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043 – Gumboro disease – II

Transmission

Gumboro disease virus persists in poultry house environments and houses from which infected birds are removed can remain infective for several months or longer. Feed, water and litter from such houses also remains infective for significant time periods. The virus is resistant to disinfectants. There is no evidence to suggest vertical transmission of Gumboro disease virus and latent carriers do not appear to exist in recovered flocks.

Alphitobius diaperinus taken from infected houses will infect chickens with Gumboro disease after a period of two months when fed to them. There is also evidence that rats and dogs can carry Gumboro disease virus for short periods of time.

Incubation period and clinical signs

The incubation period is short and clinical signs can be seen within two to three days after infection in birds at three weeks of age. Early signs are vent pecking in some birds followed by soiled vent feathers, diarrhoea, anorexia, depression, ruffled feathers, prostration and deaths.

In fully susceptible flocks the disease appears quickly with a high morbidity (up to 100%) and mortality can be 20-30% or higher (up to 90%) in outbreaks of very virulent Gumboro disease. Mortality usually starts three days after infection and typically lasts for four days. The first outbreak on a farm is the most acute with the highest mortality, thereafter the disease picture weakens. Infections can be virtually silent if they occur in very young birds, the infecting virus strain is an avirulent one or infection has occurred in the presence of maternal antibody.

Lesions

Birds that have died from Gumboro disease are typically dehydrated and have darkened breast muscles and haemorrhages are often seen in the wing and thigh muscles. Renal changes are often seen as is excess mucus in the intestines.

The bursa of Fabricius is the primary target of Gumboro disease virus. Three days after infection the bursa of Fabricius swells and by day four its size has doubled. Thereafter its size reduces and by day eight it is approximately a third or less of its original weight. Infected bursae often show areas of necrosis and haemorrhage. Occasionally blood can contaminate the faeces. Slight splenic enlargement also occurs. Although histopathological lesions can occur in most of the lymphoid organs they are most common in the bursa of Fabricius where lymphocyte depletion is seen.

Immunity

Following exposure to Gumboro disease virus active immunity is stimulated and the antibody response can be measured by VN, AGP or ELISA blood tests. Antibody transmitted via the egg yolk protects chicks against early infections with Gumboro disease virus. Maternal or passive immunity can interfere with the stimulation of immunity from vaccines administered to the offspring. Oil emulsion vaccines given to broiler breeders typically protect the progeny chicks for four to five weeks and live vaccines given to broiler breeders typically protect the offspring for one to three weeks.