BACTERIAL DISEASES III

BACTERIAL KIDNEY DISEASE (Dee Disease)

- Bacterial kidney disease (BKD) is a chronic bacterial disease first reported in wild Atlantic salmon populations in the rivers Spey and Dee in Scotland in 1933.
- Agent: *Renibacterium salmoninarum*

BACTERIAL KIDNEY DISEASE (Dee Disease)

- The gross external pathology of BKD is variable and ranges from a complete lack of clinical signs to fish exhibiting protruding eyes (exophthalmia), darkening of the skin and haemorrhage at the base of the fins.

BACTERIAL KIDNEY DISEASE (Dee Disease)

- The gills may appear pale and anaemic and internally there may be fluid accumulation in the abdominal cavity and enlargement of the kidney.

BACTERIAL KIDNEY DISEASE (Dee Disease)

- Histopathological signs:
- Proliferation of macrophages in kidney and muscle
- In longstanding cases, there is often caseation of the center the lesion, hence the cavitation in muscle with numerous lymphocytes in stroma.

FISH TUBERCULOSIS

- Agent: Mycobacteria are a class of rod-shaped bacteria that are infamous for the difficulty they pose in detecting and isolating the cells within their host organisms. This is due to the fact that mycobacteria (including *Myobacterium marinum*), are acid-fast and do not stain by traditional means.

FISH TUBERCULOSIS

- Several species of mycobacteria infect fish with fish tuberculosis, including *M. fortuitum*, *M. flavescens*, *M. chelonae*, *M. gordonae*, *M. terrae*, *M. triviale*, *M. diernhoferi*, *M. celatum*, *M. kansasii* ,*M. intracellulare*, and *M. marinum*. Because of the wide range of fish found to be infected with different Mycobacterium, it is assumed that all fish are susceptible to fish tuberculosis.

FISH TUBERCULOSIS

- Affected fish may be cachexic, darker in color, and Show swelling of the abdomen.

FISH TUBERCULOSIS

- At necropsy, miliary tubercles may be found in virtually any organ, but especially in the liver, spleen, and kidney.

FISH TUBERCULOSIS

- Histopathological findings vary but ZN-positive bacilli are seen. The condition is less cellular than tuberculosis in mammalians and the presence of the Langhans type giant cells characteristic of the mammalian tubercle was not reported.

FISH TUBERCULOSIS

- Treatment and control:
- There are no FDA-approved treatments for mycobacteriosis in cultured food fish, nor are there any unapproved products that are effective.

FISH TUBERCULOSIS

- Prevention is thus far based solely on avoidance of infection. Therefore, suspected or infected fishes should never be introduced into a pond or aquarium. Quarantine is important in ornamental fishes.

FISH TUBERCULOSIS

- The infected system should be depopulated and all equipment with a mycobacteriocidal agent such as Lysol® or concentrated (50 to 70 percent) ethyl alcohol.

References for Bacterial Diseases

- Hadi AA, Alwan SF (2012) Histopathological changes in gills, liver and kidney of fresh water fish, *Tilapia zillii*, exposed to aluminum. *Int. J. of Pharm. & Life Sci*. (IJPLS), 3(11) : 2071-2081.
- Hibiya T. An Atlas of Fish Histology Normal and Pathological Features. 1982.
- Roberts RJ. Fish Pathology. 2001.
- http://203.250.122.194/lecture/histology/htmht3/His36.htm (Erişim tarihi: 20.10.2018)
- https://akffa.files.wordpress.com/2013/02/performing-a-fish-autopsy.pdf (Erişim tarihi: 14.10.2018)

References for Bacterial Diseases

- Yonkos LT, Fisher DJ, Reimschuessel R, KANE AS (2000). Digital atlas of feathead minnow histology. http://aquaticpath.phhp.ufl.edu/fhm/index.html (Erişim tarihi: 20.10.2018)
- Australian Government, Department of Agriculture, Fisheries and Forestry https://thefishsite.com/disease-guide/furunculosis (Erişim tarihi: 04.11.2018)
- Declercq AM, Haesebrouck F, Van den Broeck W, Bossier P, Decostere A (2013) Columnaris disease in fish: a review with emphasis on bacterium-host interactions. Veterinary Research 44:27.
- Guevara Soto M, Vaughan L, Segner H, Wahli T, Vidondo B, Schmidt-Posthaus H (2016) Epitheliocystis Distribution and Characterization in Brown Trout (Salmo trutta) from the Headwaters of Two Major European Rivers, the Rhine and Rhone. Front Physiol, 18;7:131.
- Blandford MI, Taylor-Brown A, Schlacher TA, Nowak B, Polkinghorne (2018) Epitheliocystis in fish: An emerging aquaculture disease with a global impact. Transbound Emerg Dis.