



Northern Ireland Disease Surveillance Report, July to September 2022

- Parasitic pneumonia (Husk) in cattle
- Clostridial myositis (Blackleg) in cattle
- Copper poisoning in sheep
- Nematodirosis in sheep
- Histomonosis (Blackhead) in turkeys

These are some of the matters discussed in the Northern Ireland animal disease surveillance quarterly report for July to September 2022

CATTLE:

Respiratory diseases

Parasitic pneumonia (husk)

Parasitic pneumonia due to *Dictyocaulus viviparus* infection (FIGURE 1) was common during the summer and early autumn with cases occurring from early July onwards and including cases in calves of only one month of age at grass in August. In total twenty three cases were diagnosed in separate herds during the reporting period.



FIGURE 1: Lungworm in the trachea of a heifer, this case was diagnosed in August

Intercurrent acute ostertagiasis was diagnosed in one herd, with six-month-old heifers presenting with dullness, ataxia, sunken eyes and harsh lung sounds. At necropsy the abomasal wall was thickened and the mucosa had a roughened appearance. Over 31,000 *Ostertagia* sp worms were recovered from the abomasal washes.

Pneumonia and middle ear disease due to *Mycoplasma bovis* infection

Pneumonia and otitis media due to *Mycoplasma bovis* infection was diagnosed in a two-month-old calf. On gross examination there was thick purulent material in both tympanic bullae and severe antero-ventral pneumonia affecting over 80% of the lung.

Consolidated lung contained miliary foci of thick green purulent fluid (foci from 2mm to 2cm diameter). Histologically there were numerous foci of necrosis, containing bacterial colonies, which were bordered by degenerating neutrophils, macrophages and fibrosis. Cell debris was present in the bronchioles. *Mycoplasma bovis* nucleic acid was detected in lung tissue by RT-PCR.

Alimentary diseases

Severe coccidiosis with an associated fibrinous peritonitis was diagnosed by full post-mortem examination of a five-month-old calf. The initiating cause of the peritonitis may have been damage to the integrity of the intestinal wall due to coccidiosis. In ruminants, the life cycle of some coccidians can become arrested at schizogony, with later resumption and shedding of oocysts. Prolongation of infection by this means may have facilitated development of chronic peritonitis in this case.

Abomasitis in young calves

Abomasal acidosis, bloating, emphysematous abomasitis and perforation of abomasal ulcers were all seen in young milk - machine fed calves during the reporting period. *Clostridium sordelli* and *Sarcina ventriculi* were detected in mucosal lesions, the latter being associated with cases of emphysematous abomasitis. Whilst there may be intercurrent infection with common enteric pathogens, the root cause of these cases is over-feeding with presence of fermenting milk in the developing rumen and acid overspill into the abomasum. This results in chemical damage to the mucosa and colonisation by gas producing *S. ventriculi* bacteria.

Johne's disease

521 sera were tested for MAP antibody during the reporting period, of these one hundred and thirty six were positive. 421 faeces samples were tested for presence of MAP nucleic acid by RT-PCR, of these seventy one were positive.

Reproductive and mammary diseases

Abortion

Trueperella pyogenes and *Salmonella* Dublin were the most common abortion pathogens detected during the quarter; cases due to *Bacillus licheniformis* infections persisted during the quarter.

Mastitis

During the reporting period, *E.coli* was the most commonly diagnosed cause of bovine mastitis, followed by *Streptococcus uberis* and *Staphylococcus aureus*.

Neurological diseases

Cerebrocortical necrosis (CCN)

CCN was diagnosed in a six-month-old calf. Histologically, laminar necrosis was noted, which affected the deeper laminae of the grey matter of the cerebral cortex, adjacent to the white matter; in this area there was marked vacuolation and spongiform change with many neurons shrunken and surrounded by clear space; the blood vessels were prominent, with marked perivascular clear space; the meninges were oedematous, with petechial haemorrhage and mononuclear inflammation. On examination of the fixed brain with ultraviolet illumination there was marked laminar auto-fluorescence in the cerebral grey matter.

Musculoskeletal diseases

Fourteen instances of *Clostridium chauvoei* myositis (Blackleg) were diagnosed in separate herds during the quarter. In one instance there was intercurrent *Clostridium novyi* infection (Black disease). All cases were in growing calves at grass. Blackleg can be prevented by vaccination with either Blackleg or polyvalent clostridial vaccines and proper use of these vaccines in calves is advisable.

Cardiovascular disease

Congenital cardiomyopathy was diagnosed in a one-year – old heifer which presented with clinical signs and necropsy findings consistent with congestive heart failure. The heart was grossly enlarged

and dilated and histologically the myocardiocytes were markedly thin and wavy often displaying frayed or fragmented bundles of myofibrils. There was no evidence of myofibrillar necrosis, mineralisation or macrophage infiltration, all of which might have suggested a nutritional cardiomyopathy. Congenital dilated cardiomyopathy was the presumed cause of the lesions.

Vena caval thrombosis

Hepatic abscessation with erosion of the vena cava wall, subsequent septic thrombosis and pulmonary thrombo-embolism was diagnosed in an adult dairy cow with a history of coughing up blood. Focal areas of consolidation and haemorrhage associated with thrombosis were seen throughout the lungs and a large septic thrombus was detected in a major vessel in the left lung lobe.

Skin diseases

Ringworm and *Psorptes ovis* infestation was diagnosed in two calves submitted from the same herd. Histology showed marked orthokeratotic hyperkeratosis with numerous serum

lakes present within the hyper-keratinised skin. There were numerous dermatophytic arthrospores in hair shafts and there was mild inflammation of the keratinised skin. Mites were present and large numbers of arthrospores were present within one mite.

SMALL RUMINANTS: SHEEP

Respiratory diseases

Laryngeal chondritis

Laryngeal chondritis was diagnosed in a three-year-old Texel ram which had died in respiratory distress. At necropsy there was oedema and congestion surrounding the cranial trachea and larynx. Histology showed superficial necrosis with bacterial colonization and a fungal mycelium was evident within necrotic zones; acute toxically-modified inflammation exhibiting karyorrhexis of neutrophils was present.

Alimentary diseases

Parasitic disease

Parasitic gastro enteritis (PGE) involving *Teladorsagia circumcincta* and/or *Nematodirus battus* was a common diagnosis during the reporting period with cases of nematodirosis lasting well into June. In one instance there was a remarkably large intercurrent *Taenia hydatigena* infection with almost one hundred *Cysticercus tenuicollis* cysts present in the abdomen of a very thin adult ewe (FIGURE 2- next page). More commonly a few scattered cysts might be detected on routine post-mortem examination of sheep.



FIGURE 2: *Cysticercus tenuicollis* cysts in the abdomen of a ewe, the number of cysts in this case was remarkable

Torsion of the gall bladder

Thickening and congestion of the gall bladder wall was seen on post-mortem examination of a first season lamb. Histology confirmed torsion of the gall bladder with congestion, necrosis and occasional thrombosis of the gall bladder wall.

Johne's disease

Four sera were tested for MAP antibody during the reporting period, of these one was positive. 14 faeces samples were tested for presence of MAP nucleic acid by RT-PCR, of these none were positive.

Nutritional and metabolic disease

Closantel toxicity due to over-dosage was diagnosed in a group of ewes which had been treated with an anthelmintic product formulated for cattle. There was status spongiosis of white matter of the cerebrum, cerebellum, mid and hind brain, particularly severe adjacent to the lateral ventricles and in the thalamus. There was perivascular white matter vacuolation. There was marked myelin vacuolation within the optic nerve and multifocal aggregates of macrophages were present. These changes are consistent with closantel toxicity in sheep.

Copper poisoning

A jaundiced carcass, dark orange liver and black kidneys were observed on post-mortem examination of a seven-month-old lamb which weighed 40 kg. Gross findings were considered typical of copper toxicity and this was confirmed by tissue chemistry.

Urinary tract disease

Urolithiasis causing obstruction of the penile urethra and urethral process, leading to rupture of the bladder and uroperitoneum (FIGURE 3 - next page) was diagnosed in ram lambs in two separate flocks. Secondary bacterial infection and ascending pyelonephritis was a complicating factor in some individual cases.

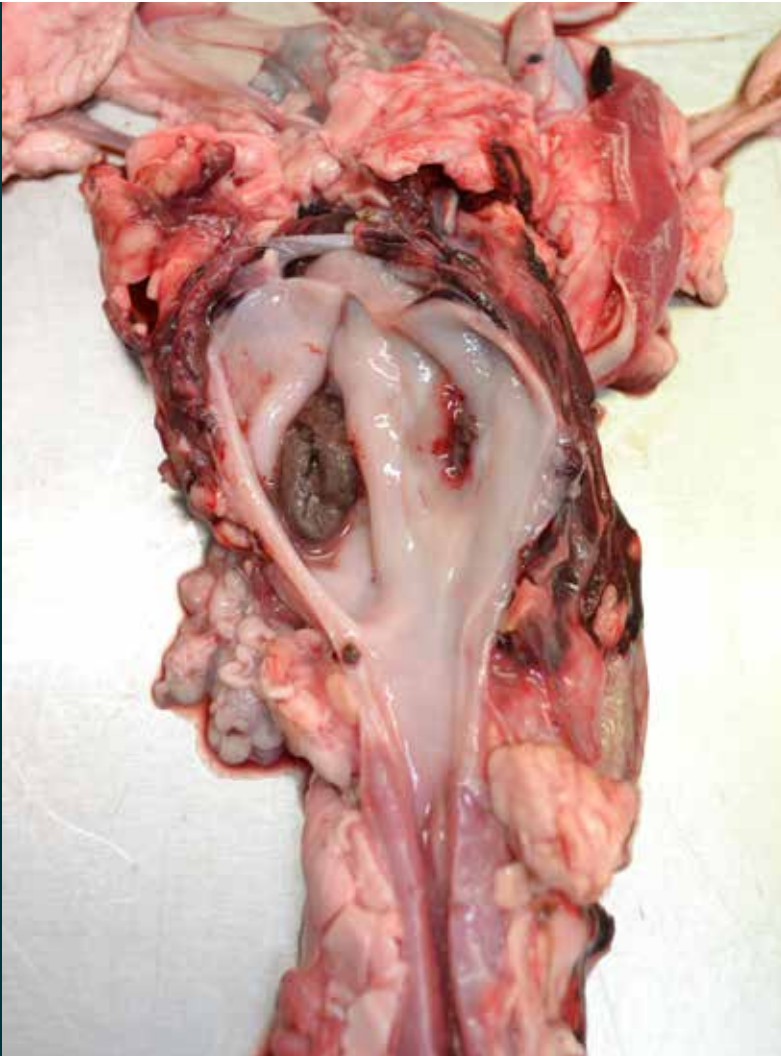


FIGURE 3: Bladder rupture in a ram, urolithiasis should be considered a management disease

As urolithiasis is a husbandry disease very often other animals in the batch will be sub-clinically affected and efforts should be focussed on preventing further clinical cases.

Urolithiasis was also suspected in another ram lamb in a separate flock. In this case pizzle rot was found to be the cause of the urethral blockage and urinary retention. This condition has been associated with high protein diets and the proliferation of urease enzyme producing bacteria in the lower urinary tract. A urease positive *Corynebacterium* sp was recovered from urethral tissue in this case.

Other diseases

Dosing gun injuries and deaths in ewes due to lodging of intra-ruminal boluses in the trachea were reported in separate flocks during the quarter. Such incidents can be costly with one flock losing 11 ewes due to dosing gun injury and subsequent *Trueperella pyogenes* infection.

HORSES:

One swab was examined for the presence of *Streptococcus equi* during the quarter, this was negative.

No were examined for the presence of *Tayorella equigenitalis* during the reporting period.

Haemopericardium

Haemopericardium due to rupture of an aortic root aneurysm was diagnosed in a one-year -old horse. Histological examination of the aortic wall showed thrombosis and dissecting haemorrhage and a *Streptococcus* sp was recovered from the blood vessel lesion. Pre-existing damage to the aortic wall either due to a 'jet lesion' or possible embolic spread from a septic focus elsewhere (a suppurating foot lesion was present at necropsy) were considered most likely initial causes in this case.

BIRDS: Poultry

Histomonosis (Blackhead) was diagnosed in a group of turkeys showing marked hepatitis and caecal inflammation on gross examination. Liver and splenic histology showed necrosis with disruption of normal parenchyma with large numbers of trophozoites of *Histomonas meleagridis*. There were eosinophilic round bodies located within clear parenchymal lacunae with minimal inflammatory reaction, these bodies stained PAS positive (FIGURE 4).

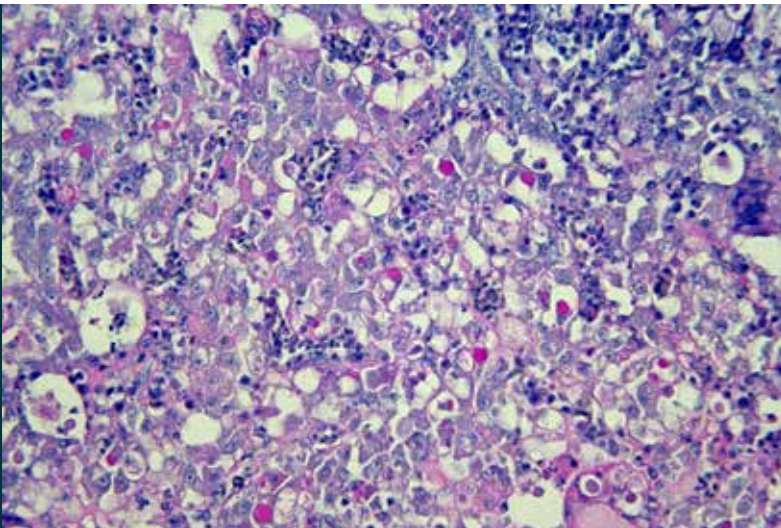


FIGURE 4: *H. meleagridis* trophozoites in the liver of a turkey, PAS stain showing trophozoites in parenchymal lacunae

WILDLIFE and EXOTICS:

Malignant catarrhal fever (MCF) was diagnosed in an eight-year-old reindeer which had a history of contact with sheep. Histological changes in the brain and liver were consistent with MCF and OHV-2 nucleic acid was detected in tissues by RT-PCR.