



Lecture title:

Lecturer Affiliation:

Summary:

Def:

Staphylococcus aureus is Gram-positive! cocci, normally inhabitant of skin and mucous membrane and in environment. Damaged skin or mucus membrane will enable staph. Aureus to enter to internal location .

Etiology

There are more than 45 species and 25 subspecies in the genus Staphylococcus. S. aureus is the most common species of birds causing disease. Staphylococci are Gram - positive, coccoid and when grown on solid medium, bacteria form grape like clusters.

Transmission

Bacteria enter the body through skin wound or mucous membrane. It is more common in immunocompromised hosts., especially seen associated with Infectious bursal disease, Mareks' disease and Chicken infectious anaemia
Forms of staphylococci:

1- Septicaemia

- Bird may be found dead.

2- Arthritis and tenosynovitis

Signs occur in birds of any age. The affected joints, usually the hocks, are hot, swollen and painful. The affected birds are depressed and unable to walk.

In tenosynovitis, the synovial membrane of tendon sheath (commonly in the region of the hock and feet) become thickened and oedematous.

3- Bacterial chondronecrosis and osteomyelitis

This disease is the most common cause of lameness in broiler chickens. The disease is often associated with green liver in turkeys,

The disease sometimes called femoral head necrosis but the proximal end. of the tibiotarsus may be affect.

4- Gangrenous dermatitis



Commonly in broiler chickens. The wing Tips and back are most affected. Skin is darkened or weeping, and the underlying tissue may be oedematous. Staphylococci have been recovered together with Clostridium spp.

5 - Subdermal abscesses

Affect the feet (Bumble foot) and sternal bursa. They occur most frequently in mature birds, particularly those of heavy breeds. Caseous material accumulates and there is swelling, heat and pain.

6 - Endocarditis and granuloma

Vegetative endocarditis may also be a result of septicaemic infection, and particularly affects the left atrioventricular valves. Small granulomatous lesions may occur in liver, and sometimes in spleen and kidney.

7- Yolk sac infection (omphalitis)

It is the commonest cause of mortality in chicks during the first week after hatching. Yolk sac infection can be associated with a thickened inflamed, prominent and necrotic navel. The affected chicks appear depressed, distended abdomens and tendency to huddle. Unabsorbed yolk sac with the yolk abnormal in color and consistency.

Diagnosis:

- 1 - History, clinical signs and PM lesions.
- 2 - Laboratory diagnosis depends on the isolation and identification of staph. aureus.
- 3-Serology is not usually used in the diagnosis of this bacteria. PCR based molecular techniques are useful in the diagnosis.

Differential diagnosis:

Staphylococcosis must be differentiated from any disease causing lameness and leg disorders in poultry which either Bacterial (E. coli, Pasteurellosis or viral (viral arthritis/tenosynovitis). Also, Nutritional disorders such as (Cal-P-Vit. D. def.).

Control and Treatment:

Administration of Tetracyclins or Streptomycin/penicillin combination especially at early stage of infection.



Streptococcus infection

Streptococcosis has been reported from avian species worldwide. Bacteria produce acute septicemic and chronic infection. Streptococcosis has wide range of host ranging from many avian species including wild birds.

Etiology

Streptococci are Gram-positive, non-spore forming, non-motile facultative anaerobes. They occur singly, in pairs or short chains. *S. zoozooepidemicus* is species associated with disease in avian species. Other species of streptococcus (*S. bovis*, *S. dysgalactiae*, *S. pleomorphus*) have occasionally been isolated from birds.

Transmission

occurs via oral and aerosol route.

Clinical Signs

1- Septicaemia

In chickens, septicemia is most common in adults, but may occur at any age.

Clinical signs:

Birds may be found dead. There is marked depression with ruffled feathers, cyanosis of the face and comb. Blood-staining of feathers around the head. Mortality can vary but may reach 50%. Decrease in egg production and late embryonic mortality.

Lesions:

- Congested carcass splenomegaly and hepatomegaly.
- Hydropericardium - pin-point necrotic foci on the liver.
- In late stage, fibrinous pericarditis, perihepatitis and pneumonia.

2 - Cellulitis

- Caseous plaques found under the skin.
- Skin may appear thickened or discolored.

3 - Encephalomalacia

Affected chicks may be found closed or exhibit nervous signs. (Torticollis is common).



4- Endocarditis

It causes vegetative endocarditis in young and older birds.

5- Amyloid arthropathy

Lesions

1) In acute infection, hepatomegaly and splenomegaly with congestion and peritonitis of tissue are observed. 2) Blood stained tissue around the mouth and head. 3) Chronic infection is marked by fibrinous arthritis, tendosynovitis, osteomyelitis, perihepatitis, necrotic myocarditis and valvular endocarditis. Lesions of valvular endocarditis involve mostly mitral valves

Diagnosis:

- 1- Clinical signs.
- 2- PM. Lesions.
- 3- Isolation & identification of the pathogenic cause.

Treatment

- Quinolones, Pencillins and tetracyclines.

Prevention and Control

Proper cleaning and disinfection of premises help in prevention of the disease.
Control of conditions causing immunosuppression helps in control