Ulcer Disease of Ornamental Fish

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Description of Disease

This disease has also been called "carp erythrodermatitis" and "goldfish ulcerative disease". It is caused by a bacterium called *Aeromonas salmonicida*, another strain of which causes a disease in salmon and trout known as furunculosis. This bacterium can cause skin ulcers and secondary invasion by other bacteria including *Aeromonas*, *Pseudomonas* and *Vibrio*, or fungus such as *Saprolegnia* frequently occurs. These secondary invaders tend to be common in the aquatic environment or as low-level 'latent' infections in otherwise healthy fish.

Fish may be carriers of *Aeromonas salmonicida* without exhibiting any signs of disease. Outbreaks usually occur only in fish which are in poor condition or which have been stressed. In a poorly maintained pond or aquarium, the disease can have devastating effects, as diseased fish release bacteria into the water which can infect other fish. Ulcer disease is one of the most common conditions of Koi carp and goldfish observed by the VSD Fish Diseases Unit diagnostic service.

Clinical Signs

Skin lesions such as ulcers or sores on the body, reddening at the base of the fins and the vent, loss of appetite and darkening of coloration are all symptoms of infection. The ulcers are said to have a characteristic "punched out" appearance, having a red centre surrounded by a white rim, this in turn being surrounded by a red area. These can increase in size and merge as the disease progresses. In very acute disease outbreaks fish may die without obvious ulcers or external symptoms.

Post-Mortem Findings

External ulcers of varying severity may or may not be present. There may be an accumulation of fluid in the body cavity, which is often bloodstained, and there may be haemorrhages over the internal organs.

Diagnosis

Presentation of the clinical signs described above along with laboratory isolation of the *Aeromonas salmonicida* bacteria, confirms diagnosis. However isolation of the causal bacteria can be complicated by the presence of other bacteria and fungi.

Treatment

Affected fish should be placed in a quarantine tank. If the fish are still feeding, a full course of antibiotic medicated flake or pelleted feed can be very beneficial. A course of antibiotic injections is the treatment of choice if large or very valuable fish are involved; bath treatment is generally not worth the cost and is often ineffective.

Misuse of antibiotics has rendered many infectious organisms resistant to treatment with standard antibiotics. Various antibiotics have been used, including the potentiated sulphonamides, neomycin, oxy-tetracycline and oxolinic acid. Efficacy will depend on sensitivity, the stage of the disease and the overall condition of the fish under treatment: therefore it is essential to seek veterinary advice and have an antibiotic sensitivity carried out.

The ulcers can be treated individually. Treatment requires anaesthetic, after which vigorous cleaning and debriding of the ulcer using antibacterials such as povidone iodine on cotton wool can be performed. The bed of the ulcer can be packed with dental paste and antibacterials can be mixed with this if considered appropriate. Once the ulcer has been treated, the fish can be held in a salt bath (approximately 0.5%) until it has recovered.

Ulcers should be cleaned in this manner only once as repeated treatments simply inhibit healing. In general repeated handling is stressful and should be avoided.

Control

The best method of long-term control is to identify and eliminate the factors responsible for bringing on the disease. Factors causing stress include poor water quality, overstocking, high temperature, handling and over-feeding.

Affected fish should be isolated. Care must be taken with equipment to avoid transmitting the disease between batches. Netting a fish which has an ulcer contaminates the net, and when used again this net rubs the bacteria into the skin of another fish. Disinfection of nets with benzalkonium chloride solution is very worthwhile since it has a detergent action which effectively removes mucus which might protect the bacteria from the effects of a disinfectant. Prompt veterinary involvement can help to minimise losses.

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