

Diseases in Nature Part 14

by John Shawn Prescott

Some ideas on how to buy healthy fish, and a parasite that is becoming increasingly common.



*This fish is suffering primarily from a bacterial infection, but such a site rapidly becomes infected with *Tetrahymena* when present in the water.*

In this article I wish to deal with a **freshwater parasite** that my contacts in the aquarium hobby tell me is now seen very frequently, whereas previously it was a rare event. Furthermore this parasite is not easy to eradicate. Also as so many readers write me with problems about either new fish they have just bought, or a new tank, that has been just set up, and they have major problems of disease and more, I felt it would be a good time to address this problem.

Firstly then the parasite. This obnoxious species is called ***Tetrahymena pyroformis***.



Tetrahymena cell, ciliates can be observed on the periphery

The parasite is a oval shaped ciliated protozoan, and looks at first examination rather similar to the Oodinium parasite. It is some 35 -85 microns in size and has the ability to multiply very rapidly once it gets established, often with disastrous results.

It's favourite infective site is the skin, but it also can attack the fins. The parasite will invade tissue, especially if there is a small lesion, and its necrotic action will quickly cause both damage to the underlying tissues of the fish, and accelerate further damage and invasion by pathogenic bacteria. Mortalities if untreated will ensue for certain, and recognition and remedial procedures are vital if it is not to spread to all the fish in the tank.

Certain species of fish appear to especially prone to infection, among them are Guppies, also most of the other livebearers, such as Mollies. Platies, Swordtails etc, and also many of the Tetra family, also Dwarf Cichlids, are reported to be most susceptible.

Signs.

Skin . Typically necrotic lesions and haemorrhaging will be seen on the various parts of the skin.

Eyes . Sometimes Exophthalmia (either unilateral or bilateral) aka as “popeye” will be observed, though this is not always the case.

Fins . Fins are often also attacked and “patches” may be observed in heavy infections with the naked eye, as they will show a contrasting darker colour.

Water quality . There would appear to be a close correlation between a poor water quality , i.e. one with a high organic load, and the onset of a “attack” of this parasite.

Gills . In heavy “systemic” cases, ciliates may also be easily identified on the gills of the fish. This leads to difficulty in respiration and without treatment; the fish will quickly succumb and die due to lack of oxygen.



Tetrahymena sp. attached to the fins of a fish

It would appear from the literature that there are probably a few sub strains, and that some of these are more virulent than others. Furthermore it had been believed for a long time that this organism was in fact free living in the water, causing no harm to the aquarium inhabitants.

It would now appear more likely, that some of the sub species, and not necessarily the species “pyroformis” indicted above, have established a predilection when possible, and whenever conditions allow to take up the parasitic mode, and this is been observed with ever increasing frequency on fishes imported from Asia, where it would now appear to be endemic.

In severe cases, infective sites of the parasite have been identified in the fish's brain, kidney and muscles.

It should be noted that the organism can also live freely and survives readily on decaying organic matter, which can be in many cases, uneaten food also detrital matter. This then at some point seems to “trigger” the movement of the parasite to invade suitable fish, and then the cycle of reproduction and pathogenic effect, can quickly become explosive and lethal.

Treatment.

It is vital in the first instance to ensure that the water quality is of the highest standard possible, and that ALL uneaten food and any waste matter is removed, both by filters, and if need be as well by physical removal.

Indications are that the following compound can be used with some success.

1 Litre of 37-40% Formalin (formaldehyde) 3.7 grams Methylene blue. 3.7 grams Malachite green (zinc free ONLY)

Use about 20 drops of this mixture for every 100 Litres of Aquarium water. Dose every second day and changes of water should be made about every second day and the appropriate amount of extra mixture added to compensate.

However this treatment has several important cautions.

- 1) Most scaleless fish e.g. Elephant noses, Clown loach and many such, plus a great many species of the Tetra family, are highly susceptible to the toxic effects of Malachite green. This can very often be fatal to them.
- 2) The water chemistry plays a very important role in the toxicity (to the parasite and the fish itself) of this drug. The softer and more acid the water the more toxic the drug becomes.

Short 10 minute formalin baths in a separate treatment vessel, giving 1-2 drops of formalin per litre of water of the treatment vessel, for between 30-45 minutes, can sometimes make a great improvement. It is VITAL that the water in the treatment vessel be the same chemical and temperature as the main aquarium to avoid shock, stress etc. Watch the fish during the full treatment time, as some fish (again scaleless especially) can be very negatively reactive to this treatment.

We have had some excellent success using the product ECO F/W, in the aquarium itself and it has no adverse effects on any species we have so far used it on. these include all of the above mentioned species. However using this treatment, firstly pay close attention to what I have already said about water quality, and secondly because the treatment is milder, it is essential to treat for the full 2 week period as indicated, even if things appear to be alright as we have often observed after about 4-5 days. This is to ensure that the parasite is totally eliminated and not just lying dormant.

As this parasite is now playing havoc all over the country, I would be most grateful to receive case histories from hobbyists and dealers, who have experienced *Tetrahymina sp* . and hear their experiences and treatment results, to compare with our own.

Buying a better fish.

Now to the more general topic of how to avoid “importing” disaster to your aquarium. Many hobbyists I hear from seem to have little faith in the advice of their dealer. This begs the question why if this be so, do they continue to buy from them. Sometimes geography will be the reason, but certainly this cannot always be the answer.

Impetuosity is without doubt a major reason, as is the fact that we expect instant perfection with little input on our side.

The first thing to observe when selecting a dealer, is to find out how long they have been in business. This may be a little unfair to new entrants to the industry, but usually a store that has survived the first 3 years or more will make it, whilst failures, as in most kinds of business, will take place within the first 1-2 years. It would appear self evident, that those that make it, are usually more knowledgeable than those that do not. Also in many cases more ethical.

Secondly , does the store or/and its employees appear to have a good background in the science of fish keeping, or do you get the impression that they are trying to sell you some equipment or fish just to make a sale,.

Thirdly , do they take the time and trouble, to find out what kind of equipment you already use, and which species of fish you currently have in your set-up. This is important, because I find often, that hobbyists, have purchased incompatible fish, which then cause stress to each other, and subsequent disease outbreaks.

Fourthly , Does the store have some really magnificent show tanks, not only a reef tank, but also a planted fresh water aquarium, and in fact at least one example of how an aquarium should be , of the type YOU are interested in. It is notable to me, that in Japan, and many parts of Europe many stores appear to have as many “demonstration” not for sale tanks as they do, tanks from which they do sell. This does two important things for you the buyer. It enables you to have an idea of just how beautiful an aquarium can be, when maintained properly. It shows you that the store must know what they are talking about in how to keep such a beautiful show tank.

Fifthly , Are the tanks in the store clean, the water sparkling clear, and is there, as there should be a TOTAL lack of any dead or sick fish in the tanks. NEVER buy from a store where such evident examples of problems can be seen. Every store will have some sick fish, but the good stores, will firstly quarantine all new arrivals and treat them for a few days, and certainly will pay close attention to all and any signs of problems and remove them for treatment. Sometimes I have seen good stores that be treating a tank, and will have a paper or other screen over a tank during this period, with a sign saying “not for sale” or suchlike. This store is taking it’s responsibilities seriously and is likely a serious store.

Sixthly Is the fish or fishes you intend to buy eating properly. Have you seen them rush greedily for some food. Fish that are sick, or shortly to become so, very typically are sluggish or indifferent to feeding, and this is often an excellent warning sign.

Seven . Has the fish you wish to purchase been in the store for at least a week? Most problems occur either immediately on arrival or in the subsequent few days. If a new arrival especially appeals to you, and you are worried that the store may sell it before you return, then ask to leave a small deposit ,as a sign of good faith. All good store owners will be happy to do this for a regular customer, and if it should get ill , or needs further treatment, you can either wait, get your money refunded, or apply it to another purchase. In every case you will avoid almost certain problems.

Eight . Is your aquarium in perfect condition, and are the fish you wish to buy, unlikely to overload the carrying capacity of your tank. Each tank can only sustain so many fish, and if in your enthusiasm you wish to capacity beyond what the tank and it’s support system can safely allow, then catastrophe is guaranteed. The old rule of about 1 inch of fish body, per gallon of water in the tank is about right, at least in fresh water, yet I constantly see this been exceeded. Remember that in nature the fish have hundreds of times this “living space” and a constant natural replacement and/or natural eco- system and filtration to back it up.

Nine . Not always possible, but highly recommended. Try and have a small quarantine tank (10-25 gal) which you keep with some form of active biological filtration, etc, and keep the new arrival in this tank for 3-4 days after purchase. Should the worst occur, you can treat easily and effectively, without the trauma of pulling down

or destroying your main aquarium, in an attempt to catch all the inhabitants, or having to treat in the main aquarium, which at the least will use far more medication. Ensure that in the “hospital” tank, there is some stones or other hiding places, as otherwise the fish may easily become stressed due to fright. Normally I would not medicate, only if something appears that requires it, as all medications have some stress factor in themselves, but on occasion cannot be avoided.

Finally , read up on the fish you are keeping and wish to keep. Many fish have some special requirement in their diets, yet to many hobbyists, buy a packet of standard food, and feed that religiously every day, so that the essential missing factor in time assumes a critical importance and the fish weakens. By finding out through reading good literature you will become aware of what the needs of your fish are, and sometimes this will apply to water chemistry, temperature etc as well. Information is readily available in this day and age, so use it, and have happier and healthier fish.

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