

## Dermatological and molecular evidence of *Trichobilharzia* species in Pluszne Lake (north-east Poland)

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Swimmer's itch or cercarial dermatitis is a skin infection caused by cercariae of avian schistosomes mostly representing the genus of *Trichobilharzia*. To date in Europe there have been reports of four species of schistosomes which are responsible for causing swimmer's itch in people: *T. szidati*, *T. franki*, *T. regenti*, *T. salmanticencis*.

The purpose of our studies is to assess the risk of swimmer's itch occurrence in people bathing in Pluszne lake.

On 5<sup>th</sup> June 2018 a boy, aged 13, and his father, aged 46, presented at our Department complaining of skin lesions on torso and limbs characterized by intense pruritus. A few hours before the symptoms appeared, both the boy and his father had bathed in the lake. Initially, a few hours following water exposure, the only symptom in both cases was pruritus; several hours later numerous, round skin eruptions appeared, about 1-2 centimetres in diameter, which were erythematous and edematous, bright red in colour, with some lesions containing centrally located vesicles filled with serous content. The greatest number of skin lesions were observed on lower limbs and the buttocks, with smaller number of lesions found on the forearms and lower body, with only a few isolated eruptions on the remaining body parts.

As swimmer's itch was suspected, 151 snails were collected from the bathing areas of Pluszne lake in August 2018. Of those, selected snails were subject to white light exposure in order to induce cercaria expulsion. The collected individuals were preserved in 95% ethanol. DNA extraction was done using the Qiamp DNA Mini Kit (Qiagen, Hilden, Germany) according to the manufacturer's protocol. ITS of furcocercariae was amplified using the forward primers ITS5Term and the reverse primer ITS4Term (Dvořák et al. 2002).

In the studied reservoir 85 *Lymnaea stagnalis*, 16 *Planorbarius corneus* and 50 *Radix* spp. individuals were collected.

Microscopic examination showed that nearly 30% of the collected snails were infected with the larval stages of Digenea.

Out of 151 snails subject to study, cercariae of *Trichobilharzia szidati* were found in two *L. stagnalis* and the presence of *Trichobilharzia franki* cercariae was confirmed in one *Radix* sp.

A low rate of swimmer's itch detection is the result of rather non-specific symptoms of varied intensity. Many cases of swimmer's itch remain unreported, particularly when the symptoms are mild. In our study the rate of infected snails was 1.98%. However, it should be noted that the average number of cercariae released by one snail per week may be counted in thousands, which may pose a high risk of infection to humans.