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120 – Avian encephalomyelitis I

Introduction

Avian encephalomyelitis is a viral disease of young chickens and turkeys. The disease was a major economic problem for the poultry sector prior to the generalised use of vaccines in the 1960s.

This disease was first seen in two week old birds in 1930. A year later it was seen in one and four week old chicks on different farms that had come from the same source. Over the next couple of years the disease was seen across the eastern seaboard of the USA, hence its early name of 'New England disease'.

Avian encephalomyelitis now occurs worldwide. Nearly 100% of chicken flocks are infected but the disease is rarely seen unless the breeder flock has not been vaccinated.
Serological surveys suggest the disease is widespread in turkeys but, here again, clinical disease is a rarity.

The cause

Avian encephalomyelitis is caused by a picornavirus. All isolates of the virus are serologically similar but two distinct pathotypes are known – a field type and embryo adapted vaccinal strains. Chicks are infected by mouth and shed the virus in their droppings.

In the field avian encephalomyelitis is an enteric condition. Young chicks can shed this virus for more than 14 days.

When susceptible adult breeder flocks are infected a proportion of the eggs produced are infected and hatchability is reduced due to an increase in embryo mortality over the last three days of incubation. Viral transmission can occur horizontally in the incubator. The incubation period in chicks from infected eggs ranges from 1-7 days.

Clinical signs

Infected chicks go dull around their eyes and this is followed by a progressive ataxia that arises from muscular incoordination. Chicks then sit on their hocks and when disturbed have little control over the way they walk. Fine tremors of the head and neck become evident and these can be triggered by disturbing or exciting the chicks. Some clinically affected chicks survive, but some later develop a blindness. Infection after three weeks of age is rarely accompanied by clinical signs. Infection in lay may be associated by a temporary (<10%) dip in egg production. Some 40-60% of chicks from an infected flock are likely to show clinical signs. Typically mortality is about 20-25% but can be >50%.

Post mortem findings

The only gross lesion in avian encephalomyelitis are those cause by lymphocytic infiltration of the heart wall and these infiltrations appear as whitish areas. The remaining lesions are all microscopic and are mainly in the central nervous system – a disseminated, non-purulent encephalomyelitis and a ganglionitis of the dorsal root ganglia.