



VLA Monthly Surveillance Report for PIGS

Defra Food and Farm Group funds the VLA's pig surveillance work as part of the Veterinary Surveillance Strategy

Highlights

- Two unrelated cases of water deprivation/ salt poisoning in growing pigs.
- Mulberry heart disease diagnosed again this month
 - Coccidiosis in suckling pigs affecting a large proportion of litters
 - Congenital Tremor A2 diagnosed.

Enteric Diseases

Ileitis

One of a group of six pigs submitted to investigate high pleurisy scores (findings to be described in October monthly report) in slaughter pigs, was scouring. There were focal areas of mild thickening in the terminal ileum and severe thickening of the caecum and proximal colon with multiple polyp-like proliferative structures with mucosal necrosis and a severe liquid brown scour. Large numbers of intracellular acid fast curved rods were detected in an MZN

stained smear from the caecum, suggestive of porcine intestinal adenomatosis, also known as 'ileitis' (caused by *Lawsonia intracellularis*) and histopathology confirmed typical hyperplastic changes.

Coccidiosis

Coccidiosis was diagnosed as the cause of scour in 15 to 20% of piglets on an 1350 sow indoor weaner-producer. Scour commenced between three and 21 days and, within litters, 70 to 80% of pigs were affected from sows of all parities, mortality was low at 3 to 4%. The problem had been present on the unit for several months and injectable 'Baytril' had given a good response in some but not all pigs. The only significant finding in submitted 15 day old piglets was of abnormal intestinal content in all pigs and gingivitis in one. Intestinal histopathology showed areas with marked villus atrophy, some focal epithelial hyperplasia with increased mitoses in the crypt epithelium of the jejunum. The lamina propria had a light eosinophil infiltrate and there were occasional foci of necrosis in the propria with an eosinophil and neutrophil infiltrate. There were varying numbers of coccidial stages in the ileum and jejunum and in one piglet, there were coccidia present with morphology typical of *Isospora suis*. No other neonatal enteropathogens were identified

Neonatal diarrhoea suspected to be due to *Clostridium perfringens*

Neonatal diarrhoea affecting piglets approximately three-days of age was reported in a 700 sow outdoor unit. Gilt litters were worst affected with 50% scouring and up to 25% mortality. Intestinal contents were submitted by the private veterinary surgeon and clostridial organisms were seen in both. Unfortunately there was insufficient sample for toxin testing. However, the age and severity of disease suggest that this may be a case of *Clostridium perfringens* enterotoxaemia. The ideal submission for diagnosing the cause of neonatal diarrhoea is typically affected piglets, early in the course of disease, preferably untreated and live, if welfare allows.

Respiratory Diseases

PRRSv predisposes to multifactorial disease.

Active PRRSV infection was considered likely to be the underlying cause of coughing and deaths in three to four-week-old preweaned piglets on a 480 sow unit. Fourteen had died from a batch of 50. Sows were vaccinated with live PRRS virus. Three piglets in poor body condition were submitted with mixed findings; two had bronchopneumonias and pleurisy, peritonitis and arthritis while a third had diarrhoea due to an enteropathogenic *E.coli* serotype O147: K89, K88ac (G1253). The same *E. coli* was isolated from the lungs of the other pigs together with *Streptococcus bovis*. Both pigs with pneumonias tested positive for European strain PRRSV by PCR, although immunohistochemistry did not detect PRRSV in the lungs. Lesions consistent with greasy pig disease were present on the cheeks of two of the pigs which were not tooth clipped.

Diseases of the Nervous System

Congenital tremor type A2

Congenital tremor A2, which is generally considered to be due to *in utero* viral infection with an unknown virus, was diagnosed in a one week old piglet from the second affected litter by the same boar. Before submission to the VLA Regional Laboratory, Classical Swine Fever was ruled out by discussion between the veterinary surgeon and Animal Health. Unfortunately euthanasia had been carried out on farm by a blow to the head resulting in fracture of the cranium with depressed fragments and associated haemorrhage.

Streptococcus suis Type II was isolated from the lungs and brain stem.

However, histopathological examination revealed no evidence of streptococcal meningitis but suggested hypomyelination. This condition usually resolves with age and it was reported that the all pigs in the previously affected litter appeared normal by six weeks of age, with the exception of one mortality attributed to over-laying.

Salt Poisoning

20 out of a group of 600 four-week-old pigs were showing nervous signs four days post-weaning and two dead pigs were submitted to determine the cause. Post-mortem examination revealed dark red carcasses with engorged vasculature and dry tacky serosal surfaces. Meningeal congestion was also evident. Histopathological examination demonstrated laminar necrosis and eosinophil infiltration of blood vessels which is pathognomic for salt poisoning in pigs. *Streptococcus suis* type 4 was isolated from the brain and *Salmonella* Derby from the liver of one pig, these were thought to be opportunistic pathogens in an already debilitated animal.

The carcase of a 9-week-old Large Black piglet was submitted for post mortem examination with a history of fitting prior to death. This was the only animal affected in a litter of nine. The only significant post mortem finding was the presence of food material within the respiratory tract extending the entire length of the tract into the terminal bronchioles. The likely cause of death was therefore inhalation pneumonia and asphyxia which would fit with the clinical signs of vomiting during the fitting process. Routine laboratory test results were unremarkable, but histopathology of the brain confirmed a diagnosis of salt poisoning/water deprivation. The period of lack of water was thought to be up to 12 hours.

Skin diseases

Greasy Pig Disease and sarcoptic mange.

The laboratory findings for a 16-week-old growing pig with a severe generalised dermatitis were consistent with a diagnosis of exudative epidermitis (greasy pig disease due to *Staphylococcus hyicus*) with evidence of a likely underlying sarcoptic mange.

Musculoskeletal Diseases

Osteochondrosis Dissecans (OCD) in a young boar

A seven-month-old breeding Red Duroc boar was submitted after showing sudden onset lameness of the left foreleg. The boar was not weight bearing on the limb and was euthanased after failing to respond to treatment. Post mortem examination revealed a severe suppurative arthritis of the left elbow joint and osteomyelitis affecting subchondral bone of one of the distal humeral condyles. The bone affected with osteomyelitis was deep to fissuring and flap formation in articular cartilage consistent with osteochondrosis dissecans (OCD). Gross lesions consistent with OCD were also present in the right elbow joint, affecting articular cartilage of the humeral condyles. The ends of long bones are predilection sites for haematogenous bacteria to settle out in end arterioles.

Systemic Diseases

“Aero chocolate liver” necrotic hepatitis due to *Clostridium novyi* type D

One of seven sows on a small unit died without showing any clinical signs. Three had recently farrowed and the first of these was sold soon after, but died the day after delivery to the new premises. The farrowed sows were kept in a barn and were separated by gates; the other four remaining sows on the holding were dry and reported to be in good health. The sows had occasional access to the outdoors. Post mortem examination revealed large amounts of decomposed fibrin and dark red fluid in the abdomen. Fibrinous deposits were present over the serosal surfaces of the alimentary viscera and the liver was swollen. Incision into the liver revealed a typical “aero chocolate” appearance of *Clostridium novyi* infection. This was confirmed by Fluorescent Antibody Testing (FAT).

PDNS

A 20-week-old Pietrain cross pig from a small outdoor unit was submitted which had presented with signs of stiffness and shaking for one week prior to death. It responded slightly to NSAIDs but antibiotics had no effect. One other pig had died and one was ill. At post-mortem examination, a few small raised circular purple skin lesions were observed on the skin of the ventral abdomen. The inguinal lymph nodes were enlarged, oedematous and haemorrhagic

around the periphery. Many other lymph nodes in the carcass were also haemorrhagic. The kidneys were pale and petechial haemorrhages were present on the surface. The left hock was slightly distended and opaque slightly blood tinged fluid was present in the left hock and left stifle. No significant bacteria were isolated. The gross and histological findings were consistent with a diagnosis of Porcine Dermatitis and Nephropathy Syndrome (PDNS), which is frequently associated with Porcine Circovirus –2 (PCV-2) infection, however in this case PCV-2 was not demonstrated by immunohistochemistry. This may be because the virus was not particularly active and had not expressed enough antigen to enable detection, or it may not have been the cause of the lesions. In some outbreaks, co-infection with organisms such as *Pasteurella* and *Haemophilus* species can play an important role. It is worth pointing out that these lesions resemble those of classical swine fever and if notifiable disease is suspected the local DVM should be informed.

Porcine Circovirus Associated Disease (PCVAD)

A nine-week-old Gloucester Old Spot was submitted to investigate a post-weaning problem of lethargy and diarrhoea with some deaths. The main gross pathological findings were enlarged inguinal and mesenteric lymph nodes, hydropericardium, hydrothorax, pulmonary oedema, fibrinous peritonitis and dark (bloody) large intestinal contents. Suspicion of porcine circovirus-associated disease was confirmed on histopathology, mainly by demonstration of lymphocytic depletion, multinucleated cells and intracytoplasmic inclusion bodies in lymph nodes.

Mulberry heart disease

Mulberry heart disease was diagnosed in 4-week-old pigs found dead. Post mortem findings were typical with sero-fibrinous effusions in pleural, pericardial and peritoneal spaces and haemorrhagic myocardium.