Further cases of jejunal haemorrhage syndrome in cattle

- Jejunal haemorrhage syndrome in a dairy cow and a Charolais bull
- Escherichia fergusonii causing diarrhoea in lambs
- Caprine arthritis-encephalitis confirmed in a goat
- Hepatic lesions in finishing pigs associated with Dicrocoelium dendriticum infection
- Lasalocid poisoning in a labrador retriever

These are among matters discussed in the disease surveillance report for October 2011 from SAC Consulting: Veterinary Services (SAC C VS)

OCTOBER was a typically autumnal month characterised by rain or showers and strong winds. Rainfall in south-west Scotland was over 150 per cent of the 1971 to 2000 average. The rest of the country fared better, with rainfall totals closer to normal. SAC C VS suspected that the wet conditions might result in an increase in cases of acute and subacute fascioliosis in sheep, and play a part in seasonal outbreaks of pasteurellosis, in late 2011.

The Animal Health and Veterinary Laboratories Agency (AHVLA) announced adjustments to routine herd testing for bovine TB in Scotland as the second anniversary of official TB freedom was reached. Herds that meet certain risk criteria are now exempt from four-yearly routine herd testing for bovine TB. The changes, which aim to reduce the burden on industry, were backed by recent research by Glasgow University into long-term options for more effective TB surveillance in Scotland.

Cattle Parasitic diseases
St Boswells considered that above average rainfall and grazing management contributed to an outbreak of parasitic bronchitis in a herd of 50 spring-calving suckler cows. The affected group was rotated between two fields of rough grazing every two weeks. In late July, two cows were clinically affected and one died. An on-farm postmortem examination identified adult lungworms in the trachea, and the surviving cow was treated with an anthelmintic. No other animals were treated, and no further clinical signs were noted until two months later, when five animals were affected. One of these, a three-year-old cow, died, and postmortem examination revealed that 80 per cent of the lung volume showed consolidation, fibrosis, collapse and interstitial emphysema. Numerous lungworm eggs containing larvae were detected in fluid obtained from the small bronchioles. This confirmed the diagnosis, although no adult Dicrocoelium viviparum were observed grossly. Histopathology revealed both chronic bronchopneumonia due to the presence of adult and larval helminth parasites and acute interstitial lung damage due to larval migration and emergence. SAC C VS considered that subclinical infection was present in the group throughout the summer and this was responsible for the chronic lesions. The cows were then exposed to very high numbers of lungworm larvae when they moved field, causing reinfection syndrome. There were no further cases following treatment of the group with a pour-on ivermectin product.

Dumfries identified a high coccidial count of 108,500 oop in a faecal sample from a three-week-old dairy calf with diarrhoea. Although speculation of the oocysts was not performed, this count was considered significant and suggested infection very early in life. A second dairy herd, with a history of wasting in 10- to 21-day-old calves, submitted faces from two two-week-old calves. Coccidial oocyst counts were 72,000 and 50,000 oop. Speciation showed that 80 to 90 per cent were Eimeria ellipsoidalis and up to 10 per cent were Eimeria zuernii. Although considered less pathogenic, SAC C VS suspected that the E. ellipsoidalis was probably significant in this case. This species has a short prepatent period of eight to 13 days. The cows calved outside in an unhygienic paddock and the calves remained with them for one to two days. SAC C VS considered that this contaminated environment was the probable source of infection.

Generalised and systemic conditions
Three outbreaks of salmonellosis due to Salmonella Typhimurium were diagnosed across Scotland. Inverness recovered phage type 110 from faecal samples from two recently calved Belgian blue cross heifers with diarrhoea; one had given birth to a stillborn calf. This phage type is recovered only occasionally from bovine samples but is often associated with human illness. Unfortunately, there was a report of a sick child on this farm. Further investigation, in collaboration with the AHVLA and Highland Council Environmental Health, recovered phage type 120 from a further 10 samples from the child, a dog, bird and cattle faeces collected from the farm, and water samples. The Scottish Salmonella, Shigella and Clostridium difficile Reference Laboratory considered that, based on further genotypic testing, it was not possible to exclude a close relationship between the 12 isolates recovered from this outbreak.

Perth diagnosed phage type 193 as the cause of profound milk drop and haemorrhagic diarrhoea in a dairy herd.

This summary is produced by SAC C VS and is based on reports from its centres in Edinburgh, Perth, St Boswells, Ayr (Auchincruive), Dumfries, Aberdeen, Inverness and Thurso and in collaboration with the Moredun Research Institute.

SAC C VS monthly reports are available online at www.sac.ac.uk/consulting/services/s-z/veterinary/publications/monthlyreports/from the first of every month.
Approximately 20 per cent of the herd was clinically affected and several deaths occurred. Ayr identified phage type 104 as the cause of death of a 12-year-old dairy cow that had shown diarrhoea since calving one week previously. The same agent had caused diarrhoea in calves earlier in the year and the cows were vaccinated against Salmonella species.

Alimentary tract disorders
Further cases of jejunal haemorrhage syndrome (JHS) were diagnosed by Edinburgh and Perth. The Edinburgh case was in a high-yielding two-year-old Holstein-Friesian dairy cow with a history of sudden-onset recumbency before death. At postmortem examination, a 60 cm length of distal jejunum was dark red/purple in colour. This and the preceding 3 m of intestine were filled with a cast of clotted blood (Fig 1). Blood was also present in the caecum and rectum. No histological changes were found in the intestine to explain the haemorrhage and a gross diagnosis of JHS was made.

Perth diagnosed the condition in a 34-month-old Charolais bull that died after displaying signs of colic and developing melena. A Hereford cow from the same premises had undergone postmortem examination three weeks previously when intestinal rupture and haemorrhage of unknown aetiology were diagnosed. SAC C VS now considers these findings may have been secondary to JHS. This emerging condition appears to occur more commonly in dairy cattle than beef cattle. The cause is as yet unknown, although some researchers have suggested that Clostridium perfringens type A might be implicated (Abutarbush and Radostits 2005). None of these cases showed evidence of clostridial involvement.

Disease alerts
The following conditions featured in the SAC C VS report for January 2011. Given similar climatic conditions, they could also be important this year.
• Listeriosis in cattle and sheep.
• Abortion in ewes associated with Salmonella species.
• Sheep scab confirmed in more flocks following the introduction of the Sheep Scab (Scotland) Order.
• Spread of fowl cholera from wild birds to domestic poultry.

Small ruminants
Parasitic diseases
Nematodrosis is occasionally diagnosed in the autumn. Perth diagnosed the disease in a five-month-old Lleyn cross lamb from a group of several hundred animals. Many were in poor body condition with faecal staining, and several had died despite treatment with moxidectin the previous month. The intestinal contents were fluid and 62,000 Nematodirus battus worms were recovered from the small intestine. Moxidectin has no persistent effect against N battus and SAC C VS considered that reinfection from heavily contaminated pasture was likely. In addition, both glutathione peroxidase (GSHPx) and vitamin B12 levels were low at 13.4 U/ml red blood cells (RBC) (reference range >50 U/ml RBC) and 111 pmol/l (reference range >295 pmol/l), respectively. This may have been a consequence of pastisim. SAC C VS advised that blood samples should be collected from further lambs in the group.

Ayr, Dumfries and Edinburgh diagnosed subacute fasciolosis as the cause of death in ewes. In one case, a ewe was submitted from a group in which 22 animals had died over a period of four weeks. A large blood clot was found on the surface of the liver and many immature and mature flukes were detected. In another case, a four-year-old Texel ewe was presented for artificial insemination as an embryo donor. Severe ascites was noted on laparoscopy and the ewe died 30 minutes later. At postmortem examination, the abdomen was found to contain over 15 litres of fluid and the liver was enlarged, soft, pale and covered in fibrin. No flukes were seen on gross examination of the liver, but immature flukes were seen within necrotic, haemorrhagic tracts on histopathology.

Generalised and systemic conditions
Border disease viramia was confirmed in a six-month-old Lleyn lamb that was in poor body condition with chronic off-like lesions around the nares and on the lips. Forty of the group of 330 fattening lambs were in poor condition. Seven had died in the previous month. At postmortem examination the animal weighed only 13.5 kg. The prescapular lymph nodes were greatly enlarged, and severe pyothorax was found with multiple abscesses throughout the lung field. Border disease virus RNA was detected by tissue PCR.

Alimentary tract disorders
Duodenal ulceration and perforation with secondary peritonitis was diagnosed.
Musculoskeletal conditions

The owner of two pet goats noticed that one had started to lactate from one half only. Both goats had crepitus of the carpal joints. One goat was seropositive for caprine arthritis-encephalitis (CAE) by the agar gel immunodiffusion assay, while the other goat tested negative. SAC C VS advised testing the second goat using the more sensitive CAE ELISA and culling the seropositive goat.

Nervous system disorders

A six-month-old lamb was found in lateral recumbency and unable to rise. Proprioception was poor, particularly in the forelimbs, and there was an exaggerated withdrawal reflex in the hindlimbs. The panniculus reflex was intact. A tremor affecting the head and forequarters developed when the lamb was handled. Ps was found within the atlanto-occipital joint at postmortem examination at Dumfries. 

Skin diseases

St Boswells detected forage mites (Pyemotes species) in samples from pruritic sheep on two occasions. No other agents were identified. SAC C VS notes that forage mites do not feed on sheep and are not truly parasitic, but they do cause pruritus.

Pigs

Alimentary tract disorders

Brachyspira hyodysenteriae infection was diagnosed in eight indoor pig units. Affected pigs were aged from six to 15 weeks and all had a history of profuse diarrhoea typical of swine dysentery. One hundred per cent morbidity was reported on one unit where blood was seen in the faeces. Concurrent infection with Salmonella species was present in four of the outbreaks. Two outbreaks involved S Typhimurium DT120, while S Typhimurium DT193 was isolated from a third. The fourth outbreak involved infection with Salmonella Reading.

Lawsenia intracellularis infection causing proliferative enteropathy was diagnosed in a one-year-old breeding boar with a one-week history of blood in the faeces. At postmortem examination, the ileum was markedly thickened, with evidence of necrosis and haemorrhage. Histopathology confirmed the presence of changes consistent with proliferative enteropathy. L intracellularis was detected in the intestinal contents by PCR.

Liver flukes consistent with Dicrocoelium dendriticum were found to be the cause of unusual hepatic lesions, seen during abattoir surveillance, affecting approximately 25 per cent of outdoor-reared finishing pigs on one unit in the Grampian area. The lesions comprised multifocal areas of fibrosis that ranged from 10 to 40 mm diameter (Fig 3). Many of the lesions had a small central necrotic focus or a small cavity. SAC C VS regarded the presence of D dendriticum in Scottish pigs to be a very unusual diagnosis.

Respiratory tract disease

Lungworm infection was diagnosed in a 16-week-old outdoor-reared pig from a small organic unit. Coughing was reported within the group of 60 growers, and growth rates were poorer than expected. The submitted pig was found dead, and postmortem examination revealed large numbers of lungworms within the airways (Fig 4). Pasteurella multocida was also isolated from the lungs.

Wild birds

Significant parasitism was diagnosed as the cause of death of mute swans (Cygnus olor) from a Scottish loch. An estimated nine swans from the initial population of 30 to 35 birds had died. Four swans were submitted for analysis, and histopathology revealed significant parasitism, particularly with the liver fluke Dicrocoelium dendriticum.
over a two-week period for postmortem examination; two were juveniles in poor body condition. Multiple parasites including schistosomes, tracheal flukes (Orchispidum species) and thorny-headed worms (Fig 5) were present in both juvenile birds. Focal pneumonia and severe airsacculitis were also present in each case. SAC C VS believed these changes to be secondary to the tracheal fluke infection. In one bird, heavy growths of Aeromonas hydrophila were isolated from lung and air sac tissue, while in the second bird Aspergillus fumigatus was isolated from these tissues. Vascular changes consistent with schistosomiasis were also detected on histopathology.

The other two birds examined were adults and in good body condition. In one, the most significant gross abnormality detected was the presence of multiple irregular foci of necrosis, measuring 3 to 4 mm in diameter (Fig 6), in the pancreas. Such lesions have been seen in swans dying from highly pathogenic avian influenza H5N1 infection (Teifke and others 2007); however, screening for avian influenza did not detect influenza A viral RNA. Histopathology demonstrated substantial areas of acute pancreatic necrosis suggestive of infarction. Muscular hypertrophy of the walls of the veins of the spleen, pancreas and small intestinal serosa were also noted, consistent with damage cause by blood trematodes of the family Schistosomatidae. This finding was substantiated by the demonstration of large numbers of schistosome eggs in intestinal smears. A heterophilic meningitis was also present.

The findings in the second adult bird were different from those in the other three birds. There was substantial enlargement of the liver and spleen, with fine foci of necrosis visible on the surface and the cut surface of the liver. A heavy growth of E. coli was isolated from the liver and spleen, and histopathology demonstrated severe necrotising bacterial hepatitis and splenitis with extensive splenic amyloidosis. No significant parasitism was noted. There was no evidence of lead poisoning or zinc toxicity in any of the four birds. Significant parasitism has been diagnosed in swans from this site in previous years (Pennycott 1998).

Sarcocystosis was suspected in a wild mallard (Anas platyrhynchos) with multiple white, rice-like lesions throughout the pectoral muscles (Fig 7). Histopathological findings supported this diagnosis.

Miscellaneous species

Dogs

Aberdeen diagnosed salmonellosis in an eight-week-old German shepherd dog that died following a short course of illness. The animal came from a breeding premises in which there was a history of vomiting and diarrhoea in previous months, which was poorly responsive to treatment. Postmortem examination revealed dilatation of the small intestine with bloodstained liquid contents from which Salmonella Typhimurium DT193 was isolated. PCR tests on intestinal contents for canine parvovirus and canine coronavirus were also positive. Further investigation revealed that the dogs were not vaccinated and were fed a home-prepared, raw meat-based diet. The meat was obtained from a knackery; subsequent culture of a sample was positive for S Typhimurium DT193.

Lasalocid poisoning was suspected as the cause of death of a 13-month-old female labrador retriever, which was found collapsed and quadriplegic approximately 12 hours after ingesting a large amount of medicated gamebird feed containing lasalocid sodium. The dog progressed to develop marked hyperthermia and died despite attempts to control its core temperature. Postmortem examination revealed marked generalised pulmonary congestion. The stomach contained 750 g of pasty digesta consistent with the appearance of digested gamebird feed. Similar material was present throughout the entire intestinal tract. Lasalocid is a recognised cause of poisoning in dogs (Segev and others 2004). Toxicology failed to identify the presence of any other common poisons.

Wild mammals

Yersiniosis was diagnosed in an adult brown hare from a Perthshire estate. Five hares had been found dead in one particular location within two weeks. Postmortem examination revealed pulmonary congestion with small abscesses scattered throughout the parenchyma. Pale microabcesses were also present throughout the liver. Yersinia pseudotuberculosis was isolated from lung and liver tissues. SAC C VS notes that Y pseudotuberculosis is a recognised cause of internal abscessation in wild hares. Outbreaks of yersiniosis may occur at times such as poor weather or nutritional inadequacy. There was no histological evidence of concurrent European brown hare syndrome.

References


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