Bacterial diseases of fish

Bacterial Haemorrhagic Septicemia (Infectious abdominal dropsy, motile aeromonad disease, Redmouth disease)

- Many authors have identified fish species that are susceptible to all types and strains of motile aeromonads, but it is quite likely that most septicaemic forms of diseases in cyprinids are the result of aeromonad infection. For example in cyprinids, the familiar ulcerative disease in carp and goldfish may be caused by *Aeromonas. salmonicida* sub sp. *achromogenes*. In Europe, infection by this group of bacteria in cyprinids is widely known as ‘summer ulcer disease’

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Clinical pathology and diagnosis

- These organisms can be responsible for septicaemia disease in cyprinids, and the changes include haemorrhaging and surface ulcers of the skin, protruding scales, scale loss, exophthalmia, abdominal swelling and petechial haemorrhages on the gills. Internal examination may reveal varying amounts of pinkish-red fluid liberated from the abdomen when the fish is incised. Frequently there are haemorrhages and reddening of the gastro-intestinal tract, enlargement of the spleen and mottling of the liver .

- In histological sections, the lesion site reveals a loss of the epidermal epithelium, with inflammation and necrosis extending through the dermis and in some cases into the musculature. When the muscle tissue is affected, it becomes haemorrhagic and liquefied and colonies of bacteria can usually be seen in histological sections .

Occurrence

- Bacterial septicaemia in cyprinids is frequently associated with poor environmental conditions such as overcrowding, pollution, low oxygen levels and raised water temperatures. In fact, any combination of the above can lead to septicaemic disease in temperate cyprinids. Handling stress, warm weather and raised water temperatures (above 12°C) are common predisposing factors in epizootics associated with many bacterial diseases in cyprinids.

- Mortalities are generally low, perhaps up to 25%, but this figure depends on the population density and water conditions. Injuries, such as those caused by predators or angling, cause wounds that are ideal for aeromonad infections.

- In terms of geographical distribution, diseases caused by motile *aeromonads* are found in both farmed and wild cyprinids, worldwide.

Prevention and treatment

- Prevention of *aeromonad* diseases, like the majority of bacterial diseases in cyprinid populations, is made difficult because of the huge amount of movements of fish that take place for the ornamental industry and for sport fishing and aquaculture purposes.

- Treatments can be administered either prophylactic control or chemotherapeutic measure, however, antibiotic sensitivity tests must be performed before any antibiotics are administered.

Bacteria Gill Disease

- This disease affects mainly young fish of all species, but it is not uncommon in growers and even broodstock. The disease can occur throughout the year, but outbreaks are more common in spring than in late summer and fall.

Aetiology

- *Flavobacterium branchiophila*, is a Gram-negative, long, thin, filamentous rod

Clinical signs of disease

Gill is the only target organ and clinical signs include lethargy, dyspnea, coughing and flared opercula. Strands of mucus may trail from the gills and gill themselves may exhibit pale and/or swollen areas. Large numbers of diseased fish gather near the screen or inlet of the pond. Acute epizootics may result in a 20 to 50% mortality in 24 h.

Diagnosis

- Clinical signs, wet gill smears or histopathology. Isolation on Cytophaga Agar at 18°C.

Source •

• Carrier fish or contaminated water are considered to be sources of infection. However, epizootics are almost always associated with a deterioration of environmental conditions.

Prevention •

- Maintenance of a high quality environment is of utmost importance in the prevention of bacterial gill disease. Population level should be kept at lowest feasible levels to reduce the effects of crowding. The application of good sanitation practices is important. Clean ponds provided with an adequate flow of clean water coupled with prompt removal of dead or weak fish will reduce incidence of the disease.

Treatment •

- BGD usually responds well to antiseptic and surfactant baths such as Chloramine-T used in a single treatment at 10 ppm in a one-hour flush treatment but its effectiveness and toxicity are greatly affected by water quality and benzalkonium chlorides are used in concentrations of 1 - 2 ppm (calculated on the basis of the active ingredient) as a I-h bath or continuous flow treatment and Diquat it has been used at a concentration of 8.4 - 16.8 ppm of the formulated material, or 2 - 4 ppm on the basis of active ingredient (Diquat cation). Providing adequate oxygen is useful supportive therapy. **Most compounds require multiple applications for effective results.**

Salmon fry affected by bacterial gill disease and presenting with mottled and swollen gills.