' (Malaysia), 'kubure' or 'kobanyo' (Japanese) and 'hoi con'

(Thailand). In New Zealand it is called 'Duck Itch' and in parts of United States it is called 'Duckworms' or 'Duck fleas'. When infection occurs in sea water, it is sometimes called 'Sea Lice'. Swimmer's itch should not be confused with [sea bather's eruption](#) (caused by larval forms of the thimble jellyfish sea anemone or Portuguese Man-of-War) or [seaweed dermatitis](#) (caused by an alga).

Related information

References:

On DermNet NZ:

- [Seaweed dermatitis](#)
- [Sea bather's eruption](#)
- [Marine wounds and stings](#)

Other websites:

[Cutaneous Manifestations Following Exposures to Marine Life](#) - emedicine dermatology, the online textbook

Books about skin diseases:

See the [DermNet NZ bookstore](#)

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DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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