



Tikrit University  
College of Veterinary Medicine

## ***Viral diseases***

Subject name: Fish diseases

Subject year: 5<sup>th</sup> stage

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## **Viral diseases**

### **1.Spring Viraemia of Carp (SVC)**

*Spring Viremia of Carp (SVC)* is a contagious viral disease mainly seen in farmed carp outbreaks can cause substantial 90%.

#### **Pathogen**

*Spring Viremia of Carp* is caused by *Rhabdovirus carpio*.

#### **Transmission**

- 1-This virus is shed in the feces and urine with exudate of skin .
- 2-Transmission is by direct contact or through the water.
- 3-Transmitted by fish parasites include the carp louse *Argulus* and leech.

#### **Clinical signs & Post-mortem lesions**

- 1-Accumulation of fish at the water inlet and sides of the pond.
- 2-Hemorrhage on the skin & gills.
- 3- Exophthalmia
- 4- Ascites
- 5-Petechial (pinpoint) haemorrhages of skin, gills ,eyes, muscles and the base of fins and around the vent.
- 6- Blood can be seen inside the swim bladder.

#### **Diagnosis**

- 1-Spring viremia of carp can be diagnosed by virus isolation in cell cultures.
- 2-The identity of the virus is confirmed by Polymerase Chain Reaction assay (PCR) and enzyme-linked immunosorbent assay (ELISA).

#### **Control**

- 1-Use good quality water supply
- 2-Disinfection of eggs by iodophore treatment
- 3-Removal the dead fish
- 4-Good biosecurity and sanitation are necessary to prevent the virus from entering a farm.

## Treatment

There is no treatment ,but it can be Mathelen blue 3gm/ kg of feed.

## 2-Viral hemorrhagic septicemia(VHS)

*Viral hemorrhagic septicemia* is a highly contagious virus leading to high mortality in a large panel of freshwater and marine fish species

### Pathogen

VHS caused by genus *Novirahbdo* virus family *Rahbdoviridae*

### Transmission

1- Direct contact

2-The virus enter the body through the gills , wounds and oral infection by contaminated water.

### Signs

Found three forms the diseases are:

#### 1-Acute form

a-Darkening of the body

b-Anemia

c-Exophthalmia

d-Hemorrhage may be seen in the eye & gills

e-High mortality

#### 2-Chronic form

a-The infected fish blacken & the gills lose color

b-Ascites

c-Mortality is low

d-Present the yellow color around the vent

e-Spongy muscle

g-Infected fish swimming are near the pond surface



### 3-Nervous form

- a-Twisted the fish body
- b-The infected fish swim in circles form.

### Post mortem lesions

#### 1-Acute form

- a-Present the hemorrhage in the skeletal muscles, adipose tissue in the abdomen, air bladder, intestine & other organs.
- b-The spleen and liver may be enlarged and sometimes is dark red
- c-The kidney is reddened

#### 2-Chronic form

- a-The body cavity may be filled with fluid
- b-The spleen & liver may be contain petechiae
- c-The kidney are often grayish swollen

### Diagnosis

- 1-Present the nervous signs & hemorrhages
- 2- Isolation and identification the pathogen
- 3- Serological tests like ELISA and PCR.

### Treatment and control

There is no treatment for VHS.

### 3-Carp pox

Fish infected with carp pox have distinctive white, waxy lesions that appear during the low temperatures of winter and early spring. The lesions tend to reduce as temperatures rise in the summer.

### Pathogen

*Herpes virus* is classified as a double-stranded DNA virus belonging to the family *Herpes viridae*.



### Methods of spreading (transmission)

- 1- Direct contact between the healthy and infected fish.
- 2- These carrier fish may not show signs of infection although they may be carrying or shedding the virus

### Clinical signs and lesions

- 1- The gill mottling with red and white patches with present necrosis.
- 2- Sunken eyes, and pale patches on the skin.
- 3- Enlargement with mottled appearance of internal organs.

### Diagnosis

- 1- Microscopic examination of gill biopsies.
- 2- PCR techniques.
- 3- ELISA

### Treatment

There is no treatment for HV.

### Prevention

- 1- Good management
- 2- Prevent over crowding
- 3- Add Cao 40-50 kg / doneum.