Furunculosis

I. Causative Agent and Disease

Furunculosis is caused by a Gram-negative bacterium known as *Aeromonas salmonicida* and is probably the most commonly encountered bacterial pathogen in cultured salmonids. The disease occurs worldwide in freshwater and has also been reported in the marine environment. It is known to occur in North America, Europe, Asia, and Africa. Furunculosis is characterized by a generalized bacteremia with focal necrotic swellings in the muscle tissue called furuncles.

II. Host Species

All salmonid species are susceptible. Rainbow trout show some resistance. Young fish are the most susceptible, especially when the water temperatures are > 8º C. In hatcheries, pink and chum salmon are less likely to develop furunculosis since they are not reared long before being released to seawater. Many non-salmonid species of fish in both marine and freshwater are also susceptible to infection by *A. salmonicida,* some strains of which are atypical.

III. Clinical Signs

In acute septicemia where rapid death may occur, gross clinical signs may not develop. In subacute and chronic infections, body darkening, lethargy and loss of appetite are associated with the typical focal necrosis in the muscle, often visible as a swelling under the skin. These lesions eventually ulcerate producing deep craters. Erythema, petechiation and exophthalmia may be present and the abdomen of the fish may be distended with internal ascitic fluid. Bloody fluid may be discharged from the anal vent and the kidney, liver and/or spleen may be enlarged.

IV. Transmission

Horizontal transmission to susceptible fish is via the water column or by the fecal-oral route. Diseased or carrier fish are point sources of infection. Increasing water temperature exacerbates the incidence and intensity of infection. Vertical transmission of the bacteria has not been demonstrated.

V. Diagnosis

Presumptive diagnosis is made by culture of a Gram-negative, oxidase positive (an oxidase negative isolate has been described), non-motile bacterial rod from blood, kidney, or lesions on TSA or furunculosis agar with the production of a brown diffusible pigment. Some strains of bacteria may not produce pigment. Diagnosis is confirmed by biochemical tests, slide agglutination and fluorescent antibody tests specific for *A. salmonicida*.

VI. Prognosis for Host

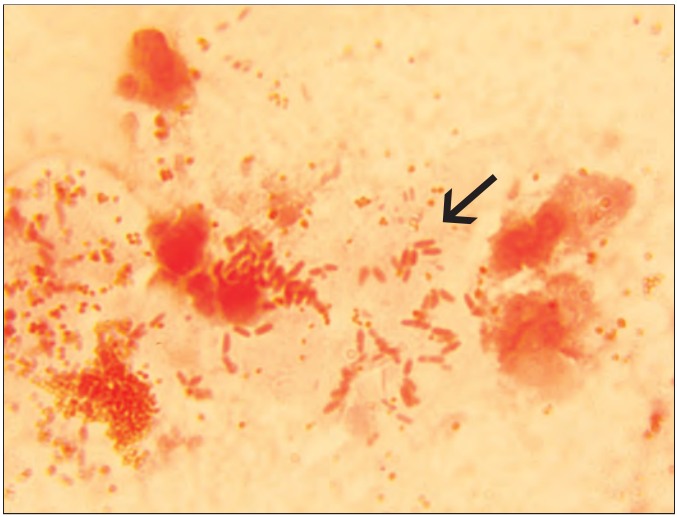
In nature, the disease usually results in mortality. In a hatchery, prognosis for the fish population is good if the condition is caught early and antibiotic therapy is initiated.

VII. Human Health Significance

There are no human health concerns associated with *A. salmonicida.*

Typical furuncle lesion on adult sockeye salmon with furunculosis.

Early furuncular lesion on young salmonid fish with furunculosis.



Kidney impression showing Gram-negative (red) bacteria (arrow) of *Aeromonas salmonicida* causing furunculosis, X 1000