Etiology

Marek’s disease is a neoplastic disease caused by a lymphotrophic alpha herpes virus. It is common in sexually immature chickens 2-7 months but can occur in any age beyond 3 weeks.

3 serotypes have been identified:
- Serotype 1 - ubiquitous in chickens (oncogenic = tumor producing), varying pathotypes*
- Serotype 2 - common in chickens, nononcogenic
- Serotype 3 – turkey herpes virus, nononcogenic

*Virulence is a property associated with Serotype 1 as it is the only herpesvirus that is oncogenic. Virulence is measured in the virus’ ability to induce lymphoproliferative lesions in chickens. It is important because it varies among serotype 1 MDV and is directly related to the ability of isolates to be protected by vaccine. Thus the practical importance of virulence is the ability to cause disease in immunized chickens. Virulence is defined then by pathotype, in Marek’s disease pathotypes include mild, virulent, very virulent, and very virulent plus.

Marek’s disease virus (MDV) develops in stages:
1. Establishment of infection in the respiratory tract of birds, here MDV undergoes replication.
2. Early cytolytic phase – characterized by destruction of lymphocytes (lymphotrophic) resulting in immunosuppression of birds.
3. Latent phase (where MDV is inactive).
4. Transformation of host cells leading to grossly visible lymphomas in various tissues.

References

Information for this pamphlet was obtained from the following sources:

Marek’s Disease
What producers need to know

Kathleen Becher, Lukas Kawaiilak, Ian Keery, Brandi Petrukovich
VTMC 334 – Veterinary Virology
Signs and Symptoms

The severity of disease due to Marek's varies based predominately on the virulence of the virus strain that is present and the vaccination status of the flock. Signs can begin to appear at 3-4 weeks of age but are more common between 12 and 30 weeks. Mortality is common and can occur with no previous clinical symptoms. Mortality rates vary significantly, with deaths often occurring over many weeks. The most obvious sign associated with Marek's is a transient, unilateral leg paralysis. The paralysis progresses with the disease and leads to a characteristic posture of one leg held forward, with the other held backward. Depression, emaciation (due to inability to reach food), ataxia (instability), opacity and discoloration of the eye and discoloration of the legs are also common signs of the disease.

Transmission and Spread

Mature viruses are shed from infected feather follicles. New birds then inhale the virus from the environment and become infected. Viruses have been shown to remain infective in poultry barns for months after being shed. Birds can be infected and shedding the virus with no clinical signs (this includes vaccinated birds). No vertical (hen to chick) transmission of the virus has been shown to occur.

For more information on Marek's Disease, visit the Merck Veterinary Manual Online at www.merckvetmanual.com