vaxxinova
veterinary prevention strategies

Avian Diseases

This dissected bird is a seven week old broiler. Please note that some organs have been moved from their normal position for visualization.

01 | Trachea
02 | Esophagus
03 | Thymus
04 | Vagus Nerve
05 | Crop
06 | Lung
07 | Heart
08 | Spleen
09 | Proventriculus
10 | Liver
11 | Gall Bladder
12 | Ileum & Jejunum
13 | Gizzard
14 | Kidneys
15 | Pancreas
16 | Duodenum
17 | Bursa
18 | Cloaca
19 | Large intestine
20 | Cecal Tonsils
21 | Ceca

1

:: Avian Encephalomyelitis

Avian Encephalomyelitis, also called Epidemic Tremors, is caused by a virus belonging to the Picornaviridae family. The virus, targeting the central nervous system of chickens and other birds, is of economic concern to breeders and layers as it causes a decrease in egg production in laying hens, a decrease in hatchability and neurological disorders in chicks less than three weeks of age.

2

:: Avian Influenza

Avian Influenza (avian flu or bird flu) is a highly contagious disease caused by an Influenza virus. **Avian Influenza** strains are divided into two types based on their pathogenicity: high pathogenicity (HP) or low pathogenicity (LP). **LP AI virus** typically produces respiratory signs such as coughing, ocular and nasal discharge, and swollen infraorbital sinuses. **HP AI virus** causes a severe, systemic disease with high mortality (as high as 100% in a few days). In peracute cases clinical signs or gross lesions can be lacking. Other symptoms are cyanosis and edema of the head, comb and wattle, edema and red discoloration of the shanks and feet due to subcutaneous haemorrhages and petechial hemorrhages on visceral organs and in muscles.

3

:: Avian Rhinotracheitis

Turkey Rhinotracheitis, more recently called Avian Rhinotracheitis or Avian Metapneumovirus Infection, is caused by an avian Metapneumovirus. The virus infects the upper respiratory tract of turkeys and chickens. It causes mucous to purulent secrets, swelling of the infraorbital sinuses (SHS, swollen head syndrome) and respiratory problems. In severe cases, aggravated by secondary infections, egg production is reduced.

4

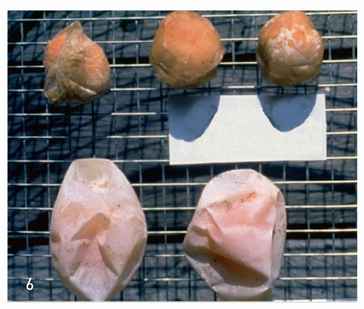
:: Chicken Anemia Virus

Chicken Anemia Virus causes aplastic anemia and lymphoid atrophy in young chicks by inducing apoptosis in thymocytes. This results in immunosuppression. Affected birds often have severly bruised wings (Blue wing disease). Older birds seroconvert without symptoms; offspring of such birds is protected.

5

:: E. coli infection

E. coli infections (Colibacillosis), caused by the bacteria **Escherichia coli (E. coli)** is distributed among poultry of all ages. **E. coli**, a natural inhabitant of the gut in poultry, is opportunistic in nature and will grow rapidly in times of stress and dysbalance. The disease is spread through fecal contamination via the respiratory tract. Signs are nonspecific and vary with age, organs involved, and concurrent diseases.
Signs may include listlessness, ruffled feathers, depression, decreased appetite, cough, and labored breathing. Yellowish colored droppings, diarrhea, and pasted vents are also common in more severe cases.


6

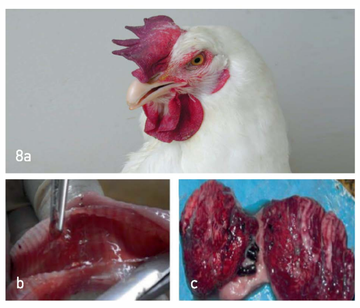
:: Egg Drop Syndrome

EDS 76 or **Egg Drop Syndrome** is caused by an Atadenovirus (DAdV1). It affects layers and breeders. Infection during production will cause a severe decrease in egg production and poor shell quality. Eggs may have reduced pigmentation, soft shells or irregular shapes. Shell-less eggs may also be seen.

7

:: Fowl Cholera

Pasteurella multocida subspecies multocida is the most common cause of **fowl cholera**. The site of infection for **P. multocida** is the respiratory tract. The outcome of infections ranges from peracute/acute infections to chronic infections. In the former type of infections, few clinical signs are observed before death and the lesions will be dominated by general septicaemic lesions. In chronic forms of **P. multocida** infections, suppurative lesions may be widely distributed, often involving the respiratory tract and conjunctiva.
Another local form is the involvement of wattles that are strongly distended because of fibrinous caseous content.



:: Infectious Bronchitis

Infectious Bronchitis is a disease of birds caused by a Coronavirus. The virus targets the respiratory tract. Tracheitis is a common finding; damage of the reproductive and the urogenital tract are likely. Infection during lay causes decreased egg production and poor shell quality. The large genetic and phenotypic diversity of **IBV** have been resulting in a multitude of strains of **IBV**, complicating the use of vaccines to control the disease.

9

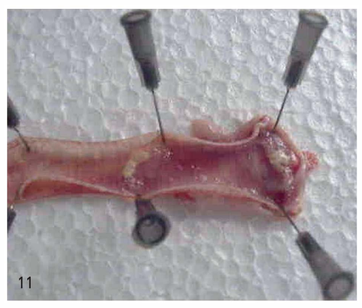
:: Infectious Bursal Disease

IBD (also known as Gumboro disease or infectious avian nephrosis) is a highly contagious disease of young chickens caused by a RNA-virus of the genus Avibirnavirus (family Birnaviridae). **IBD** is characterized by immunosuppression and mortality generally at 3 to 6 weeks of age, caused by damaging the bursa of fabricius. Disease may appear suddenly and morbidity typically reaches 100%. Bursas can become swollen and yellow in colour due to oedema or severely hemorrhagic.

10

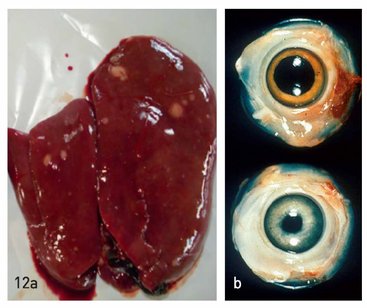
:: Infectious Coryza

Infections Coryza is a highly infectious bacterial disease of chickens. The disease, caused by Avibacterium paragallinarum is characterised by catarrhal inflammation of the upper respiratory tract, especially nasal and sinus mucosae. Signs of the disease include facial swelling, purulent ocular and nasal discharge, Sneezing, loss in condition, drop in egg production of 10-40 % and inappetence.


11

:: Infectious Laryngotracheitis

Infectious Laryngotracheitis, caused by a herpesvirus, produces hemorrhagic tracheitis. Infected birds may cough up blood clots. If damage is severe, the tracheal lumen will become occluded with blood. Recovered birds are long-term carriers.



:: Marek´s Disease

Marek's disease is caused by an alphaherpesvirus (MDV). **Marek's disease** usually affects young adult chickens. Clinical pictures can vary. Asymmetric paralysis of one or more limbs is a characteristic sign. Besides lesions in the peripheral nerves, there are frequently tumours in the skin, skeletal muscle and visceral organs (ovary, spleen, liver, kidneys, lungs, heart, proventriculus).
Another common finding is the swelling of the sciatic nerve, and lymphocyte infiltration of the iris makes the iris turn grey, unequal size of the pupils and blind.

13

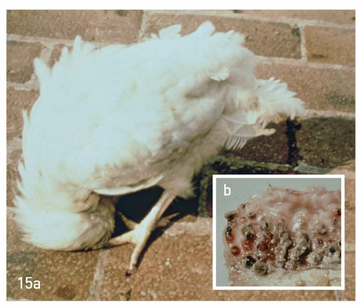
:: Mycoplasmosis

Several species of **mycoplasmas** can infect poultry, with **Mycoplasma gallisepticum (MG)**, **M. synoviae (MS)** and **M. meleagridis (MM)** (turkeys) being most important.
MG can cause chronic respiratory disease and decreased growth or egg production. Affected carcasses sent to slaughter may be downgraded. Clinical signs may include rales, coughing, sneezing, nasal discharge, foam in the belly cavity and swelling around the eyes. If it occurs in combination with other respiratory pathogens, birds can develop chronic respiratory disease (CRD).

14

:: Necrotic enteritis

Necrotic Enteritis is caused by Toxine-producing Clostridium perfringens. The disease produces severe necrosis of the intestinal tract lining. Predisposing factors include coccidiosis.



15a

:: Newcastle Disease

Newcastle Disease, a contagious viral disease affecting domestic and wild avian species is causing problems from mild airsacculitis to neurotropic and viscerotropic lesions. Signs of infection with **NDV** vary greatly depending on factors such as strain of virus and health, age and species of the host. Characteristic signs of the disease in severely affected birds are greenish droppings and nervous symptoms, especially twisted heads. **NDV** is spread primarily through direct contact between healthy birds and bodily discharges of infected birds.

16

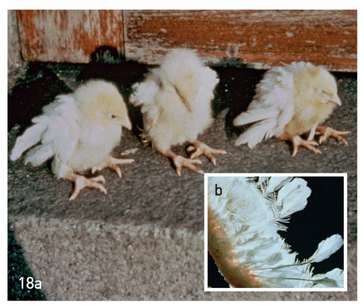
:: Ornithobacterium rhinotracheale

Infection with **Ornithobacterium rhinotracheale**, a widely distributed rod-shaped Gram-negative bacterium, may result in airsacculitis and pneumonia in chicken and turkeys. These signs can be aggravated by other factors, such as respiratory viruses, bacteria or climatic conditions. The infection can be transmitted horizontally by aerosol, as well as vertically through eggs, which probably accounts for its rapid and worldwide spread. **O. rhinotracheale** is difficult to isolate. Vaccination with autogenous inactivated vaccines has been successful in reducing clinical signs.

17

:: Salmonellosis

Salmonellosis is caused by a group of bacteria of the genus salmonella. Infections in poultry can be divided into host specific infections (Pullorum disease, Fowl typhoid) and non-host specific infections. **S. pullorum** usually causes high mortality in young chickens within the first 2 - 3 weeks of age. Fowl typhoid is caused by **S. gallinarum**. Birds may be pale, dehydrated, and have diarrhoea. The liver is swollen, brittle and often bile-stained. **S. enteritidis** and **S. typhimurium** infections are non-host specific.
Although the most common Salmonella infections in poultry, and the cause of Salmonella-food poisoning in humans, clinical signs are not often seen.



18a

:: Reovirus

Reovirus causes both malabsorption syndrome and viral arthritis. When **reovirus** infects the intestinal tract the absorption of nutrients can be compromised. The virus damages the tendon early in life. As the bird gains weight, the damaged tendon can rupture producing lame birds. Joints are often swollen.

1, 2, 4, 6, 8b, 8c, 14, 15a + b, 18: Veterinärlabor of the LTZ · 3, 5, 7, 12a: Ludio Gomes · 8a: Bia Cardozo · 9: Lucien Mahin, Wikipedia, CC BY-SA 3.0 · 11: Michael Iburg · 12b: USDA Agricultural Research Service http://www.ars.usda.gov/is/graphics/photos/jul01/k9494-1.html · 16: gyp-emmen.de · 17a + b: Shahid Nazir

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