

PARATYPHOID

PREVENTION IS BETTER THAN CURE!

The causing bacteria

Salmonella the bacteria responsible for the disease known as Paratyphoid needs to be understood before we can understand the disease. There are many different species and strains of this gram negative bacteria. Some of these will cause only mild intestinal disease whilst others will be much more virulent and pathogenic. However only *Salmonella typhimurium* var *copenhagen* will be the cause of the dreaded Paratyphoid syndrome in pigeons.

Prevalence of the disease

Paratyphoid is a world wide disease amongst pigeons. It is particularly common in Europe and the USA. Although racing pigeons are often infected the disease is especially prevalent in fancy pigeons with a particular affinity for the Modena breed.

Understanding the disease

The highly pathogenic (severe disease causing) strains of Salmonella will cause full blown Paratyphoid. The bacteria will always enter the pigeon via the intestine. Initially it causes mild enteritis that may or may not progress to severe *enteritis with some cases even showing blood in the stool. The Salmonella bacteria attaches onto the superficial cells of the intestine via specific areas in these cells. If the organism is prevented from attaching to these cells it will not gain access to the blood stream. Only when it attaches in vast numbers to the superficial cells will it cause enough damage to enter the blood stream and cause *systemic disease. It is normally carried into the body via the white blood cells. Once Salmonella has entered the blood stream it is extremely well suited to gain entry to most organs in the body. It is only once it has entered the organs of the body that it causes typical Paratyphoid. Although Salmonella may affect any organ in the body it specifically targets the Liver, Spleen, Ovaries, Brain and the Joints.

It is this predilection for the Ovaries and Joints that makes it such a difficult organism to treat successfully. By entering the ovaries it ensures that the hen will become a life long carrier of the disease and even worse that she will pass this dreaded disease on to her babies via the egg. If it establishes itself in the joints it ensures that it is separated from the blood stream and that it can hide in the joint fluid and in the joint membranes.

Symptoms of the disease

Initial symptoms will always be mild to severe enteritis with green bile tinged sloppy stool. In some cases the pigeons' immune system may be strong enough or the bacterial strain may be weak enough to ensure that the bacteria do not gain entry into the body. In most cases the bacteria will soon gain entry into the body and cause infection of the liver (hepatitis). The stool will remain loose and will become a dark green color signifying sever liver damage. Once this has happened the pigeons become severely depressed and will stop eating. The affected pigeons will soon loose a lot of weight and may succumb from the hepatitis. In most cases the disease will spread from the liver to other organs. If it spreads to the brain the pigeons will show nervous symptoms that may be very difficult to distinguish from Paramyxo- virus. Once the infection has established itself in the ovaries the hen will become a life long carrier and will pass the disease on to her babies via the egg. If the joints become infected pigeons will develop lameness in the leg or wing and it will establish itself in the joints. The bacteria will hide in the joint fluid or in the membrane of the joint. The fact that the normal antibiotics do not penetrate well into the joint or into the brain makes it very difficult to eradicate the bacteria from these organs.

This gives rise to the true carriers of Paratyphoid.

Source of the infections

Salmonella infection is carried by rodents in their kidneys. When rats or mice urinate on pigeon food the food becomes contaminated with Salmonella and when pigeons eat the food they in turn become infected with the disease. Pigeons carrying the disease are another source of infection. These carrier pigeons often show no clinical signs of disease thereby making it very difficult to establish the source of infection. Contaminated drinking water and wild birds may be another source of infection.

Diagnosis of the disease

The clinical symptoms of Paratyphoid vary tremendously and may often be confused with other diseases. The diagnosis of Paratyphoid is made by growing the bacteria in the laboratory. A lab that is well versed in the diagnosis of these specific bacteria should be used as specific culture methods need to be used to identify the L- forms of these organisms. Pigeons that are clinically affected are easier to diagnose as the bacteria is not hiding in the affected organs yet. True Salmonella carriers will only excrete the bacteria in the stool from time to time. It is thus essential to do a post mortem or to do repeated faecal cultures to try and identify carriers. From the above it is clear that once the disease has established itself in a pigeon loft it is extremely difficult to eradicate it completely.

Prevention

Is Paratyphoid preventable? This is a question for which there is still no clear answer. If one can keep pigeons in isolation and prevent them from coming into contact with the bacteria one is assured of a Salmonella free flock. This is of course not possible in our hobby.

The eradication of rats and mice from in and around the loft is paramount. As mentioned before these vermin are the greatest carriers of Salmonella. Grain should be stored in air tight bins to prevent rats urinating on the grain. No food should be left out in the feeders in the evening as rats will enter the loft and contaminate this food. Early mornings the pigeons will consume this contaminated food and become infected. It is extremely important to prevent the stock pigeons' food from becoming infected as infected stock birds will breed infected babies.

.... To be continued in the next issue.

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