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 fasciolosis 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 opg in a faecal sample from a three-week-old dairy calf with diarrhoea. Although speciation 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 opg. Speciation showed that 50 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 15 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.
Surveillance

FIG 1: Distended and discoloured jejenum in a case of jejunal haemorrhage syndrome in a Holstein-Friesian cow

Approximately 20% 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 jejenum 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 condition appears to occur more commonly in dairy cattle than beef cattle. t

SAC C VS considered that high copper level might be unrelated to the myopathy, but investigations continue to determine the source of the copper. The copper level was not sufficiently high for the Food Standards Agency to be informed.

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 facial swelling, 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 (GSHp) and vitamin B levels were low at 13.4 U/ml red blood cells (RBC) (reference range >295 U/ml RBC) and 111 pmol/l (reference range >295 pmol/l), respectively. This may have been a consequence of parasitism. 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 virusemia 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.

FIG 2: Discharging sinus at the coronary band of a caff with septic arthritis

Musculoskeletal conditions

The carcase of a seven-month-old castrated male Charolais cross caff submitted to Ayr was one of five calves from a group of 43 affected by swollen joints or limbs a few days after calmar. Severe septic arthritis was noted in all the joints. The lesions were most severe in the hindfeet, with toe necrosis evident and pus discharging at the coronary band (Fig 2). Severe extensive pneumonia, most likely due to haematogenous spread of infection, was also seen. Despite the history of recent castration, the wound was clean and did not appear to be the source of infection. In the following weeks, another male caff and five heifer calves also became lame. An on-farm investigation found that the calves had to cross rivers and walk through poached gateways whenever they were gathered. In addition, there were many sharp stones in the walkways as a result of recent building work. SAC C VS considered that soft hooves were sometimes affected by swollen joints or limbs a few days after calmar. Severe septic arthritis of the knee was also noted.

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.

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.

Alimentary tract disorders

Duodenal ulceration and perforation with secondary peritonitis was diagnosed...
Nervous system disorders
A six-month-old lamb was found in lateral recumbency and unable to rise. When supported, it attempted to circle to the left. 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. Pus was found within the atlanto-occipital joint at postmortem examination at Dumfries. *Trypanosoma (Anacolobacterium) pyrogenes* and *Fusobacterium necrophorum* were isolated on culture. The source of the infection was unknown.

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*.

*L. 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...
were different from those in the other three
heterophilic meningitis was also present.

Consistent with damage caused by blood
infarction. Muscular hypertrophy of the
areas of acute pancreatic necrosis suggestive
of infection. Aeromonas hydrophila was isolated from
lungs and air sac tissue, while in the second
bird Aspegillus fumigatus was isolated from
these tissues. Vascular changes consistent
with schistosomosis 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 (Telfke 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 caused 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 (Pennycoff

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
knacker; 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
harves had been found dead in one particular
location within two weeks. Postmortem
examination revealed pulmonary congestion
with small abscesses scattered throughout
the parenchyma. Pale microabscesses 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
of stress such as poor weather or nutritional
inadequacy. There was no histological
evidence of concurrent European brown
hare syndrome.

References

Hepatic hemorrhage syndrome in dairy and beef cattle: 11 cases (2001 to 2003).
Canadian Veterinary Journal 46, 711-715

Isolation of Escherichia coli in cases clinically suggestive of sal-
monellosis. Veterinary Record 144, 311

PENNYCOTT, T. W. (1994). Lead poisoning and parasit-
ism in a flock of mute swans (Cygnus olor) in Scotland. Veterinary Record 134, 15-17

SEGEV, G., RANETH, G., LEVITIN, R., SHLSBERG, A., 
dogs with lasalocid. Veterinary Record 155, 174-176

TEIFRE, J. F., KLOPFLEISCH, R., GLOBIC, A., 
STARICK, E., HOFFMANN, B., WOLF P.U., BEER, M., 
METTENLEITER, T. C. & HARDER, T. C. 
(2007) Pathology of natural infections by H5N1 highly pathogenic avian influenza virus in mute (Cygnus olor) 
and whooper (Cygnus cygnus) swans. Veterinary Pathology 44, 137-148

doi: 10.1136/vr.e21
Further cases of jejunal haemorrhage syndrome in cattle

*Veterinary Record* 2012 170: 13-16
doi: 10.1136/vr.e21

Updated information and services can be found at:
http://veterinaryrecord.bmj.com/content/170/1/13

These include:

**References**
This article cites 5 articles, 2 of which you can access for free at:
http://veterinaryrecord.bmj.com/content/170/1/13#ref-list-1

**Email alerting service**
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/