



Tikrit University  
College of Veterinary Medicine

# Viral Arthritis

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Lecturers link



## Viral Arthritis

An economically important disease of chickens that can be caused by different serotypes and pathotypes of avian reovirus. The disease is considered to be most important in meat-type chickens but has from time to time been diagnosed in commercial layers.

### **Public Health Significance:**

No implications of public health significance

### **Etiology:**

Avian reoviruses are members of the Orthoreovirus genus in the family Reoviridae, include a doublestranded RNA (dsRNA) genome.

### **Transmission:**

- 1-Vertically.
- 2-Horizontally.

### **Susceptible animals:**

Chickens.

### **Morbidity & Mortality:**

Morbidity about 100% and mortality less than 6%.

### **Clinical Signs:**

- 1- In acute infections, lameness is present, and some chickens are stunted.
- 2- With chronic infection, lameness is more pronounced.
- 3- Rupture of the gastrocnemius tendon, especially in male roaster birds 12–16 weeks old.
- 4- The typical uneven gait in bilateral rupture of the tendon results from the inability of the bird to immobilize the metatarsus. The latter is often accompanied by ruptured blood vessels.

### **Gross Lesions:-**

- 1- Swellings of the gastrocnemius, digital flexor and metatarsal extensor tendons.
- 2- The affected joints usually feels warm.
- 3- If the gastrocnemius tendon is ruptured, this can often be perceived as a greenish discoloration of the skin due to extravasation of blood.
- 4- Removal of the skin will reveal the broken end of the tendon.
- 5- Swellings of the foot pad and hock joint are less frequent.

- 6- The hock usually contains a small amount of straw-colored or blood stinted exudate; in a few cases, there is a considerable amount of purulent exudate resembling that seen with infectious synovitis.
- 7- Edema of the tarsal and metatarsal tendon sheaths.
- 8- Petechial hemorrhages are frequent in the synovial membranes above the hock.
- 9- Chronic-type lesion characterized by hardening and fusion of tendon sheaths.
- 10- Small-pitted erosions develop in the articular cartilage of the distal tibiotarsus.
- 11- An overgrowth of fibro-cartilaginous pannus develops on the articular surface.
- 12- The diaphysis of the proximal metatarsal of the affected limb is enlarged.

### **Microscopic Lesions:**

#### **During the acute phase:**

- 1- Edema, coagulation necrosis, heterophil accumulation, and perivascular infiltration are seen.
- 2- Hypertrophy and hyperplasia of synovial cells, infiltration of lymphocytes and macrophages, and a proliferation of reticular cells.
- 3- Parietal and visceral layers of the tendon sheaths to become markedly thickened.
- 4- The synovial cavity is filled with heterophils, macrophages, and sloughed synovial cells.
- 5- Periostitis characterized by increased osteoclasts develops.

#### **During the chronic phase:**

- 1- The synovial membrane develops villous processes, and lymphoid nodules are seen.
- 2- An increase in the amount of fibrous connective tissue occurs, and a pronounced infiltration or proliferation of reticular cells, lymphocytes, macrophages, and plasma cells also can be seen.
- 3- Some tendons are replaced completely by irregular granulation tissue, and large villi form on the synovial membrane.

### **Immunity:**

Neutralizing antibodies can be detected 7–10 days following infection, and precipitating antibodies at approximately 2 weeks.

### **Diagnosis:**

- 1- Isolation and Identification of Virus.
- 2- Molecular Methods.
- 3- Serology ( agar gel precipitin test or indirect fluorescent antibody (IFA) assay, ELISA).

### **Differential Diagnosis:**

All joint infections and non-infectious agents including *Mycoplasma synoviae*, staphylococci or other bacteria, trauma....

### **Treatment**

No successful treatment is available.

### **Prevention and Control**

- 1- Biosecurity.
- 2- Vaccination (1 day of age and then develop an age-associated resistance beginning as early as two weeks, vaccination with viable attenuated reovirus that is usually applied by the subcutaneous route, although immunization by coarse-spray application of vaccine has also been used.).

Note : If a live vaccine is used, it should be administered prior to the onset of egg production to prevent transovarian transmission of the vaccine virus.