There are relatively few conditions that produce a true sudden death in the pig - electrocution and heart failure being the most obvious.

However, there are a number of conditions that cause death so rapidly that the animals are found dead having been seen maybe a few hours before as perfectly normal. Destruction of the liver by acute infection with Clostridium novyi type B is one such condition and occurs in adults and larger growing pigs.

**Cause**

Clostridium novyi (Cl novyi)- formerly known as Clostirdium oedematiens - is one of a group of clostridial bacteria that are usually present in the gut of the pig and are responsible for decomposition of the carcass following death. Other bacteria in the group can be responsible for gas gangrene.

Clostridia are excreted in the faeces and produce spores which survive in the soil for years. However, disease due to Cl novyi is not restricted to the outdoor situation and there is no connection with disease caused by the same organism in sheep.

For reasons that are not entirely clear in some individuals the organism migrates up the bile duct into the liver where it multiplies and produces very powerful toxins which then destroy the liver in the living animal. Death soon ensues. The bacteria only grows in the absence of oxygen and it may be that certain other diseases act to reduce oxygen tension in the liver and predispose to multiplication. Both pneumonia and enteritis may do this.

There does not appear to be any association with previous liver damage such as caused by migrating Ascarid worms, (milk spot liver) even in growing pigs which are more likely to be affected with these than sows.

**Diagnosis**

There are a number of key pathological features in a carcass that has resulted from Clostridium novyi infection.

1) Very rapid decomposition. Within hours the body will be discoloured (green to purple) and gas will have formed under the skin to distend and distort it. Foul smelling bloody discharge may be seen from the nose and anus.

2) On post mortem examination decomposition will be advanced but in particular the liver will be altered. It will be enlarged, discoloured, crumbly and full of gas such that when cut the tissue has the appearance of "Aero" chocolate or foam rubber. There will often be obvious enteritis in the small intestine.

However, any examination of a carcass must take place within a few hours of death as the changes described can occur as part of the normal decomposition process after death, particularly in very warm weather.

Laboratory tests on the liver can be used to help confirm the diagnosis by demonstration in the liver of Cl novyi either by fluorescent antibody test (FAT) or PCR testing.

**Incidence**

In general, this disease has a sporadic nature with, usually, only odd animals affected. It seems to be more common in summer and in sows tends to occur mostly in late pregnancy or lactation which may be times of low liver oxygen levels. Typically it occurs in sows in better or excessive body condition. Occasionally outbreaks of the disease will be seen in fattening pigs - particularly in large groups in straw yards.

**Control**

The key to control is an accurate diagnosis that can only be achieved by early veterinary post mortem examination.

Where the problem is confirmed as a sporadic cause of losses in the breeding herd, it is possible to vaccinate sows although this must be carefully costed out and a programme put together to provide the best protection for the herd concerned. There is no licensed Cl novyi vaccine available for pigs in the UK and thus one of several multivalent products licensed for sheep and cattle can be used if necessary under the direction of the veterinary surgeon applying the prescribing 'cascade'. Body condition should be reviewed and if appropriate reduced across the herd.
It is not appropriate to use antibiotics long term in sows to prevent this disease.

In growing pigs, it is rare that such a severe and ongoing problem will occur to justify vaccination but in the face of an outbreak it may be appropriate to medicate pigs metaphylactically via the feed to reduce multiplication of the Clostridia. Of primary importance is to control any other diseases - such as chronic pneumonia, which can act as trigger factors for "Aero" chocolate liver.

Boehringer Ingelheim

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