



NAAHTWG Slide of the Quarter (April – June 2006) – Barramundi (*Lates calcarifer*) infected by *Streptococcus* *iniae*

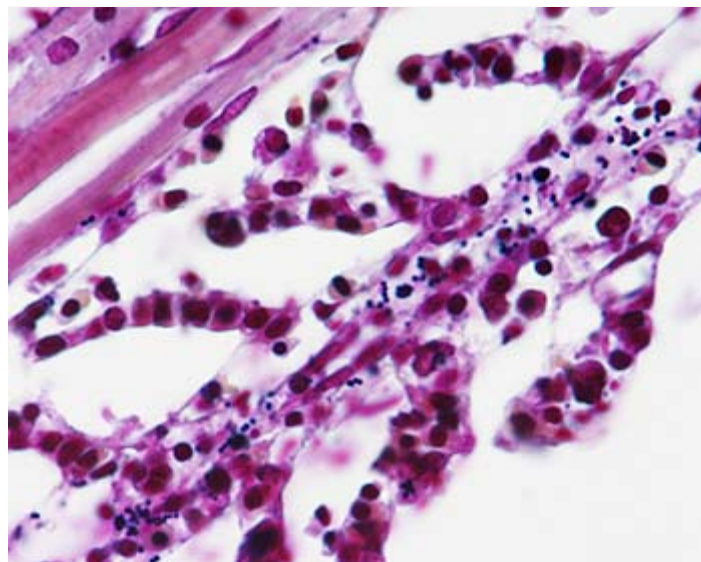
**Case 1 – 05-3191150 (2005/V1178) – Section including gill, kidney,
liver, intestine and heart from barramundi**

Case History

80 days-old barramundi in an enclosed, recycling-water growing facility were showing increasing mortalities. Fish were moribund at time of collection.

Histopathology

All fish showed branchitis, myocarditis, and nephritis associated with large numbers of small cocci (see figures below).



**Figure 1: Gram positive cocci, *Streptococcus iniae*, in the gill of
juvenile barramundi, x1000.**

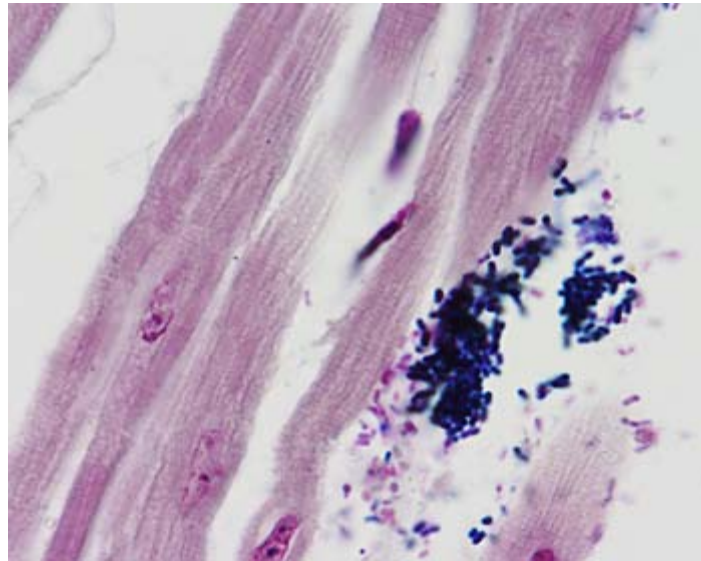


Figure 2: A clump of Gram positive cocci in skeletal muscle, x1000.

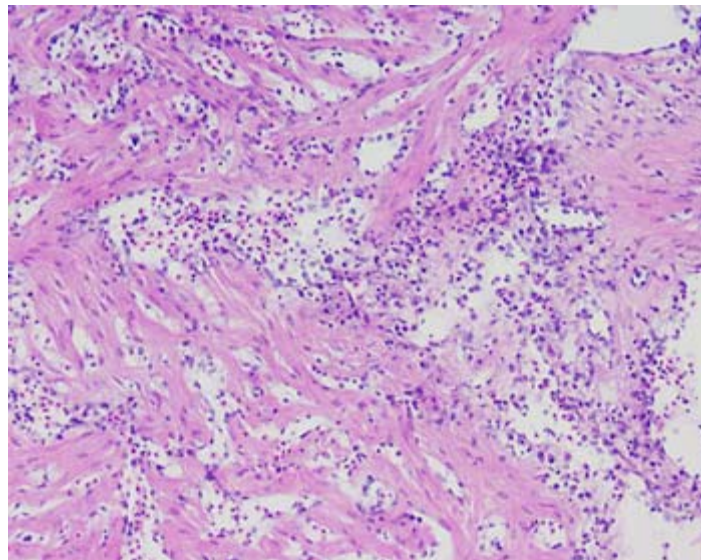


Figure 3: Inflammation in the heart of barramundi infected with *Streptococcus iniae*, x200.

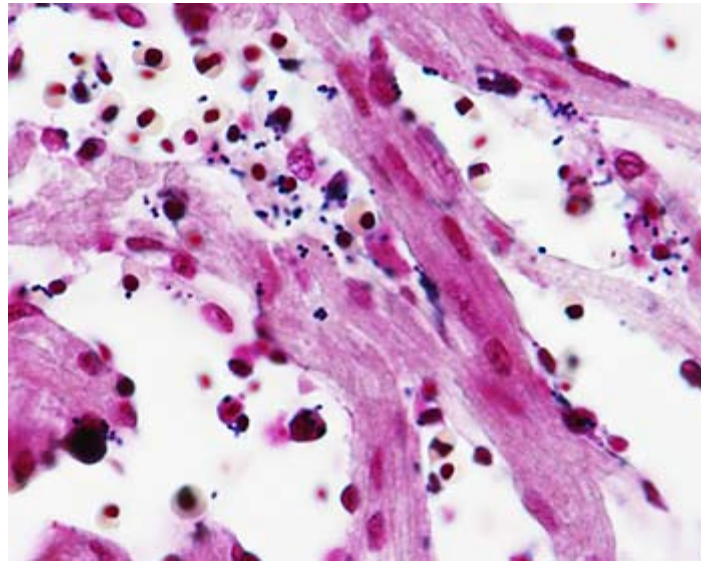


Figure 4: Gram positive cocci and inflammatory cells in the heart, x1000.

Morphological diagnosis

Multiple organ inflammation associated with bacterial infection.

Aetiological diagnosis

Heavy pure growths of *Streptococcus iniae* were cultured from the kidneys of these fish.

Comment

Streptococcus iniae is a bacterium associated with fresh-water run-off, muddy water and high temperatures. It can cause large mortalities of fish and amphibians, both in aquaculture and in the wild.

Outbreak of disease in fish often follows stressful events, such as low dissolved oxygen, increases in turbidity or increases in water temperature.

As with many environmental bacteria, *Streptococcus iniae* can also cause infection in humans through abrasions or puncture wounds associated with handling fresh fish.

The disease has been reported in fish in many countries, including the United States, India, Japan, Italy, the Middle East and Australia.



The route of infection has been postulated as oral, with moderate infection numbers causing sub-acute disease and mass mortalities occurring with increasing numbers of bacteria in the environment (1).

1. Bromage ES & Owens L (2002), *Dis Aquat Org* 10; 52 (3):199-205

NAAHTWG - National Aquatic Animal Health Technical Working Group