



## *Schistosome Dermatitis in Montana*<sup>1</sup>

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**I**N LATE JULY 1950, a mother and her daughter developed a sudden and severe rash within a few minutes after bathing in a small swimming pool on the Saier farm near Ennis, Madison County, Montana.

The association with the stagnant pond, the clinical course, and subsequent findings resulted in a confirmed diagnosis of schistosome dermatitis or "swimmers' itch," as it is popularly known. This condition has not previously been confirmed in Montana although, since the diagnosis of these cases, the writers have received reports of earlier cases, some of which are included in this paper.

An excellent summary account and extensive bibliography of schistosome dermatitis (based on more than 20 years of intensive study of the disease) has been published by Cort (1950). His report indicates that there have been very few cases in the Rocky Mountain states. Therefore, it seems of interest to report our cases, although in the North Central lake region of the United States and adjacent areas of Canada, cases number in the hundreds each year.

### *Case Reports*

L.W.B., female, aged 44. On July 29, 1950, at about 3:00 p.m. this patient went swimming in the Saier pond. She was in the water for about 30 minutes and waded in the muddy margins of the pond but did not immerse her head or face because of obvious scum on the surface of the water. Within five minutes after leaving the pond she noticed a generalized itching and by the time she had dressed, she stated "I was on fire." No symptomatic relief was obtained from baths or aspirin and the following morning after 19 hours of intense burning and itching, she consulted her physician.

Lesions were present on the neck, abdomen, back, and extremities excluding the palms and soles. They were most numerous over the breasts and axilla. The lesions were numerous, ranging in size from 1 to 20 mm. Some lesions

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were confluent. The edges were smooth. At first they resembled an erythematous papulo-mascular rash but on the second day small vesicle formation could be seen in the center of the lesions. Five days later these became pustular; cervical and axillary lymphadenopathy appeared. After two weeks the crusts disappeared leaving pink scars which remained about one month after onset. No other symptoms were noted.

H.B., female, aged 9. Same exposure history as L.W.B. The lesions showed the same distribution but were more confluent. In this patient the lesions did not develop vesicles or pustules and were not conspicuous after 10 days.

Pyribenzamine was prescribed for both cases and it relieved the itching within a day. No local medication was applied.

On September 21 we visited the pond where these patients had become infected. It was located on the Saier farm about  $\frac{1}{4}$  mile south of the residence and about 1 mile south of Ennis, east of the Madison River. It was constructed for a swimming pool by scraping out a low area and filling it with water from a nearby irrigation ditch. The pond when full is nearly circular, about 200 feet in diameter, and probably 5-6 feet deep. When visited, it was about 125 feet in diameter and not more than 3 feet deep in the deepest part. At this time there was no flow of water into or out of the pond and it was quite stagnant. There was some growth of aquatic vegetation but the vegetation was not dense and none protruded above the water. Two of the plants which constituted a major portion of the vegetation have been identified at the United States National Museum as *Potamogeton pectinatus* Linn., and *Chara vulgaris* Linn.

Snails were quite abundant and about 150 live specimens were collected within an hour. Additional shells were picked up along the shore and dried-up portions of the pond. Part of these were sent to the U. S. National Museum and the following determinations reported by Harold A. Rehder, Curator, Division of Mollusks:

<i>Stagnicola palustris</i> Müller .....	33 specimens
<i>Stagnicola (Hinkleyia) caperata</i> (Say) .....	4 specimens
<i>Physa gyrina</i> Say .....	30 specimens

Examination of the culture dishes of live snails on the day following collection showed all dishes to contain numerous cercariae typical of the schistosome group. Individual snails were isolated, and three observed in the laboratory to be shedding schistosome cercariae were all determined as *Stagnicola palustris* Müller.

A few drops of water from one of the dishes containing numerous cercariae were placed on the forearms of three volunteers. Reaction was observed on only one arm, where five macules appeared within an hour. These progressed to papules with marked irritation and persisted for about 10 days.

Several times during the summers of 1949 and 1950 students from the University of Montana Biological Station have contracted schistosome dermatitis while on field trips to two areas in Flathead County.

McWiniger's Slough, about 4 miles west of Kalispell, was the source of infection for two students on July 19, 1949. On July 22 or 30, two other students contracted infection here.

Snails from McWiniger's Slough have been identified at the U. S. National Museum as:

<i>Lymnaea stagnalis jugularis</i> Say .....	15 specimens
<i>Helisoma anceps</i> (Menke) .....	2 specimens
<i>Helisoma</i> sp. ....	1 specimen

Specimens of *Lymnaea stagnalis jugularis* from this pond were observed in the laboratory to be shedding typical schistosome cercariae.

Roger's Lake, about 18 miles west of Kalispell, was the source of infection for a teacher, R.B.B., and a student on July 12 and 13, 1949. A biologist, H.N., contracted a more severe case of dermatitis here on July 18, 1950. Severe itching persisted for several days. Another student became severely infected July 6 or 7, 1950, and the teacher and two other students experienced milder attacks on this visit.

As these cases occurred in biology students or teachers who were wearing high rubber boots while collecting aquatic plants and animals, all infections were limited to the hands and arms. Several cases were sufficiently painful to require medication, and no doubt very severe cases would have resulted from exposure of the entire body.

Specimens of snails from Roger's Lake have been identified at the U. S. National Museum as:

<i>Lymnaea stagnalis jugularis</i> Say .....	10 specimens
<i>Physa gyrina</i> Say .....	2 specimens

Snails of both of the above species from Roger's Lake were observed in the laboratory to be shedding typical schistosome cercariae.

### Discussion

Schistosome dermatitis is caused by the penetration into the human skin of the cercariae of certain trematode parasites that normally develop in small mammals or birds. The resulting macular lesions usually become papular and may become pustular in several days time. The itching may be intense, and scratching may produce secondary infections. The dermatitis is contracted by contact with water in ponds and lakes while swimming, fishing, or washing. The infective cercariae are short lived but are liberated daily in enormous numbers by snails, which are essential hosts for development of the early stages of

the parasite. Presence of infection can be determined or confirmed by examination of the snail population for typical cercariae. Infestations along beaches can be controlled by elimination of the snails with copper sulphate, copper carbonate, and other molluscicides.

Conservative treatment is recommended by Cort (1950), since the condition usually clears up in a few days. Laceration and infection of the skin by scratching should be avoided. Phenolized calamine lotion or ointment is recommended and widely used. Antihistamines have been suggested to relieve the itching, which is believed to be due in part to a sensitization phenomenon.

#### *Literature Cited*

- Cort, W. W. 1950. Studies on Schistosome dermatitis. XI. Status of knowledge after more than 20 years. Amer. Jour. Hyg. 52: 251-307.