

NADIS Pig Health – January 2007 **Streptococcal Meningitis**

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Meningitis is a relatively common disease of young pigs whereby infection leads to inflammation of the sacs that surround the brain (meninges) and produce disturbance to the nervous system. The disease is frequently fatal. It can be caused by a wide range of bacteria which can gain access to the blood stream via wounds, tooth roots, the navel and the tonsil, which then circulate around the body, settling out in the brain. It is not uncommon for them also to settle in the joints

Clinical Signs

The earliest clinical signs will be depression, separation from the group and a vacant look. There may well be shivering and reluctance to move and the rectal temperature will exceed 40°C. Untreated, within a few hours these signs will progress to the classical picture of the pig lying on its side and “galloping” with all four legs. The head may be raised back over the shoulders and the eyes will flicker out of control. These convulsions may be intermittent (often triggered by stimulus such as noise or handling), or in advanced cases continuous. In the latter case, death follows rapidly. Sudden death is often reported in outbreaks, although it is likely that these are not true sudden deaths but rapidly developing cases that are not spotted e.g. overnight. “Recovered” cases may later develop large swollen joints, suggesting a full recovery has not been achieved.

Diagnosis

Diagnosis of meningitis is made on the basis of clinical signs. However, the cause can only be identified by laboratory analysis of swabs collected from the brain of pigs dying without

Treatment

With early, rapid and appropriate treatment, a recovery rate of 75% of affected weaners should be achievable. The individual pig should be removed from the pen and placed in a quiet area with subdued lighting and soft bedding. Antibiotics should be administered by injection – usually penicillin based products are appropriate for Streptococcal meningitis, although the farm’s veterinary surgeon will advise. It may also be advised to inject anti-inflammatory agents as well.

As important to recovery is the nursing care. Fluid replacement is essential for the pig that cannot eat and drink. Warm water and electrolytes should be supplied/administered every 2-4 hours either orally (using a syringe or hose pipe) or with care into the rectum using soft silicon piping inserted through the anus.

It should be noted that the pig that does not obtain fluids may subside into “salt poisoning”, which has clinical signs similar to

producing an arthritis. *Streptococcal Meningitis*, particularly serotype II is capable of producing both epidemics and long term grumbling problems in herds, particularly affecting pigs in the first month after weaning. A number of managerial and environmental factors can influence the extent and severity of an outbreak.



Fig 1: Typical clinical Streptococcal meningitis

treatment. A definitive diagnosis will always assist choice of therapy.



Fig 2: Per rectum rehydration may be necessary in severely affected pigs

meningitis! Many pigs that fail to recover from meningitis actually die of salt poisoning.

Control and Prevention

A number of factors are known to trigger cases of meningitis and attention to these will reduce the incidence of disease:-

- 1) Moving and mixing – particularly at weaning.
- 2) Overcrowding.
- 3) Poor air quality, particularly high humidity.
- 4) Concomitant disease – there is a proven link between active PRRS and Streptococcal meningitis in weaners.
- 5) Any other stresses e.g. handling.
- 6) Mixing of age groups. Particularly important is the back marking of previously affected but recovered older pigs.

The initial colonisation of the pigs' tonsils by the organism occurs in the farrowing house, either from the sow or gilt or from neighbouring piglets, particularly if there is a wide age range. The organism is commonly carried in the vagina of the sow and can be the source of initial colonisation of the young piglet. All in all out management with tight age grouping in farrowing and nursery accommodation will go a long way to reducing problems.

Strategic medication may be needed to stop an outbreak or provide long term control. This can be given:-

- a) Individually at weaning by injection or in anticipation of the time of disease (24-48 hours before cases occur).
- b) Water medication post weaning for 5-7 days.
- c) In feed medication usually for a period of 2 or more weeks starting prior to the expected age of disease. Penicillin based products or trimethoprim/sulpha products are the medicines of choice.



Fig 3: High stocking rates post weaning are a major trigger of Streptococcal meningitis

Attention to hygiene in farrowing and nursery accommodation and application of good husbandry practices should form part of the control programme.

A commercial vaccine protecting against Strep suis type II is available in Europe and where there is a need can be imported under a special import certificate – details available from VMD at <http://www.vmd.gov.uk/>.

As a word of caution. Streptococcal Meningitis potentially can infect you, producing a similar disease. It is, however, extremely rare and most likely in immune compromised individuals. Strict personal hygiene measures must be observed when dealing with affected pigs and handling material in the farrowing house. (The causes of the more common forms of meningitis in children are completely different bacteria to those occurring in the pig).

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