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Introduction

The phrase 'avian reoviruses' is used to differentiate reoviruses found in birds from those found in mammals. Avian reoviruses are ubiquitous in poultry and are usually harmless but they have been associated with a variety of conditions including stunting syndrome, arthritis, tenosynovitis, respiratory disease, enteric disease, malabsorption syndrome and stunting syndrome. However, it should also be stressed that they are frequently recovered from healthy turkeys and chickens.

The type of disease encountered depends upon bird age, immune status, viral pathotype and route of exposure. Quite often co-infections with other infectious agents occur. In addition to chickens, reoviruses have been associated with diseases in turkeys, ducks and geese.

Reoviruses are found all around the world.

Reovirus arthritis

Reovirus infection was first seen in the USA in the 1950s as a chronic respiratory disease that was accompanied by liver necrosis and tenosynovitis/arthritis. In 1957 reovirus was first isolated from a naturally occurring case of synovitis. As the condition often also involved the tendon sheath, the name tenosynovitis is often used. Control of viral arthritis is usually by ensuring there are adequate levels of maternal antibodies present to provide protection.

Reovirus has the potential to induce other pathological changes in chickens including rupture gastrocnemius tendons, hydropericardium, myocarditis and pericarditis as well as mortality. Turkey viral arthritis is similar to chicken viral arthritis.

The causal virus

Reoviruses are double stranded RNA viruses and there are reports confirming this virus is capable of reassortment, which can result in variations to the disease picture seen.

Reoviruses are heat resistant and can survive for up to four months at 37°C. They were classified serologically or according to their relative pathogenicity for chickens. More recently they have been classified by molecular means. Some reoviruses have their pathogenicities enhanced in co-infections with coccidia or infectious bursal disease (Gumboro) virus.

Pathogenesis

There is an age related resistance to reovirus arthritis but the disease can be easily reproduced in chicks free of maternal antibodies. There is considerable variations between strains of the virus to spread laterally. The virus is shed from the intestinal and respiratory tracts for at least 10 days post infection, possibly longer from the former.

Reovirus can persist for long periods in the caecal tonsils and hock joints. Carrier birds have a possible role in the spread of this disease. Vertical transmission has been demonstrated. The incubation period varies depending on viral pathotype, host age and route of infection.