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042 – Gumboro disease – I

Introduction

Gumboro disease or infectious bursal disease is an acute, highly contagious disease of young chickens in which the tissues of the immune system, and especially the bursa of Fabricius, are targeted resulting in immunosuppression. The kidneys are also targeted resulting in serious renal pathology and, in acute cases, renal failure. In the acute form mortality can be 25% or even higher.

It was only in the early 1970s that Gumboro disease virus infection was confirmed to be immunosuppressive. Within a decade the disease had been confirmed in most major poultry producing areas around the world.

The name 'Gumboro' comes from the area on the Delmarva Peninsula in the USA where the disease was a significant problem.

Aetiology

Gumboro disease virus is a birnavirus and is one of three such known virus – the other two are associated with fishes and shellfish and insects. Gumboro disease virus is an Avibirnavirus. These viruses are called birnaviruses because their genomes consist of two (bi-) segments of double stranded RNA.

The Gumboro disease is very stable and resistant to a variety of chemicals. The virus is unaffected by an hour's exposure to 0.5% phenol. Six hours exposure to 0.5% formalin reduces, but does not eliminate, infectivity. It is inactivated at pH 12 (very alkaline), but is unaffected by pH 2 (very acidic).

When it comes to temperature the Gumboro disease virus will survive at 60°C for 30 minutes but not at 70°C. This virus is a master at survival and this is one reason why it is so good at surviving on poultry farms even when thorough cleaning and disinfection has occurred.

Strain variation

Two strains of Gumboro disease virus, serotypes 1 and 2, are known. Serotype 1 is the strain that causes the well known disease in chickens, while serotype 2 was first isolated from turkeys where it is apathogenic. It has also been found in chickens.

Very virulent strains of the Gumboro disease virus have evolved and these are serotype 1.

Pathogenicity

Chickens are the only animal known to develop a disease when infected by the Gumboro disease virus. Classical Gumboro disease is typically characterised by mortalities of 10-50%, while very virulent Gumboro disease induces mortalities of 50-100%.

Distribution

Infections with serotype 1 Gumboro disease virus are found around the world and occur in all major poultry producing areas.