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022 – M. meleagridis

Background

In the late 1950s it was shown that air sacculitis in turkey poults could be associated with a mycoplasma that was not M. gallisepticum. This mycoplasma was later called Mycoplasma meleagridis, literally the 'mycoplasma of turkeys'.

Up until the 1980s, when eradication was undertaken by the major breeders, this mycoplasma caused serious losses in turkey flocks in the USA and elsewhere. This mycoplasma was transmitted from parents to their progeny via the egg but could be contained by expensive egg treatments. Today the major breeders are free of M. meleagridis, but occasional infected flocks are encountered.

The disease

M. meleagridis is a specific pathogen of turkeys that produces an air sacculitis. When breeders are infected their eggs produce infected embryos and infection in the growth plates of the rapidly growing leg bones causes a bowing of the leg bones and the production of a syndrome which was described in 1965 as TS65.

M. meleagridis is primarily spread via egg transmission. M. meleagridis hens can be infected following insemination with contaminated semen and this is also considered to help in the maintenance of egg transmission rates throughout lay. It is possible to have a form of this disease in which M. meleagridis is confined to the upper respiratory tract and in which no vertical (egg) transmission occurs.

Direct and indirect (via fomites, which are 'inanimate taxis') horizontal transmission can occur.

Clinical signs

Although the typical lesion is an air sacculitis, respiratory symptoms are rare. Often infection results in a high infection rate but minimal clinical signs so the disease can be described as a 'silent infection'.

TS65 is not a consistent finding but occurs regularly and is associated with egg-borne infection. The main visible feature of TS65 is a bowing, twisting and shortening of the leg bones accompanied by a swelling of the hock joint. It can also include deformed cervical vertebrae and abnormal feathering.

TS65 related lesions typically occur before six weeks of age.

M. meleagridis acts synergistically with micro-organisms such as M. iowae, M. synoviae and E. coli. This mycoplasma does not have a negative impact on egg production or fertility but does affect hatchability by increasing embryonic mortality in the last week of incubation. In the field losses of this nature can be as high as 7.5%.

Diagnosis

Diagnosis is by post mortem examination and the isolation of M. meleagridis. Rapid slide testing or haemagglutination inhibition testing can be used to identify serologically positive flocks and can be used for diagnostic confirmatory purposes.

Differential diagnosis

Differential diagnosis should consider air sac lesions caused by M. gallisepticum, other mycoplasma, and agents such as E. coli, avian influenza and avian pneumovirus. The differential diagnosis of the skeletal changes should consider M. iowae, rickets and other long leg bone abnormalities.

Treatment

Egg treatment, for example with tylosin or gentamicin egg pressure differential dipping is often successful in controlling vertical transmission and reducing/eliminating TS65.

For treating the clinical respiratory form of the disease spectinomycin-lincomycin, tylosin, tiamulin, tetracyclines and fluoroquinolones have all been successfully used.

In the 1970s and 1980s the major turkey breeders successfully eliminated M. meleagridis from their flocks.