

Diagnosis of "Ich"

Diagnosis of "Ich" is easily confirmed by microscopic examination of skin and gills. Remove several white spots from an infected fish, then mount them on a microscope slide with a few drops of water and a cover glass. The mature parasite is large, dark in color (due to the thick cilia covering the entire cell), and has a horseshoe-shaped nucleus which is sometimes visible under 100 x magnification (Figure 2). The adult parasite moves slowly in a tumbling manner and, with practice, is easily recognized. The immature forms (tomites) are smaller, translucent, and move quickly. The tomites (Figure 3) closely resemble another protozoan parasite called *Tetrahymena* (Figure 4).

Tetrahymena usually does not require treatment, so it is important to recognize the difference between the two parasites. If only tomites are seen, prepare a second slide and examine it closely for the adult parasite to confirm the diagnosis. Observation of a single organism is sufficient to make treatment necessary.

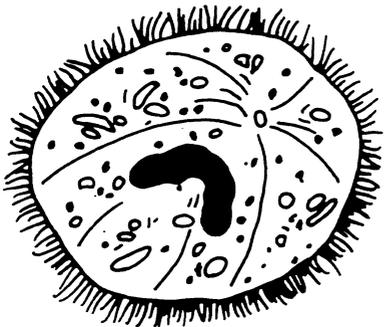


Figure 2. Adult stage of *Ichthyophthirius multifiliis*. The parasite is large (1000µm), covered with cilia, moves in a characteristic ameoboid (tumbling) manner, and has a horseshoe-shaped nucleus.



Figure 3. Immature "Ich". These juveniles emerge from a cyst and swim-up seeking a new host. If a fish is not found within 48 hours (at water temperatures of 75-79°C), they will die. This is the only stage of the life cycle where the chemical treatment will remove the juveniles.

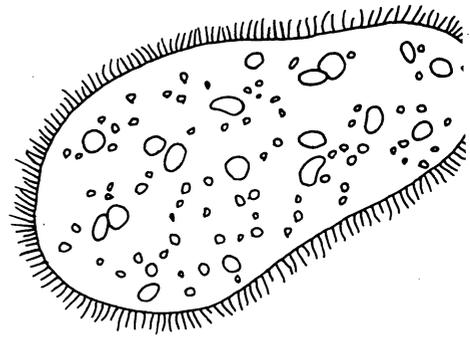


Figure 4. *Tetrahymena* is a ciliated protozoan common in detritus and on dying fish taken from the bottom of a vat. It is important to distinguish this organism from that of *I. multifiliis*. Although tetrahymena can cause disease often an incidental finding if only found externally on removed from the bottom of a tank.

Prevention of "Ich"

Prevention of "Ich" is preferable to treatment after a disease outbreak is in progress. All incoming fish should be quarantined for at least 30 days when temperatures are 75 to 83°F. At temperatures above 80°F a 3-day quarantine will be in effect for "Ich" because of its lengthened life cycle. For other reasons, and to prevent introduction of other parasites which have incubation periods greater than 30 days, a longer quarantine is strongly recommended. A 6-week quarantine is generally considered a minimum period of adequate quarantine of new fish.

Treatment of "Ich"

Control of "Ich" outbreaks can be difficult because of the parasites' unusual life cycle and the effect of water temperature on its life cycle. Review the life cycle of *I. multifiliis* presented in Figure 1. Only the free-swimming stages are susceptible to chemical treatment. This means that application of a single treatment will kill only the tomites which have emerged from cysts and not yet burrowed into the skin of host fish. A single treatment will not effect organisms which emerge after the chemical has broken down and been flushed from the system. Repeated treatments, however, will continually kill the juveniles before they can prevent continuation of the infection. The epizootic will be controlled as more adult parasites drop off the sick fish, encyst, and produce young which cannot survive because of the repeated application of chemicals. This process will be accelerated if organic debris can be removed from the tank or vat following treatment. This will remove many of the cysts from the environment,

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