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Popular Article

## Avian Borreliosis

**Dr. Kalyani Putty**

Assistant Professor and Head, Department of Veterinary Biotechnology,  
College of Veterinary Science, PVNR Telangana Veterinary University, Rajendranagar,  
Hyderabad

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### Introduction

Avian borreliosis, also referred to as fowl spirochetosis, is an acute, highly fatal septicemic disease of birds caused by the helical spirochete bacterium, *Borrelia anserina*. It is an acute, insect born, septicemic disease of many species of birds, characterized by high fever, anorexia, depression, cyanosis of the head, diarrhea, leg weakness progressing to paralysis and death. The highest incidence of avian Spirochaetosis is recorded during summer months where the insect vectors are common, but may be observed at any time through the year.

### Etiology

Spirochete infection caused by helical-shaped bacteria. Two distinct forms exist because of difference in colonization, pathogenesis and lesion production. 1.Acutesepticaemicborreliosis (bloodspirochetosis) caused by tickborne *Borrelia anserine*(*B.anserina*). 2. Subacute-to-chronic intestinal disordersof varying severity caused by different groups of spirochetes (Serpulina species).

### Susceptibility

Chickens, turkeys, geese, ducks, pheasants and canaries. Pigeons are refractoryto natural infection. All ages are susceptible but Youngbirds are affected more severely than older ones. Older birds tend to be more resistant. Usually seen in tropical or subtropical countries. Wherever the biologic vectors are found. The most common vector is *Argaspersicus*.



## Clinical Signs

The course of the disease is 1–2 weeks. Mild strains are common. However, in many tick-infested geographic areas, morbidity and mortality might approach 100% in exceptional cases. Signs of avian spirochetosis are highly variable, depending on the virulence of the spirochete and the age of the birds, with young birds being more affected. The signs include depression, cyanosis, thirst, often diarrhoea with excessive urates, Weakness and progressive paralysis, Drops in egg production may be seen in both systemic and intestinal forms.

## Diagnosis

Avian borreliosis is confirmed through laboratory tests which confirm the presence of *B. anserina* or its antigens in affected birds. Dark-field microscopy is the method of choice for identifying spirochetes in blood. Avian borreliosis can be diagnosed postmortem by finding characteristic lesions in birds with signs consistent with the disease. These include: Spleen: Marked enlargement and mottling of the spleen. However, this may not be present in birds infected with low virulent strains or early in the disease. Liver: The liver is often enlarged and contains small hemorrhages, pale foci, or marginal infarcts. Kidneys: Kidneys are swollen and pale with excess urates distending the ureters. Intestines: Green, mucoid intestinal contents are usually present, and there often are variable amounts of hemorrhage, especially at the proventriculus-ventriculus junction. Heart: Fibrinous pericarditis occurs infrequently.

## Treatment

Most antibiotics, including penicillin, chloramphenicol, kanamycin, streptomycin, tylosin, and tetracyclines, are effective in treating infected birds.

## Control

Hygienic disposal of dead birds and destroying all the birds in severely affected flocks. Eradication of the ectoparasites (ticks, mites, other biting insects) by using of insecticides: On the host birds by wet dipping in malathion 0.5%. In the houses and the surroundings by malathion 3%. It may be difficult to eradicate the fowl tick without destroying the infested wooden building and destroying all the birds in severely affected flocks.

Control must be directed against the biologic vector. *Argas* ticks are notable for their long lifespan, ability to survive for extended periods without a blood meal, efficiency in transmitting the spirochete, and ability to remain securely hidden in cracks and crevices often beyond the



effective reach of pesticides. Accordingly, control is difficult. A combination of tick eradication and immunization is the most effective means of control.

### **Vaccination**

A wide variety of bacterins have been prepared. Avian spirochete vaccine (killed vaccine) is used for vaccination of chicken, turkeys, duck, geese. An autogenous or polyvalent vaccine containing multiple serotypes may be necessary to provide full protection. Age of vaccination: 4-6 months and immunity is for 6 months.

