

MAREK'S DISEASE

What is it?

Marek's disease is caused by a herpes virus that affects chickens. It is very common and there are several strains with different levels of pathogenicity. The virus can cause a certain cell type, known as a lymphocyte, to accumulate in nerves and various organs in the body.

What does it do?

Marek's disease can cause a variety of clinical signs and has been divided into numerous syndromes:

- Fowl paralysis: Results in a reduced ability to move the limbs (paresis or paralysis)
- Lymphoma (a type of cancer): Clinical signs prior to death are often subtle, such as weight loss, anorexia, diarrhea, pale comb, and paresis
- Skin leukosis: Feather follicles are swollen
- Ocular leukosis: May see changes to the color of the iris and blindness
- Transient paralysis and persistent neurologic disease: Can see weak limbs and a flaccid neck that resolve but birds can then go on to have other neurologic signs and develop lymphoma

About 60% of birds in unvaccinated flocks exposed to Marek's disease will get sick; close to 100% of sick birds will die. In contrast, only about 5-10% of birds in vaccinated flocks will get sick.

Age of onset

The disease is most common in birds that are 10-20 weeks of age but it can occur in birds as young as 4 weeks or in older birds.

How is it transmitted?

Marek's disease is transmitted horizontally; this means it goes from one chicken to another.

It can be transmitted directly through body secretions, droppings, feather dander and feathers.

It can also be transmitted indirectly when it is carried on fomites such as your clothing, by insects, or any other thing that comes into the chickens' environment.

How is it diagnosed?

Marek's disease is often confirmed after a bird has passed away and testing is performed.

- Necropsies may reveal enlarged nerves and/or lymphoid tumors but sometimes no macroscopic lesions are seen
- Microscopic evaluation of tissues reveals lymphocytes and other associated cell types accumulating in nerves, tumors, and tissues
- Virus isolation, viral antigen testing or PCR testing for the virus should be done on tumor cells

How is it treated?

There is currently no treatment for Marek's disease.

Can it be prevented?

Yes, through vaccination and appropriate biosecurity:

Vaccination

- To provide best immunity, chicks should be vaccinated in the egg or at 1 day of age prior to natural exposure
- No vaccine is 100% effective but the Marek's disease vaccine allows for >90% protection if vaccinated prior to natural exposure

Biosecurity measures

Clean and disinfect housing before bringing in new birds by removing organic debris and using appropriate disinfectants:

- Household bleach, Quaternary ammonia, Organic iodine, or Sodium hydroxide

Change out all the bedding anytime new birds are introduced to an area that has previously had chickens.

Avoid mixing new birds with an established flock.

Do not allow visitors who have had contact with other poultry to visit your flock without appropriate changes in clothing, shoes and hand sanitation.

Marek's is extremely hardy! It can retain its infectivity for 4-8 months when dry at room temperature or up to 3 years at 4°C (39°F).

Because Marek's disease can cause significant illness and death in backyard flocks, the AAV recommends that you purchase only vaccinated chicks for your flock.

Resources

1. Greenacre CB. Musculoskeletal Diseases. In: Greenacre CB, Morishita TY, eds. *Backyard Poultry Medicine and Surgery: A Guide for Veterinary Practitioners*. Ames, IA: Wiley-Blackwell; 2015:145-159.
2. Fadly AM. Neoplastic Diseases. In: Saif YM, ed. *Diseases of poultry*. 12th ed. Ames, IA: Blackwell Publishing; 2008:449-616.
3. Calnek BW, Hitchner SB. Survival and disinfection of Marek's disease virus and the effectiveness of filters in preventing airborne dissemination. *Poult Sci*. 1973;52(1):35-43.
4. https://extension.unh.edu/resources/files/Resource000791_Rep813.pdf; accessed 12/12/17.



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