

Paramyxovirus & Circovirus

Two important viruses in pigeons

T. W. Pennycott MRCVs
Avian Health Unit,
SAC Veterinary Science Division
Auchincruive
Ayr KA6 5AE

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The Veterinary Science Division of SAC provides a post mortem service to pigeon fanciers and their veterinary advisers. In 2000, two viral diseases in particular caused problems in pigeons in Scotland: one an old enemy, one a new emerging problem that has to be faced. The old enemy was paramyxovirus infection, despite the availability of vaccines against this disease. Most fanciers need not be reminded about the signs of paramyxovirus, such as watery diarrhoea and nervous signs including going round in circles, loss of balance and difficulties in picking up food. In some of the outbreaks seen in 2000 mortality was high, sometimes over 80% with the nervous signs only appearing late on in the disease. Not only were racing lofts affected, but collections of free-flying fancy pigeons were also affected. Reports were also received that feral (street) pigeons in the west of Scotland were dying from paramyxovirus, and this was subsequently confirmed in a group of 6 live feral pigeons showing typical signs of this disease. Most cases of paramyxovirus infection in racing pigeons occurred in lofts where the racing teams had been vaccinated but young birds had been left unvaccinated - these young birds were the birds which went down with disease. But in some lofts the young birds had been vaccinated against paramyxovirus but couldn't respond properly to the vaccine because they had already been infected by another disease, the second virus disease to be discussed here, the new/emerging viral disease called circovirus infection. Infection with circovirus was first diagnosed in pigeons in the UK in 1994, in Northern Ireland, and appears to be getting more common. This virus attacks the very heart of a young bird's immune system, an organ called the bursa of Fabricius. This small spherical organ is found near the vent or cloaca of young birds, and must be functioning properly if the young bird is to fight off all the viruses, bacteria, protozoa parasites etc that young birds are exposed to. If, however, a young pigeon becomes infected with circovirus, the virus severely damages the bursa of Fabricius and the bird is then highly susceptible to other

infectious agents such as the yeast candida, herpesvirus, adenovirus, coccidia, hexamita, and also paramyxovirus. Clinical signs are most often seen in young pigeons aged 2-3 months., The signs depend on what other organisms are present, but include watery diarrhoea, vomiting, weight loss and mortality. Sounds like Young Bird Sickness? Yes, circovirus is involved in some outbreaks of Young Bird Sickness. Unfortunately, circovirus infection can only be diagnosed by carrying out a post mortem examination, and even then the presence of this disease can only be confirmed if the bursa of Fabricius is removed, preserved and examined microscopically. Such an examination is not usually part of the standard post mortem examination and adds to the cost of the post mortem, and so the true extent of this disease is difficult to judge.

To find out more about how common the disease is in the west of Scotland, the Scottish Homing Union Trust Fund paid for further investigations to be carried out in 36 young birds from 17 lofts suffering from a range of different problems. The results were staggering. Twenty-seven of the 36 birds, representing 14 out of 17 lofts, showed evidence of damage to the bursa of Fabricius typical of circovirus infection. These birds had been suffering from signs such as vomiting, diarrhoea, nervous signs, generalised weakness and mortality, and were also positive for other infectious agents such as paramyxovirus, adenovirus, herpesvirus, hexamita and coccidia. It is probable that the circovirus had damaged the immune system of the birds, allowing these other infections to attack the birds. Circovirus therefore seems to be very common in lofts where young birds are experiencing problems.

Circovirus not only prevents the birds from fighting off other diseases, it also stops them properly responding to vaccines. Which brings us back to the first disease we discussed, paramyxovirus. If a bird is infected with circovirus and is then vaccinated against paramyxovirus, the vaccine may not 'take' properly. If the bird then meets the real paramyxovirus infection, the vaccine may not protect the bird which may then go down with disease. There is no vaccine against circovirus, and no specific treatment. Instead, the young birds must be protected from the virus for as long as possible, by keeping stress to a minimum and maintaining a high level of hygiene at the loft and in the baskets. There are, however, vaccines against paramyxovirus, but all too often fanciers don't get the best out of the vaccines because they delay vaccinating the young birds. Even before circovirus arrived in the UK it was important to vaccinate the young birds against paramyxovirus at as young an age as possible, in case the racing team picked up paramyxovirus from other racing pigeons, from free-flying fancy pigeons or from feral pigeons, and brought the virus home. But with the emergence of circovirus, it is even more important that the young birds are vaccinated against paramyxovirus as soon as is possible - from 3-4 weeks of age (or from 5 weeks if using the combined paramyxovirus/pox vaccine). If vaccination is delayed, the birds may first become infected with circovirus, and the resultant damage to their immune system will prevent them from responding to the paramyxovirus vaccine.

This small piece of work has shown just how important circovirus is in pigeons. Clearly more work must now be done to find out the best ways of controlling this disease.

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