REGIONAL VETERINARY LABORATORIES REPORT

November 2024

Regional Veterinary Laboratories (RVLs) carried out necropsy examinations on 939 carcases and 166 foetuses during November 2024. Additionally, 2,014 diagnostic samples were tested to assist private veterinary practitioners with the diagnosis and control of disease in food-producing animals. This report describes a selection of cases investigated by the Department of Agriculture, Food and the Marine's (DAFM) veterinary laboratories in November 2024. The objective of this report is to provide feedback to veterinary practitioners on the pattern of disease syndromes at this time of the year by describing common and highlighting unusual cases. Moreover, we aim to assist with future diagnoses, encourage thorough investigations of clinical cases, highlight available laboratory diagnostic tools, and provide a better context for practitioners when interpreting laboratory reports.

Cattle

Pneumonia and enteritis were the most common diagnoses at necropsy in cattle in the RVLs during November 2024.



Table 1: The most common diagnoses in cattle submitted for necropsy in November 2024.

Gastrointestinal tract



Figure 1: Roughening of the mucosal surface of the abomasum in a weanling with parasitic gastroenteritis. Photo: Maresa Sheehan.

Parasitic gastroenteritis

Two 10-month-old weanlings were submitted to Kilkenny RVL for post-mortem examination. There was notable roughening of the mucosal surface of the abomasum. Both gross and histopathological findings suggest that an underlying parasitic gastroenteritis may have played an important role in the ill-thrift and death of these animals. Recent treatments can affect culture and parasitological results, so the diagnosis here was made on gross and histopathological findings.



Figure 2: Hyperplastic abomasal glands due to parasitic gastroenteritis. Photo: Maresa Sheehan.

Intussusception

A four-month-old Hereford-cross heifer calf was submitted to Limerick RVL with a history of chronic intermittent diarrhoea with no response to treatment; its cohorts were not affected. An intussusception approximately 50cm in length was present in the small intestine (jejunoileal intussusception), sparse contents were present in the large intestine reflecting impaired flow of intestinal contents. The cause of intussusception is often unknown but any condition that alters intestinal motility is suggested as a predisposing factor. There were no significant findings on laboratory tests.



Figure 3: Intussusception. Photo: Brian Toland.

Clostridial abomasitis and enterotoxaemia

Athlone RVL examined a perinatal suckler calf that had lived for 40 hours. It had had a normal delivery with no assistance, had been fed colostrum by stomach tube by the herdowner and was seen suckling from the cow afterwards. It was found the following day recumbent, in pain, and showing tenesmus, and it died soon afterwards. On post-mortem examination, there was a severe, diffuse, emphysematous abomasitis with mucosal haemorrhages and chocolate brown contents. The small intestinal contents were haemorrhagic, and faeces were scant and loose. The liver was autolysed and friable, and there was pulmonary congestion. Clostridium perfringens epsilon and beta toxins were detected in the intestinal contents but not in the abomasal contents. This is indicative of a *C. perfringens* type D enterotoxaemia. Fluorescent antibody technique (FAT) carried out on the abomasal mucosa was negative for Clostridium sordellii. Histopathology of the abomasum showed marked haemorrhage and emphysema in both the mucosa and submucosa, with multifocal aggregates of rod-shaped bacteria in the lamina propria and in the luminal debris. A conclusion of a clostridial emphysematous abomasitis and enterotoxaemia was made. A review of clostridial vaccination on the submitting farm was advised.



Figure 4: Emphysematous abomasitis. Photo: Aideen Kennedy.

Respiratory tract

Parasitic bronchitis

Sligo RVL diagnosed patent parasitic bronchitis ('hoose') in a six-month-old calf in November 2024. The farmer had lost three further animals similarly in the week before submission of this case. The animal had been noticed weak with mild hyperpnoea before death. On post-mortem examination, it was noticed that adipose reserves were depleted and there was extensive facial and cervical dermatophytosis ('ringworm'). There was diffuse bilateral verminous pneumonia associated with obstruction of the airways by adult *Dictyocaulus viviparus* nematodes.



Figure 5: An adult lungworm visible through the pleura inside a pulmonary bulla. Photo: Aideen Kennedy.

Two nine-month-old weanlings with a history of scour and pneumonia were submitted to Kilkenny RVL. Both had caudal pulmonary overinflation, 'ground glass' emphysema and occasional bullae. *D. viviparus* were visible in both. There was also cranioventral consolidation to varying degrees in both. In addition to lungworm, *Histophilus somni* and PI3 were identified, and a review of respiratory disease control was recommended.

Urinary/reproductive tract



Figure 6: Nephroliths in a bovine kidney. Photo: Aideen Kennedy.

Urolithiasis, cystitis, and peritonitis

A nine-month-old weanling was found dead and submitted to Kilkenny RVL. Peritonitis was evident on opening the abdominal cavity, and there was fibrin on a large number of organs, and a large volume of fluid in the peritoneal cavity. The kidneys were autolysed, but, on cross-section, the kidney contained multiple hard crystals or uroliths. The urethra contained small numbers of these and was diffusely inflamed. There was a marked cystitis. The peritonitis was likely to have been related to the urinary system lesions seen.



Figure 7: Uterine torsion in a cow. Photo: Aoife Coleman.

Athlone RVL examined a six-year-old cow submitted with a history of acute posterior paresis followed swiftly by sudden death. The animal was approximately seven months pregnant. The mucous membranes of the cow were porcelain white, with severe bilateral enophthalmia. Necropsy disclosed a severe, voluminous haemoabdomen with a deeply congested and turgid uterine body. At the pelvic outlet, there was a torsion of the uterus which exceeded 360°, rostral to the cervix, and an elongated tear within the dorsal uterine wall. A diagnosis of uterine torsion, with uterine rupture and haemorrhage, was made.

Cardiovascular system



Figure 8: Abscessation of the caudal vena cava in a cow. Photo: Brian Toland.

Vena cava thrombosis

A five-year-old Friesian cow that was losing weight for the previous six weeks with no response to treatment was submitted to Limerick RVL. Post-mortem revealed blood clots in the mouth, oesophagus, and rumen. Multifocal abscesses were present in the liver which was firmly adhered to the diaphragm. The caudal vena cava was occluded by a large abscess approximately ten centimetres in length. The lungs were enlarged and heavy with multifocal pulmonary abscesses and blood clots present, and clots were also visible in the trachea. A diagnosis of septic thrombosis of the caudal vena cava with thromboembolic pneumonia and haemorrhage was made. Blood clots and haemorrhage are sequelae to ruptured aneurysms throughout the lungs resulting from septic thrombi, and the blood clots in the rumen originated from haemorrhage in the lungs, which was coughed up and swallowed. The most common cause of vena caval thrombosis is ruminal acidosis leading to rumenitis and subsequent liver abscessation, resulting in a thrombus in the caudal vena cava when the vessel wall is infiltrated by the abscess (other diseases with inflammatory foci can also result in a caudal vena caval thrombus). This condition is typically seen in dairy cows on high carbohydrate diets, so a review of diet was advised.



Figure 9: Multifocal pulmonary abscessation in a Friesian cow. Photo: Brian Toland.

Musculoskeletal

Omphalophlebitis and arthritis

A four-week-old Charolais suckler calf was submitted to Limerick RVL with a history of non-response to treatment for septic polyarthritis and diarrhoea. The dam had had very little milk. On external examination, the umbilicus appeared swollen and incision revealed a pus-filled umbilicus and umbilical vein extending to the liver with associated hepatic abscessation. The stifle and carpal joints were filled with whiskey-coloured fluid and fibrin. A diagnosis of hepatic abscessation and septic polyarthritis resulting from umbilical infection was made. The herdowner was advised to review treatment of neonatal navels (and colostrum management) as source of infection is via umbilicus, and hygiene around calving and dressing of the navel is critical to prevent further cases.



Figure 10: Purulent infection of the umbilical vein in a calf. Photo: Brian Toland.

Athlone RVL examined a two-week-old suckler calf with a history of sudden death. The umbilicus contained suppurative exudate tracking along the umbilical vein to the liver, with a purulent, necrotic lesion in the liver. The right hock and stifle joints were infected also. A diagnosis of navel ill/joint ill complex was made.



Figure 11: Another example of purulent infection of the umbilical vein. Photo: Denise Murphy.

Blackleg

Athlone RVL examined an eight-month-old weanling with a history of sudden death. Carcase preservation was poor. There were dry, haemorrhagic, myositis lesions in the muscles of the left hindquarter. Other organs were autolysed and unremarkable. *Clostridium chauvoei* was detected by FAT of the lesioned muscle, and a diagnosis of blackleg was made. Advice was given to vaccinate comrades with a multivalent clostridial vaccine.



Figure 12: Blackleg in a weanling. Photo: Denise Murphy.

Several cases of blackleg were diagnosed in Sligo RVL in November 2024. In one case, a seven-month-old weanling had been noticed recumbent and anorexic with sudden onset; on post-mortem examination, there was diffuse dry myositis in the left neck, shoulder, and hind quarter. *C. chauvoei* was detected in the lesion by FAT. Deoxyribonucleic acid (DNA) specific to *Anaplasma phagocytophyllum* was detected by polymerase chain reaction (PCR) disclosing a concurrent tick-borne fever.

Sheep

Bacteraemia/septicaemia and parasitic gastroenteritis were the most common diagnoses at necropsy in sheep in the RVLs during November 2024.



Table 2: The most common diagnoses in sheep submitted for necropsy in November 2024.

Gastrointestinal tract

Parasitic gastroenteritis and fasciolosis

Two six-month-old lambs were found dead and submitted to Kilkenny RVL. One lamb had haemorrhagic tracts in the liver suggestive of acute fasciolosis. The second lamb had coalescing fibrotic lesions suggestive of more chronic changes, and also had multifocal liver abscessation. Both had very liquid intestinal contents. Liver fluke (*Fasciola hepatica*) eggs were detected in the second lamb and strongyle egg counts of 4,100 and 10,700 per gram were recorded, respectively. A review of parasite control, including that of liver fluke, was recommended.



Figure 13: Chronic hepatic damage (fibrosis) caused by *Fasciola hepatica*. Photo: Rebecca Froehlich-Kelly.

Fasciolosis

Sligo RVL examined the carcase of a four-year-old ewe which had been noticed unwell over the previous three to four days. On post-mortem examination, there was generalised jaundice. There was extensive hepatic fibrosis. On opening of the duodenum, a large amount of adult *F. hepatica* were revealed with erosions and ulcerations present on the duodenal mucosa. This is an exceptionally unusual presentation of fasciolosis.



Figure 14: Duodenal erosions on the mucosa of a lamb. Photo: Rebecca Froehlich-Kelly.

There was concurrent, localised peritonitis in the cranial abdomen. Histopathology revealed diffuse, chronic, severe, parasitic hepatitis with extensive fibrosis, haemorrhage, haemosiderphages, biliary hyperplasia and eosinophils. Moreover, there was peritonitis and diffuse, acute eosinophilic duodenitis with loss of architecture and mild pancreatitis. Severe chronic/active fasciolosis was diagnosed as the cause of death.



Figure 15: Adult *Fasciola hepatica* recovered from the proximal duodenum of a ewe. Photo: Rebecca Froehlich-Kelly.

Ruminal acidosis

The carcase of a seven-month-old lamb with a history of sudden death was submitted to Sligo RVL. On necropsy, there was extensive haemorrhagic oedema in the ventral abdominal wall. There was pleuritis. The rumen contents were pale and watery, and of soft consistency ('porridge-like'). The ruminal fluid pH was 5.4. *Trueperella pyogenes* was cultured from lung tissue, where *Bibersteinia trehalosi* was also detected by PCR. There were high faecal worm egg counts. Ruminal acidosis and concurrent/subsequent bacterial infection were considered the most likely cause of death. A ruminal pH <5.5 is considered indicative of ruminal acidosis. There was concurrent parasitic gastroenteritis (PGE).

Respiratory tract

Pneumonia

A seven-month-old lamb that 'pined away' (chronic ill-thrift) was submitted to Kilkenny RVL. On necropsy, the mucous membranes were pale, there was mild abomasal fold oedema with parasitic structures visible in the abomasum. In addition, there was pneumonia, with lung consolidation cranially. There was a moderate nematode egg count on McMaster, but there had been recent anthelmintic treatment. *Mannheimia haemolytica* and *Mycoplasma ovipneumoniae* were detected on the lung. A diagnosis of parasitic gastroenteritis (PGE) and pneumonia was made.



Figure 16: Cranio-ventral pulmonary consolidation in lamb. Photo: Aideen Kennedy.

Urinary/reproductive tract

Nephritis and urethritis

The carcase of a six-month-old ram was submitted to Sligo RVL. The animal had been found dead without previous signs of illness. The farmer reported that there had been a number of similar deaths in the preceding weeks. On post-mortem examination, the bladder was dilated and filled with urine. The renal pelvis was expanded. There was extensive cellulitis with a distinctive urinary smell in the scrotum and around the penis. The processus urethralis was discoloured, dark, and red-to-black in colour. On histopathology, there was diffuse, acute, severe, suppurative nephritis with necrosis and bacterial colonies. There was nephrosis with tubular and glomerular degeneration. The renal tubules were expanded with fluid. Examination of the penis showed cellulitis and urethritis. Blood was present in the urethra. Nephritis and urethritis with likely urethral blockage were diagnosed as the cause of death. Findings were considered as highly suggestive of urolithiasis. A thorough review of feeding and flock management was recommended. Access to water also needs to be reviewed, as well as its palatability.



Figure 17: Dilated kidney pelvis in a lamb. Photo: Rebecca Froehlich-Kelly.

Urolithiasis

Sligo RVL examined the carcases of two seven-month-old lambs. Both animals had been found dead. There were further sudden deaths in the group. On necropsy of the first animal, the bladder was expanded and there was severe hydronephrosis. Examination of the urine revealed large amounts of crystals, blood, protein, and leucocytes. On histopathology, there was diffuse, acute severe purulent nephritis with tubules expanded by proteinaceous fluid.



Figure 18: Ruptured bladder and abdominal haemorrhage in a lamb. Photo: Rebecca Froehlich-Kelly.

The necropsy of the second animal revealed extensive abdominal haemorrhage due to a ruptured bladder. The kidneys were enlarged, and urine-filled. There was haemorrhage into the renal capsule. On histopathology, there was diffuse, acute severe purulent nephritis with tubules expanded by proteinaceous fluid. There was diffuse, severe chronic necrotising cystitis. Cystitis and nephritis, most likely due to urolithiasis, were diagnosed as the cause of death in both animals.

Deer



Figure 19: TB lesions in the liver of a red deer. Photo: Aoife Coleman.

Tuberculosis

Athlone RVL examined six red deer submitted for necropsy. Five had multifocal caseous lesions observed in the prescapular, submandibular, mesenteric lymph nodes. Lesions were observed bilaterally in lung fields and within liver. There were bronchial and mediastinal lymph node lesions. Miliary tubercle-like lesions were present across the costal and parietal pleura and within the diaphragm. *Mycobacterium bovis* has been isolated from the tissues in this case. contagious virus with transmission via oral, nasal, or conjunctival routes. Infection most commonly happens through exposure to infected animals, carcase, or fomites (food, bedding, water). The incubation period is one to three days. The virus itself is extremely tough and can survive for many months in the environment. Nine rabbits died in total, and a recommendation was made to only buy healthy, vaccinated rabbits and ensure boosters are kept up to date.



Figure 20: TB lesions in the lungs of a deer or "pluck". Photo: Aoife Coleman.

Rabbits

Rabbit haemorrhagic disease

Limerick RVL examined three domestic rabbits that had appeared healthy but died suddenly, from a colony of 14 rabbits ranging in ages from a few months to two years of age. They were all bought in over the previous four months from multiple sources and none were vaccinated. On external examination, there was no evidence of bleeding from the nostrils, orifices or subcutaneously; there was evidence of haemorrhages in the lungs of one of the rabbits.



Figure 21: Rabbit haemorrhagic disease. Photo: Brian Toland.

Rabbit haemorrhagic disease virus 2 (RHD2) was detected from the liver and spleen upon PCR; this is a highly