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Incubation period

There is a whole range of viruses and so incubation time depends on viral strain and dose, route of and age at exposure and genetic make-up of the host. For susceptible chicks infected as embryos or in their first 14 days the incubation period is 14-30 weeks. Lymphoid leukosis is very rarely seen before 14 weeks of age.

Clinical signs

The clinical signs of these various diseases are non-specific and include weakness, inappetence, scour, dehydration emaciation and, sometimes, a pale comb. In lymphoid leukosis the abdomen may be swollen. After the appearance of clinical signs, the disease can progress quite quickly with death in a matter of weeks.

Lesions

Lymphoid leukosis appears in chicken of 15 weeks or older and tumours can be seen in the liver, spleen and bursa of Fabricius as well as kidneys, lungs, gonads, heart, bone marrow and mesentery. Tumours may be diffuse, nodular or military and often appear grey/creamy white in colour, smooth and glistening.

Pathogenesis

Avian leukosis viruses multiply in most of the chicken's organs.

Immunity

In the field, most chicks become infected by exogenous avian leukosis virus from penmates or their immediate environment and, following a transient viraemia, develop virus neutralising antibodies that rise to a high level and persist throughout the bird's life. Virus neutralising antibodies restrict the amount of virus in the bird's body, which then reduces neoplasia.

Diagnosis

Avian leukosis virus is widespread among chickens so the demonstration of virus or antibodies is of little or no value. Virus isolation is useful if a new strain of virus is suspected.

Unfortunately, most strains of avian leukosis virus produce no visible changes in cell culture so assays for this virus are based on the detection of specific proteins or glycoproteins, detection of specific proviral DNA or viral RNA sequences using PCR or RT-PCR respectively. Sera, plasma and egg yolk can all be tested for antibody.

Differential diagnosis

The most common lymphoid neoplasms are Marek's disease and avian leukosis. Reticuloendotheliosis also needs to be considered. Other diseases to consider in the differential diagnosis of avian leukosis include tuberculosis, erythroblastosis, myeloblastosis, myelocytomatosis, Hjarre's disease, pullorum disease, enterohepatitis and fatty degeneration of the liver.

Vaccination

No commercial vaccine is available.