

OVERVIEW

- **Liver fluke deaths in sheep associated with treatment failure**
- **Varied causes of ill thrift identified in cull ewe screens**
- **Pancreatitis in an alpaca**

GENERAL INTRODUCTION

December was warmer than average with most of Scotland experiencing mean temperatures 1.5 to 2.5 °C above the 30-year average and localised areas recording figures 2.5 to 3.5 °C higher. It was wetter than usual in the North contributing to a Scotland-wide rainfall figure of 133 per cent when compared to the 1991 to 2020 period. Sunshine hours in the Western Isles equated to less than 30 per cent of average, and it was dull across the whole country with only 62 per cent of average sunshine hours recorded.

DISEASE ALERTS

The following conditions were reported by SRUC VS disease surveillance centres in March 2024. Given similar climatic and production conditions, they could also be important this year.

Otitis media in dairy calves

Otitis media is most often seen in pre-weaned calves. *Mycoplasma bovis* is a common cause although other bacteria such as *Mannheimia haemolytica*, *Pasteurella multocida*, *Trueperella pyogenes*, *Streptococcus* sp and *Histophilus somni* can also be involved. Bacteria can infect the middle ear via the auditory tube, the external ear or via haematogenous spread. Affected calves present with ear droop which can be uni- or bilateral. Purulent material accumulates within the tympanic bullae and the involvement of adjacent cranial nerves (particularly the facial and vestibulocochlear) can lead to head tilt and facial paralysis with epiphora and loss of palpebral and menace reflexes in some cases.

Campylobacter abortion in ewes

Confirming a diagnosis of suspected campylobacter abortion can be challenging as the foetuses are often autolysed and the bacterium can be difficult to culture. Submission of foetuses/samples from more than one ewe is advised. *Campylobacter* sp. can cause distinctive pale circular lesions on the foetal liver but this is uncommon. Isolation from the foetal stomach contents is diagnostic however isolation from placenta only may represent environmental contamination. Further evidence, such as histological lesions of bacterial placentitis is required to support the diagnosis.

CATTLE

Generalised and systemic conditions

A dairy herd reported the loss of three neonatal calves over a two-week period and the carcass of a three-day-old Aberdeen Angus x Jersey bull was submitted. Cow health was reported to be good, but the dam of the submitted calf had been treated for hypocalcaemia. Despite this it went on to calve without assistance and the calf was tubed with 4 litres of dam colostrum. It started to scour at an early age and deteriorated rapidly. Postmortem examination identified a wet navel and congestion of the mesenteric blood vessels. Septic arthritis was noted in multiple limb joints. *Escherichia coli* was isolated from all tissues cultured and a ZST result of 1.3 units (target >20 units) confirmed hypogammaglobulinaemia which will have predisposed to colisepticaemia. The earlier deaths had involved two-to-three-week-old calves, and it was not clear if they were related. Only small numbers of cows were reported to be calving however navels were not always treated and this likely increased overall calf mortality risk.

An eight-month-old Aberdeen Angus cross heifer was noted to be lame on its right hind leg for 48 hours prior to death. It was also reported to be coughing and had been treated with antibiotics and NSAIDs. It was the only animal affected from a group of 20 cattle housed on slats since late October. Postmortem examination found extensive subcutaneous oedema along the ventrum and extending over the upper right hind leg. Incision into in this area revealed extensive blackened muscle with a dry appearance and large numbers of small gas bubbles within the tissue (Fig 1). Additional findings included a pericardial effusion containing a fibrin clot, fibrinous epicarditis and dark areas within the left ventricular myocardium. Fluorescent antibody testing (FAT) of muscle was positive for *Clostridium chauvoei* confirming the suspected diagnosis of cardiac and skeletal muscle blackleg. It is not uncommon for lesions of clostridial myositis to be present in two sites within an affected carcass.

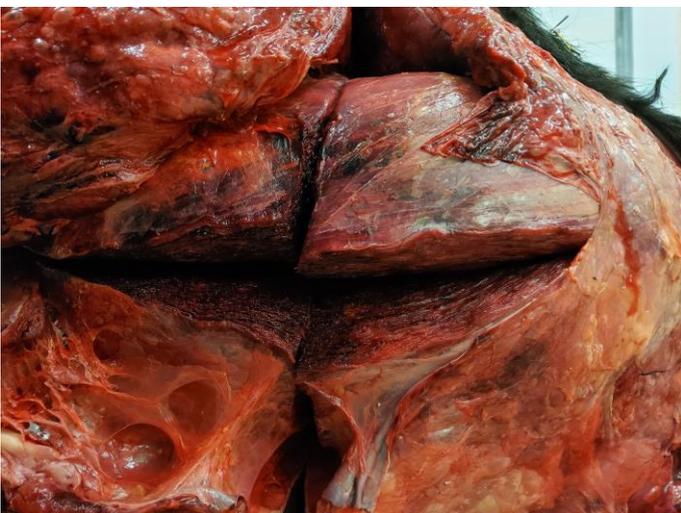


Figure 1 – Clostridial myositis in an eight-month-old Aberdeen Angus heifer

A two-week-old Hereford cross bull calf was submitted from a dairy herd with a high calf mortality rate. It had developed diarrhoea prior to death and cryptosporidia were detected consistent with previous submissions from the farm. This case also had fibrinous peritonitis,

enlarged mesenteric lymph nodes, profuse liquid small intestinal contents and a caecal intussusception. The appearance of the latter suggested that it had occurred pre-mortem but likely not long before death. Both kidneys were severely affected with lesions of white-spot kidney (Fig 2) indicating an earlier episode of neonatal bacteraemia.



Figure 2 – White spotted kidney in a dairy calf indicative of prior neonatal bacteraemia

A seven-month-old Holstein heifer appeared stiff when walking and was treated for suspected pneumonia but was subsequently found in lateral recumbency with extended limbs and opisthotonus. It was able to rise with assistance and showed a hunched posture and raised tail head. It was the only animal affected from a group bedded on straw and was euthanased to investigate the cause. Postmortem examination identified adhesions between the rumen, omentum and abdominal wall. Further adhesions



between the omentum and the small intestine resulted in the formation of a ball of intestines. Histopathology revealed multifocal thickened areas of intestinal serosa with occasional foci of necrosis and imbedded plant material at the centre of large accumulations of granulation tissue. The findings were consistent with intestinal perforation at an earlier date but the cause of this was not clear. The clinical signs were considered to be a result of abdominal pain.

SMALL RUMINANTS

Toxic conditions

The carcase of a seven-month-old Cheviot lamb was submitted following the recent death of three animals from a group of 500 stocked on kale with a grass run back. They had been purchased one month before and had been clostridial vaccinated and treated for worms and ectoparasites. The carcase was autolysed hampering examination however the kidneys appeared black and the urine dark brown. Histopathology detected centrilobular necrosis of hepatocytes and accumulation of pigment within renal tubules suggesting the possibility of haemolysis. Analysis of liver and kidney ruled out chronic copper toxicity and a presumptive diagnosis of brassica toxicity was made.

Parasitic diseases

Five animals died from a group of 27 mixed homebred and purchased lambs over the course of a week. Pale conjunctiva and submandibular oedema were reported in some cases. The group had been on wet ground until 15 days prior to submission when they were treated with a triclabendazole/ivermectin combination drench and a mineral drench before moving to a drier area. The submitted carcase was pale and the liver firm with a whitish mottled appearance. Large numbers of liver fluke measuring 1 to 1.5 cm were found in the bile ducts and gall bladder. A small number of 7 to 8 mm fluke were also seen, and the strongyle egg count was 700 eggs per

gram. The findings confirmed treatment failure and it was advised to check the date of treatment, dose given, whether or not the dosing gun had been calibrated and to confirm that the anthelmintic had not been mixed with the mineral drench before administration. It was recommended that faecal samples from other lambs in the group were submitted for further testing. Four sheep from a hobby flock of 25 died after appearing weak and anaemic. They had been set stocked in a wet field and treated with triclabendazole four weeks before. The carcasses of a herdwick and a cross ewe were examined and found to have severe liver damage with very large numbers of *Fasciola hepatica* within the bile ducts and gall bladder. These ranged in size from 0.5 to 2 cm confirming treatment failure in this case also.

Generalised and systemic conditions

A Scottish blackface gimmer was euthanased after being found recumbent with evidence of jaundice. Four others from the group of 50 had been found dead during the previous 48 hours. An on-farm postmortem examination identified a swollen liver with pale patches on the surface and 3 to 8 mm *F hepatica* within the bile ducts. *Clostridium novyi* was not detected on FAT, but histopathology confirmed a severe necrosuppurative hepatitis with intralesional clostridial organisms confirming a diagnosis of black disease. Treatment for liver fluke had been given around two months earlier when an adulticide only product had been given which was not appropriate for the time of year.

Alimentary tract disorders

A Scottish blackface gimmer was noted to be in poor body condition compared to its flock mates but was bright and continued to eat. The flock had vaccinated ewe replacements against Johnes disease for a number of years but this ewe had been missed as it was originally intended to be sold. It was euthanased on farm and submitted for postmortem examination. The carcase was thin but there were moderate amounts of body

fat remaining. The mesenteric lymph nodes were enlarged and the lymphatics within the mesentery and on the distal jejunal serosa were prominent (Fig 3). The mucosa in this area and in the ileum and caecum was thickened with a hint of yellow pigmentation and the faeces were diarrhoeic. Very large numbers of acid-fast bacteria were observed on a Ziehl Neelsen stained smear of ileum confirming a diagnosis of Johnes disease. It is recognised that vaccination will reduce shedding of *Mycobacterium avium paratuberculosis* but will not eradicate the disease from a flock.



Figure 3 – Prominent lymphatics on the jejunal serosa of a ewe with Johnes disease

A shepherd reported that 4 to 5 per cent of a group of 700 easycare ewes were persistently thin. Three animals were submitted and all found to have some evidence of broken mouth. This was the sole diagnosis in ewe one while ewe two had additional diagnoses of chronic pneumonia and udder abscessation. A 1 cm diameter abscess discharging to the skin was found in the intermandibular space of ewe three. The tongue in this case was firm with areas of pale grey tissue on section. *Actinobacillus lignieresii* was cultured from the lesion and histopathology confirmed a severe granulomatous glossitis associated with Gram-negative bacteria consistent with a diagnosis of actinobacillosis. Wooden tongue is more commonly diagnosed in cattle and typically

affects the soft tissues of the head with subsequent loss of condition.

A 1000 ewe flock submitted three cull ewes in order to investigate ill thrift. Ewe one was diagnosed with chronic gastroenteritis and ewe two with chronic mastitis due to *Staphylococcus aureus*. Ewe three, a five-year-old Lleyln, had reared triplets and failed to gain weight after weaning. The abdomen was distended with a fluid thrill on ballotment, and postmortem examination revealed 14 litres of yellow tinged serous ascitic fluid. The wall of the ileum was markedly thickened by firm white tissue (Fig 4) and there were raised white plaques on the serosa of the adjacent intestine. Neoplasia was suspected and confirmed on histopathology which identified a densely cellular epithelial neoplasm infiltrating the mucosa, mesentery, serosa and muscularis. The presence of numerous mucin-filled neoplastic cells showed this to be a signet cell variant of intestinal adenocarcinoma. There was no evidence of metastasis to the liver, spleen or lung.



Figure 4 – Thickening of the ileum in a case of intestinal adenocarcinoma in a five-year-old Lleyln ewe



MISCELLANEOUS

A 12-year-old female alpaca became anorexic and was found down and rolling the following day. It was treated symptomatically but died overnight and was submitted for postmortem examination. This revealed an 18 x 7 cm firm mass in the cranial abdomen adjacent to the stomach. C1 was compacted with dry fibrous content but there was little content in C2 and 3. The origin of the mass was unclear, but histopathology confirmed it to be pancreas. The lobules were disrupted by haemorrhage and areas of liquefactive necrosis consistent with a diagnosis of pancreatitis. Large colonies of gram-negative bacilli were visible in some sections and a mixed growth of *Escherichia coli*, *Bacteroides* sp and *Clostridium perfringens* was cultured. The aetiology of pancreatitis in camelids is poorly understood however bacterial infection is often not a feature and may have been opportunistic in this case. It was suggested that the impaction of C1 was secondary to the pancreatitis.