

Diseases in Nature Part 13

By John *Shawn* Prescott



Butterfly fish showing typical early Vibrio lesion

. In this article I wish to deal with a disease which while quite prevalent in Tropical fish, is not so well known or referred to as often as it should be, in the literature. This bacterial disease goes by the name of ***Vibriosis*** The infective organism can be one of a number of varieties of this all to prevalent organism.

Vibrio bacteria are gram negative rods, which are about 0.5 X 1.5 um and are motile. When grown on suitable media they give rise to creamy coloured shiny colonies.

Possibly the most well known form is *Vibrio anguillarum* , called after the eels which were probably the first species to be identified in culture as been prone to infection by the pathogen.

However many other forms of the pathogen are now recorded, among them being *Vibrio haemolyticus* , *Vibrio alginolyticus* as well as others. They typically infect many forms of Marine Tropicals, but outbreaks have been reported also in some fresh water species.



Large ulcerative lesion caused by V.anguillarum

Once this pathogen is established it is very hard indeed to eradicate from a tank, without drastic measures such as pulling down the entire tank and sterilizing everything in it. This of course is not what most Hobbyists want to hear or do, but the unpleasant fact remains it is a most persistent bacteria, and can cause heavy mortality if not brought under control.

The infection has been observed in a great variety of fishes, from Damsel species, to Marine Angels, many soldier fish, squirrel fish, as well as lots of other species.

Outlook and prognosis:-

There are few infections more certain to spread to other fish in the tank, and with such virulence. Casualties are to be anticipated, and remedial action must be instituted at a very early stage, if the pathogen is to be arrested in it's march of destruction. Although like all diseases, as I have constantly in these articles pointed out, *Vibrio* will be most destructive in poor environmental conditions; this pathogen can however also break out by the introduction of a fish carrying the pathogen even when the tank is in an ideal condition. For this reason no suspect fish, no matter how attractive, should ever be purchased in the hope that it will get better.

It is possible, that the outbreaks are caused by the pathogen acting as an opportunistic organism, and entering the fish, when some small but otherwise harmless breakage in the skin or another part of the anatomy, presents a suitable chance for the bacteria to multiply. This is still not sufficiently understood, but many observations would appear to indicate this.

As very few Aquarists will discover this pathogen before the disease signs manifest themselves, it is usually the case, that the pathogen will have potentially spread to other fish in the Aquarium.

Thus one should be prepared to accept that some casualties will occur, and the success of any remedial treatment will be measured therefore by the extent to which the spread of the infection can be brought under control.

Treatment

Tetracycline The dosage will vary according to the chosen method.

A) 4 day bath. Use 1 gram in 100 litres of Aquarium water.

B) 24 hour bath in a separate container. Use 100 mg per litre of container water.

Tetracycline can also be used like *Chloramphenicol* as an addition to the feed, with the limitation as already mentioned that so often with *Vibrio* infections the fish will not eat. When attempting to use *Tetracycline* in the feed take 750 mg tetracycline HCL and mix same with 100 gram of feed. Use this mixture for at least one week, feeding twice daily in the morning and early afternoon. The feed that the medication is added to, should be highly nutritious and appealing to the fish, and beef heart (as prepared by the method given in Untergasser's excellent book, see references below), will appeal to such fish as may not be already to far infected.

Oxytetracycline . Use at the same dosage as *Tetracycline* above.

All of the above are antibiotics, and can only be obtained with a Veterinary prescription, in Europe and the UK

Please also note , that any of these antibiotics, are prone to disturb the Nitrifying bacteria in the filter bed. A very close watch during treatment, must be kept using high quality test kits, on the values of Ammonia and Nitrite. Should either or both of these important parameters, start to show meaningful measurements, then water changes and other corrective action must be taken without any delay, otherwise a potentially lethal extra problem will be added to the one under consideration. One can change the water, but far better is to only undertake these forms of treatment in a separate tank, when the problem, should it arise, can be remedied quickly and easily, by changing the water, sufficiently and frequently enough to keep the matter under control until the treatment period is over.

Revive . A company **Fish-Vet**® has managed to produce a product termed “ *Revive* ”. This product can be used in fresh and salt water tanks , and also in Reef tanks, as it has no adverse effects on any Invertebrates or Corals. It has proven most efficacious against *Vibrio* infections as well as other gram negative bacteria, though NOT against gram positive. It has the unusual characteristic, that in salt water, one must use only half the dosage, which is the reverse of what most other treatments call for. Most remedies that can be used in fresh and salt water, use more in salt water. In the case of *Revive* , the higher pH found in salt water, acts as a potentiator which accelerates the effect of the drug, and it is important to pay attention to the instructions, as otherwise much harm can be caused to the fish.

We have had great success with this product, and a growing number of stores and Hobbyists now testify to its usefulness, in treating this and other bacterial scourges. It not only can be used in fresh and salt water, but has no effect on the water chemistry, nor most importantly on the nitrifying bacteria.

I am often asked (about 6 times a week at least), if *Revive* can be used at the same time as the **No-Ick** product which treats Marine White Spot (*Cryptocaryon irritans*) . The logic of the question is that so often the White Spot parasite causes secondary bacterial infections, which in some cases at least will be *Vibrio* infections and in many others will be gram negative bacteria against which *Revive* is also effective. To try and pre-empt for some of you, who may wish to phone and ask this question, I know of no actual reason why one should not, yet I always advise against it. The reason is that any addition to the natural water, produces a strain of some kind on the fish, and no-one can be sure of the multiplying effect that these two, or any two medications can have in attempting a cure. The best advice I can give, is that if the need for both is indicated by the signs, then to finish the treatment and eradicate the White Spot first, then filter with a good quality charcoal for 24 hours to remove any residual *No-Ick* , and then add the *Revive* .

Like so many infections of fish, it is probable that *Vibrios* like many other pathogens, are really part of the background flora, in which the fish exist. Yet for reasons that are poorly understood, in some cases they have been detected, and yet never cause a problem, whilst in others, they just suddenly become pathogenic and cause wholesale havoc. There is a lot of research still needed to determine the actual reasons why one or the other should prevail. It may be that there are different subdivisions of the organism, which have not yet been characterized.

It may equally be, that some environmental parameter changes adversely, or that one fish, which becomes stressed or injured, causes the latent pathogen to assume a virulent form, which then can quickly spread to other fish, trapped as they are in a small body of water, i.e our Aquarium.

One other observation:- Each week I got calls or E Mail from Hobbyists, who have a problem, and are in some cases at least, in a panic to get a suitable treatment “yesterday”. I find it amazing that in this day and age, when the average household has a medicine chest full of common remedies, that Hobbyists most especially those, that have so often invested in their Hobby not inconsiderable sums of money, wait until disaster strikes before buying at least some of the most likely to be needed treatments. The cost of remedies versus the typical investment in a good aquarium is marginal, and some diseases such as “white spot” in both fresh and marine tanks, usually occur, at some time. As speed of suitable treatment is vital , I would strongly counsel our readers to have at home the most called for drugs, as it repays in spades as they say, by being able to start treatment at

the first sign of trouble, and the potential losses that this avoids, will repay many times over the cost of the small investment.

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Refs.

Bacterial Fish Pathogens Author B and D.A. Austin

Fish Medicine Author M.Stopskopf

Handbook Fish Diseases Author D. Untergasser