



Marek's disease: Diagnosis and Prevention

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DESCRIPTION

The highly contagious viral neoplastic illness Marek's disease affects hens. It is named after Hungarian veterinarian József Marek, who first characterised it in 1907. The "Marek's Disease Virus" (MDV) or Gallid alphaherpesvirus 2 is the culprit behind Marek's disease (GaHV-2). T cell lymphoma as well as lymphocyte infiltration of the nerves and organs are features of the disease. MDV-related viruses resemble innocuous organisms and can be utilised as vaccine strains to stop Marek's illness. For instance, the associated Herpes Virus identified in Turkey (HVT) is still utilised as a vaccine strain to prevent Marek's illness even though it appears to have no ill effects on the animals.

Due to the fact that several etiological factors are capable of generating tumours that are strikingly similar, diagnosing lymphoid tumours in poultry is challenging. It is not unusual for a chicken to harbour many avian tumour viruses; as a result, it is important to evaluate both the pathological diagnosis of the virus and the diagnostic of the sickness or tumours (etiological diagnosis). For the diagnosis of Marek's disease, a step-by-step procedure has been suggested, which includes:

1. Gross necropsy, Clinical findings, History, and Epidemiology;
2. Specifications of the tumour cell, and;
3. Virological traits

Marek's disease is strongly suggested by the presence of peripheral nerve enlargement and suggestive clinical symptoms in a bird that is three to four months old, whether or not it has visceral tumours. Pleomorphic neoplastic and inflammatory lymphocyte infiltration is discovered upon histological investigation of the nerves. Young hens with paralysis and nerve growth without visceral tumours should also be ruled out as having peripheral neuropathy, especially if the nerves have interneuronal edoema and plasma cell infiltration.

Nodules on the internal organs may also indicate Marek's disease, but additional testing is necessary to be sure. This is accomplished by histologically showing that the afflicted tissue

has lymphomatous infiltration. A variety of leukocytes, including macrophage and plasma cells, as well as lymphocytic cell types including giant lymphocyte, lymphoblast, primitive reticular cells, and occasionally plasma cells, can be involved. The malignancy affects the T cells, which exhibit neoplastic alterations and mitotic signs. It is important to distinguish the lymphomatous infiltrates from other ailments that might affect poultry, such as lymphoid leukosis and reticuloendotheliosis, as well as from an inflammatory reaction accompanied by hyperplastic changes of the affected tissue.

The only way to prevent tumours from forming when chickens are infected with the virus is through vaccination. Although it does lessen the amount of virus shed in the dander, administration of the vaccination does not stop an infected bird from shedding the virus, which prevents the disease from spreading horizontally. The spread of Marek's disease is not vertical.

Prior to the creation of the Marek's disease vaccine, the United States and the United Kingdom's chicken industry suffered significant financial losses as a result of Marek's disease. Subcutaneous injection or in ovo vaccination can be used to give the vaccine to one-day-old chicks when the eggs are moved from the incubator to the hatcher. The most effective vaccination approach is in ovo because it doesn't involve handling the chicks and can be completed quickly using automated techniques. Within two weeks, immunity develops.

Marek's disease is still spreadable from vaccinated flocks to other birds, including the population of wild birds, because vaccination does not shield against virus infection. In 1970, the initial vaccination against Marek's disease was released. The only observable lesions would be in the brain tissue, and the sickness would induce slight paralysis. The mortality rate of chickens with Marek's illness was rather low. Several years after the first vaccination was released, the current strains of the Marek virus promote the creation of lymphomas all over the chicken's body and have 100% fatality rates in unvaccinated hens. The Marek's disease vaccine is "leaky," meaning that it merely prevents the

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disease's symptoms. The vaccine has no effect on the host's infection or the virus's ability to spread. In contrast, most other vaccinations work to stop the host from becoming infected.