

Trichodiniasis

I. Causative Agent and Disease

Trichodiniasis is caused by ciliated protozoans of the family Trichodinidae in which the most common of 6 genera is *Trichodina* represented by over 30 species. This protozoan is probably the most frequently encountered external obligate parasite in cultured freshwater fishes worldwide. Some species in this family also parasitize fish and shellfish in the marine environment. *Trichodina* (40-60 um in diameter) is saucer-shaped and moves along the surface of the skin, fins and gills of fish by means of its cilia. It feeds on the detritus and other debris found on the surface of the fish using tooth-like structures called denticles. These denticles scrape the debris from the surface of the fish to the mouth of the parasite. When abundant, the scraping and movement of these organisms irritate the skin and gill surfaces causing hyperplasia of the epithelium. Extreme cases of hyperplasia can result in reduced gas exchange or reduced osmoregulation in the fish host. When environmental conditions are suboptimal or when fish tissues are mechanically damaged, more severe infestations may occur.

II. Host Species

Protozoa of this family are found parasitizing freshwater and marine fish species worldwide. Rainbow and steelhead trout, coho and Chinook salmon appear more susceptible than other species of salmonids. Young fish (yearlings or younger) are most susceptible. The parasite has also been reported from amphibian tadpoles.

III. Clinical Signs

Fish parasitized by *Trichodina* often have white patches and/or mottling of

the skin and fins. Excessive mucus is produced causing a white to bluish sheen of the skin. Fins are generally frayed and fish exhibit flashing behavior by scraping their bodies against hard surfaces. If the gills are heavily infested opercular movements may be labored.

IV. Transmission

Fish are infested with *Trichodina* through direct transmission from fish to fish or from organisms in the water originating from a subclinically infested reservoir host. The organisms reproduce by binary fission whereby daughter organisms either attach immediately to the original host or seek a new host in the water column.

V. Diagnosis

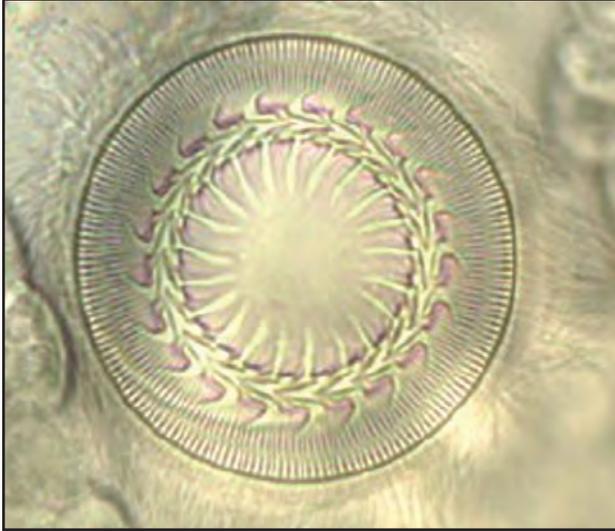
Diagnosis is easily made by microscopic observation of the highly motile spinning protozoan in a wet mount preparation of skin scrapes or gill tissues. When abundant, the organisms may be visible gliding on the skin surface with the naked eye. Genus and species identification require microscopic examination of the shape and arrangement of the denticles on the chitin disc surrounding the mouth of the parasite.

VI. Prognosis for Host

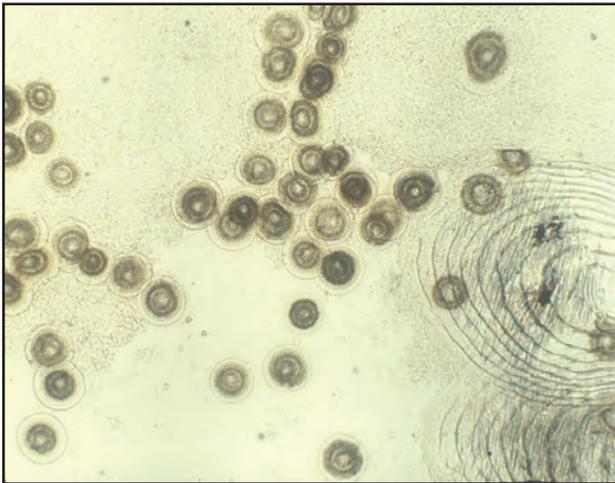
Trichodinid protozoa are relatively weak pathogens when compared to other external protozoans infesting fish. The prognosis for parasitized fish is good when parasite numbers are low, and fish are not stressed. However, some of these protozoa are serious pathogens causing high fish mortality, especially in hatchery cultured species. Under these conditions external chemical treatment with formalin is necessary and effective in controlling the parasite.

VII. Human Health Significance

There are no human health concerns associated with trichodiniasis.



Trichodina protozoan showing cilia and denticles, phase contrast microscopy, X 400.



Many *Trichodina* from skin scrape, X 100.