

To test your knowledge and understanding of the control of this condition, try our instantly marked self assessments, by clicking here

Health Quiz

NADIS Pig Health – September 2007

Clostridium Perfringens Infection in Piglets

Mark White BVSc DPM MRCVS

According to the NADIS clinical veterinary network which records, on a daily basis, the prevalence of all pig disease seen, piglet scour is one of the more commonly reported clinical conditions affecting pigs prior to weaning. Many cases are not definitively diagnosed and the true incidence of disease specifically caused by Clostridia is unclear. However, as a group of bacteria they are capable of producing a widespread problem of varying severity.

Clostridia are a group of bacteria that are normally soil and faecal borne and which are capable of producing spores, which

are highly resistant to environmental conditions. They are responsible for putrefactive changes after death and are also associated with specific diseases such as Tetanus and Botulism. Clostridium perfringens is one specific species that is associated with disease in baby pigs and there are several strains that can produce anything from a low grade scour at any age up to weaning, to a peracute haemorrhagic enteritis – usually killing the pig before scour is seen – in the first 24-48 hours of life.

Clinical Signs

The peracute form of the disease – usually associated with *Cl. perfringens* type B or C – can be seen either sporadically in occasional litters – particularly those on gilts – or as a major epidemic. Frequently, it will present as a number of piglets found dead, in some cases the whole litter. The disease is far more likely to occur in outdoor conditions, although there is a common fallacy that it will only occur on land that sheep have occupied previously. The organisms are soil borne and thus can be present anywhere. The link with sheep is simply that this species is particularly vulnerable to clostridial infections and will tend to multiply the organism. The disease is also seen sporadically in indoor farrowing set-ups.

At post mortem examination, the whole of the intestine will be an intense red colour and the gut filled with bloody content (fig 1). The rest of the carcass will be pale but there will be no evidence of haemorrhage outside of the gut. The changes seen are associated with toxin production from the bacteria and the type of toxins produced varies between the different strains. These toxins can be identified by laboratory tests and are used to identify the strain of the bacteria.

In recent years, a less severe form of Clostridial disease has been increasingly recognised in the sucking pig, usually associated with *Cl. perfringens* type A but occasionally with either type B or C. This presents as a scour, anything from a few hours old right up to weaning and is indistinguishable from scour caused by *E. coli*, Rotavirus, Coccidiosis etc depending on age. It can only be diagnosed in the laboratory by a combination of toxin testing and histopathology. This form of the disease has a low mortality, high morbidity and can have a serious effect on the weaning weight of the pigs. On some farms, it may be restricted to a problem in gilt litters.

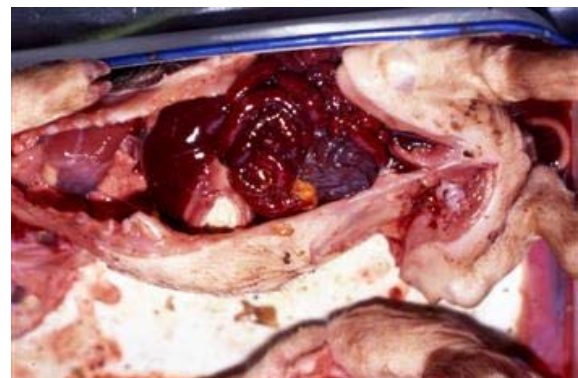


Fig 1: Typical haemorrhagic intestines as a result of *Cl. perfringens* type C



Fig 2: Low grade scour typical of *Cl. perfringens* type A

Treatment

Clearly, the peracute form is untreatable in that pigs are found dead. Where it is known to be a risk, piglets can be treated at birth with long acting Amoxycillin by injection or orally as a single dose.

Cl. perfringens type A infection can be treated with penicillin based antibiotics supported by electrolytes but where very early disease occurs, this can be very difficult – pigs often scouring before treatment can be given.

Control

As with all infectious diseases, prevention must be the aim. In the indoor environment, hygiene is vital but fire (flamegun) or lime washing may be needed to kill the spores. Washing of heavily contaminated sows may be appropriate prior to entry to farrowing. Where farrowing pens lie wet, the generous use of bedding possibly in combination with dry disinfectants can be very effective.

Outdoors, on infected land, a vaccine programme can be used to control Cl. perfringens type B and C. It would be normal practice to vaccinate the new outdoor herd for these diseases as a routine with constant review as the herd matures. Either a stand alone Clostridial vaccine (Heptavac/Lambivac: Intervet) or a combined E coli/Clostridial vaccine can be employed (Gletvax6: Schering Plough) with 2 doses of vaccine required as a primary course in gilts prior to farrowing, a single booster is required prior to subsequent farrowings. Clostridial vaccine would only normally be introduced into the indoor herd where a problem is known to have occurred although the E coli/Clostridium perfringens combination vaccine (Gletvax 6: Schering Plough) covering types B, C & D is widely used.

Please note that whilst widely used the Covexin products (Schering Plough) are not licensed for use in pigs and should only be used under veterinary prescription when fully licensed products are not available.

Unfortunately, Cl. perfringens type A is not included in any vaccine currently available in the UK, although some cross protection from other strains is often claimed. Specific type A



Fig 3: Pasty scour that could result from Cl. perfringens type A infection

vaccines are available in Europe and are very effective in specific problem herds and it may be possible to import them under a special import certificate. Alternatively, Covexin 10 (Schering Plough) which includes Type A protection can be used under veterinary prescription where this strain is implicated.

A word of warning regarding feedback. The feeding of scour and infective material back to gilts and sows in late pregnancy is a well established and frequently highly effective method of stimulating immunity and therefore controlling scour. It is particularly effective for viral scours. Care should be exercised in the face of Clostridial infection. Feedback material should never be given to the pregnant animals less than 75 days gestation (subject to veterinary advice) and normally would be offered from 80-110 days. In practice, it seems that providing material to sows in late pregnancy where Clostridial disease is known, can actually increase problems, possibly by increasing excretion from the sow. For this reason, if feed back is to be offered, aim for 80-95 days gestation only – offering material twice weekly during this period.

Costs

The cost of Clostridial scour is highly variable and will depend upon the strain involved, the duration and severity of an outbreak and the ongoing cost of preventative medication.

Examples would be:

- a) 300 sow Breeder Feeder farm with acute Cl. perfringens type C infection causing 30% mortality over 2 weeks and preventative treatment for 8 weeks.
 - 84 pigs dead @ £30/piglet = £2500
 - approx £60 + labour
- b) 600 sow Breeder Feeder farm with low grade grumbling Cl. perfringens type A disease causing no increase in mortality but reducing weaning weight at 25 days by 1kg/pig and lasting for 6 months.

7020 pigs taking 10 days longer to reach slaughter weight and thus requiring 14kg more feed @ 13p/kg = £1.82/pig. Total cost - £12,776.

Copyright © NADIS 2007 www.nadis.org.uk

To test your knowledge and understanding of the control of this condition, try our instantly marked self assessments, by clicking here

Health Quiz

NADIS Health Bulletins are designed to improve farm income, animal health and welfare by promoting disease control and prevention.

Discuss how health planning can improve the profitability of your farm with your veterinary surgeon.

NADIS is supported by BPEX, EBLEX, HCC, QMS, Elanco Animal Health and MLC.

