

Disease Surveillance and Investigation Branch

DISEASE SURVEILLANCE REPORT

Northern Ireland Disease Surveillance Report, April to June 2016

- Infectious bovine rhinotracheitis (BoHV-1) in cows and calves
- *Mycoplasma bovis* infections in cows and calves
- Nematodirosis in lambs
- Pneumonic pasteurellosis in lambs
- *E.coli* infections in young pigs
- Red mite infestation in laying hens

These are some of the matters discussed in the Northern Ireland animal disease surveillance quarterly report for April to June 2016

CATTLE:

Respiratory diseases

Respiratory disease was identified in 63 cattle post mortem submissions between April and June 2016. The most common pathogens identified included *Mycoplasma bovis* (twenty three cases), *Mannheimia haemolytica* (fourteen cases), *Pasteurella multocida* (seven cases), *Trueperella pyogenes* (four cases), Infectious bovine rhinotracheitis (IBR) (3 cases) and *Histophilus somni* (two cases).

IBR was diagnosed in a four-year-old dairy cow which had died following pyrexia and dyspnoea. On gross examination there was a thick purulent pseudodiphtheritic lining on the tracheal mucosa and very severe antero-ventral pneumonia affecting 80% of lung volume, with miliary large and small abscesses throughout. Frozen sections of lung and trachea were positive for BoHV-1 antigen by immunofluorescence.

A three-week-old calf (FIGURE 1 over page) was submitted from the herd on the same day and in this case post mortem examination showed red purple consolidation, intra-lobular haemorrhage and pneumonia affecting the anterior, middle and diaphragmatic lobes with a fibrin sheet overlaying the affected lung. There was a severe purulent tracheitis. Frozen sections of lung and trachea were positive for BoHV-1 antigen by fluorescence.

Pasteurellosis in calves

A total of eighteen cases of bovine pasteurellosis were recorded during the quarter.

Pneumonia and fibrinous pleurisy due to *M. haemolytica* and / or *P. multocida* infection was considered especially noteworthy in four herds. Calves from three weeks of age to five-weeks-of age were involved in three of the herds and one adult cow was affected in the fourth. Gross post mortem findings were considered consistent with pasteurellosis and consisted of pneumonia with deep purple coloured consolidation of lung tissue, fibrinous pleurisy, pericarditis and peritonitis. Histological examination typically showed a suppurative bronchopneumonia with degenerate streaming neutrophils present.

**Figure 1**

Severe purulent tracheitis in a young calf due to IBR infection

M. haemolytica or *P. multocida* were isolated in pure culture from lung tissue and in some cases in septicaemic distribution in calves. Mixed infection with *P. multocida* and *Myc. bovis* was noted in one calf.

Mycoplasmal pneumonia in calves

Pneumonia due to *Myc. bovis* infection was diagnosed in an adult cow which presented with respiratory signs. On gross examination there was marked consolidation of the lung tissue with multiple focal-to-coalescing abscesses present. Histology showed focal-to-coalescing areas of hyper-eosinophilic liquidative necrosis bordered by a rim of degenerating inflammatory cells. Adjacent alveoli contained proteinaceous fluid, fibrin and an inflammatory cell infiltrate. The bronchioles were plugged with neutrophils, necrotic debris and bacterial colonies. *Myc. bovis* nucleic acid was detected by RT-PCR.

Chronic suppurative broncho-pneumonia was diagnosed on full post mortem examination of an adult dairy cow from a herd affected by ongoing pneumonia problems. A profuse growth of *T. pyogenes* was recovered from lung tissue; culture, RT-PCR and immune-staining of fixed tissue sections were all negative for the presence of *Myc. bovis*. It was noted that the chronic stage of the pneumonia in this case may have precluded full diagnosis.

Pneumonia due to severe lungworm (*Dictyocaulus viviparus*) infection was diagnosed in a five-month-old calf. This calf was one of a group presenting with respiratory signs and being treated by the farmer.

Alimentary diseases

Neonatal enteritis

The pathogens identified in neonatal bovine faecal samples during the quarter are shown in TABLE 1. Overall, *Cryptosporidium* species and rotavirus were the most common pathogens identified.

TABLE 1: Pathogens identified in neonatal bovine faecal samples in Northern Ireland, April to June 2016

Pathogen	Number	
	Tested	Positive (per cent)
<i>Cryptosporidium</i> species	336	131 (38.9%)
Rotavirus	230	62 (26.9%)
Coronavirus	229	28 (12.2%)
<i>Escherichia coli</i> K99	156	0 (0.0%)

Other enteric conditions

Parasitic ova found in ruminant faeces samples submitted during the period are shown in TABLE 2.

Table 2: Endoparasitic infections in ruminants in Northern Ireland, April to June 2016

	Total	No of parasitic ova					% positive
		Negative	+	++	+++	++++	
Liver fluke							
Bovine	444	397	34	12	0	1	10.9%
Ovine	290	274	8	5	2	1	5.5%
Paramphistome							
Bovine	444	236	41	85	36	46	46.8%
Ovine	285	240	11	27	6	1	15.8%
Coccidia							
Bovine	575	460	83	11	10	11	20.0%
Ovine	398	133	158	24	46	37	66.6%
Strongyle worm egg count							
Strongyle worm egg count	Total	<500 epg	≥500 epg				% Positive
Bovine	576	560	16				2.8%
Ovine	395	350	45				11.4%

≥500 eggs per gram of faeces (epg) was considered of likely clinical significance
 + Low, ++ Moderate, +++ High, ++++ Very high

Johne's disease

Examination for *Mycobacterium avium* subspecies *paratuberculosis* (MAP) was carried out by microscopic examination, with Ziehl-Neelsen staining, on 144 bovine faecal samples. One sample (0.7 per cent) contained acid-fast organisms typical of MAP. Of 230 bovine faeces samples tested by PCR, eight (3.5 per cent) were positive. Of 3,161 bovine blood samples that were tested for antibodies to MAP 316 (9.9 per cent) were positive.

Abomasitis

Severe emphysematous abomasitis and mesenteric torsion were diagnosed in a two-week-old calf, one of a group being fed once a day with a large volume of milk replacer and colostrum supplement. There was no evidence of *Clostridium sordellii* on fluorescence or presence of *Sarcina ventriculi* on histology. It was considered that the origin of the problem was over-feeding and failure of the oesophageal groove to function properly with resultant ruminal drinking, acidosis, bloating and subsequent torsion. There was also cryptosporidial infection with a large number of oocysts present in the faeces.

Abomasitis, abomasal ulceration, perforation and subsequent peritonitis with organising adhesion of the bowel loops were diagnosed in a two-month-old calf submitted with a history of sudden death. Again the most likely cause of the problem was considered to be chemical damage to the mucosa following dietary acidosis as further investigation showed no probable other causes including *Cl. sordellii* and bovine viral diarrhoea virus (BVDV).

Mycotic infections of the alimentary tract

Candidiasis of the rumenoreticulum, omasum and abomasum was diagnosed in a two-week-old calf from a unit experiencing high mortality rates in young calves. On gross examination the mucosae were coated with thick white crumbly material with dark, haemorrhagic regions of mucosa underneath. The abomasal contents were foetid and the alimentary tract was flooded with undigested milk. *Candida albicans* was recovered in profuse growth from the fore-stomachs. As with the case of emphysematous abomasitis described above,

large volumes of colostrum had been administered at birth and the quantity of milk fed in single feeds thereafter had also been too large. Advice to feed smaller volumes more frequently was followed and the mortality rate dropped significantly.

Ruminal acidosis and mycotic rumenitis / reticulitis were diagnosed in two steers which died shortly after acute onset illness within 48 hours of access to a new and mouldy batch of bruised barley. The pH of ruminal fluid was 3.8 and 4.0 in the two steers and histologically there was severe necrotising rumenitis and reticulitis with intra-lesional fungal hyphae. Other animals in the batch were also severely affected but responded to therapy.



Figure 2

Oesophageal perforation following careless use of a bolus gun, the arrow shows the bolus lodged in necrotic soft tissue with erosion of the carotid artery

Dosing gun injuries and oesophageal perforation

Death of a seven-year-old Aberdeen Angus cow was due to erosion of the wall of the carotid artery, with haemorrhage into the oesophagus and bleeding into the mouth and rumen. The cow had been dosed with a mineral bolus three weeks earlier and immediately presented with discomfort. A large bolus was present in the necrotic soft tissue of the neck at post mortem examination (FIGURE 2).

Perforation of the oesophagus, possibly by careless use of a stomach tube was diagnosed on gross examination of a one-week-old calf, the thorax was full of pink fluid (milk and oral rehydration solution) and there was collapse of the lungs.

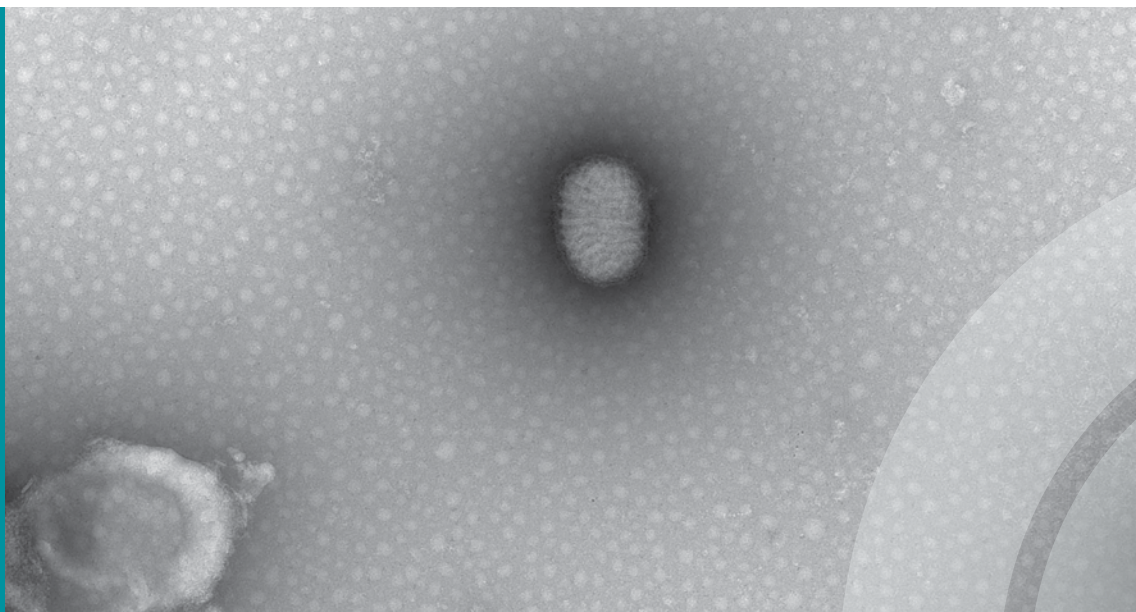
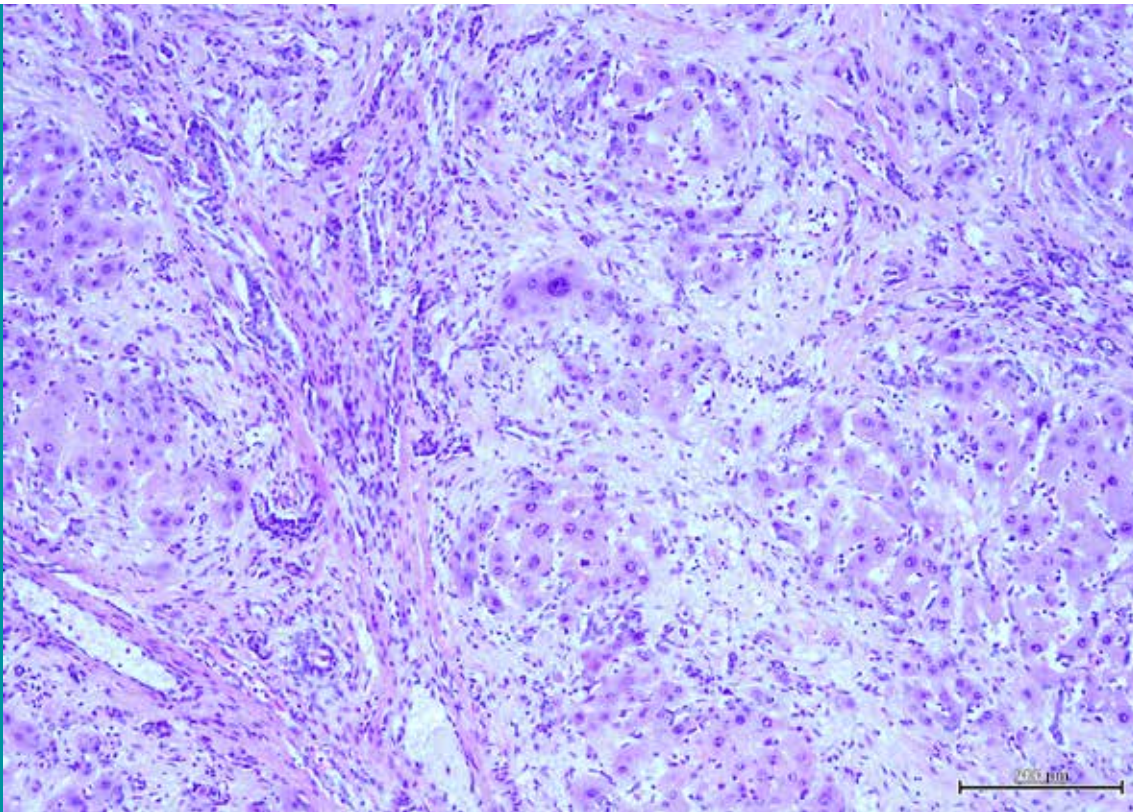


Figure 3

Electron-micrograph showing parapoxvirus in a case of bovine papular stomatitis

**Figure 4**

Extensive hepatic fibrosis in a steer due to pyrrolizidine alkaloid toxicity following ragwort ingestion

Bovine Papular Stomatitis

Lesions typical of Bovine Papular Stomatitis (BPS) were detected on gross examination of a two-week-old ill thrifty calf submitted from a dairy herd experiencing high calf mortality. There were multiple pale grey circular lesions with hyperaemic borders present on the tongue, muzzle, dental pad and gums as well as moist lesions in the inter-digital spaces. Examination of the affected tissue by electron microscopy confirmed the presence of Parapoxvirus consistent with BPS (FIGURE 3).

It was noted that although parapoxvirus lesions are distinctive, care should always be taken to rule out Foot-and-Mouth Disease and BVDV infection. In this case significant intercurrent disease was present with *Myc. bovis* pneumonia, pleurisy, candidiasis of the tongue and fore-stomachs and cryptosporidiosis all being diagnosed.

Torsion of the reticulum, omasum and abomasum

Two cases of torsion of the reticulum, omasum and abomasum were considered noteworthy during the quarter. It was noted that there is involvement of the omasum and reticulum in only a small number of abomasal volvulus cases.

Ragwort poisoning

Pyrrolizidine alkaloid toxicity following ingestion of ragwort (*Senecio jacobaea*) was diagnosed in a two-year-old steer. On gross examination the liver was firm in texture and pale yellow in colour. Histologically (FIGURE 4) there was extensive fibrosis, bile duct proliferation, megalocytosis and loss of hepatocytes. Histological changes in the brain were consistent with hepatic encephalopathy; the steer was staggy before it died.

Lead poisoning

Lead poisoning was diagnosed in a group of dairy cows at grass. Clinical signs were actually consistent with hypomagnesaemia but the levels of magnesium and calcium were within accepted normal ranges at post mortem. The lead level in the kidney tissue was 192 µg/g, (normal range: 0.2 to 2.0 µg/g) and high levels of lead were also detected in blood and faeces samples from live animals in the group. The Food Standards Agency was informed to allow further investigation of food chain safety aspects.

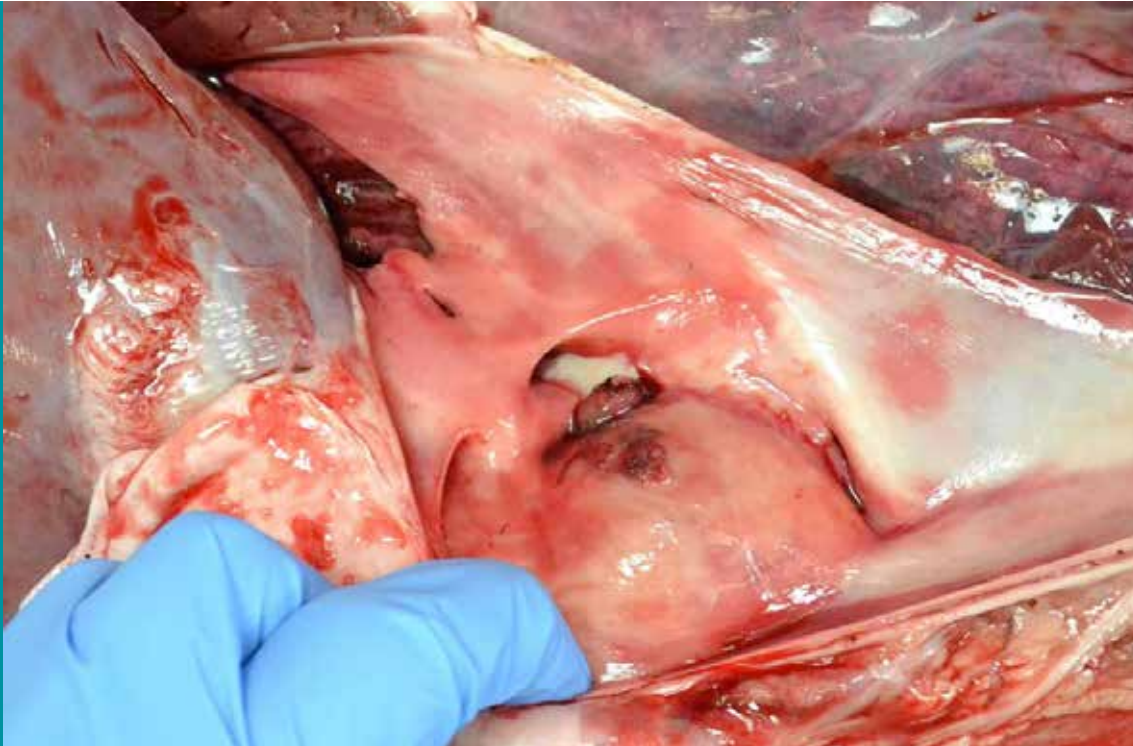


Figure 5

Posterior vena caval phlebitis in a calf, a bulging hepatic abscess with pus discharging into the lumen of the blood vessel can clearly be seen

Hepatic abscessation with posterior vena caval phlebitis was diagnosed in a six-month-old calf (FIGURE 5). There were multiple large abscesses within the liver. Around some abscesses there was focally extensive hepatic fibrosis. There were adhesions between the liver and diaphragm. A large abscess tracked toward the diaphragm, in juxtaposition to the posterior vena cava. There were two foci of inflammation within the posterior vena cava with liquid pus discharging from the abscess into the vena lumen through one of the foci of phlebitis.

Reproductive and mammary diseases

Abortion

Specimens from 80 bovine abortions and stillbirths were examined during the 2nd quarter. Significant pathogens were detected in 31 cases (38.8 per cent). Of these, *Bacillus licheniformis* (9 cases, 11.3 per cent) was the most commonly identified pathogen.

Other pathogens identified included *Neospora caninum* (6 cases, 7.5 per cent), *T. pyogenes* (6 cases, 7.5 per cent), *E. coli* (2 cases, 3.8 per cent), and BVDV (2 cases, 2.5 per cent).

Other reproductive diseases

Congenital conditions in calves

A stillborn calf with marked goitre was submitted for examination. There was congestion and oedema around the enlarged thyroid in the cranial neck. Histologically there was extensive autolytic sloughing of the follicular epithelium and there were some small preserved follicles with scant colloid.

Four instances of congenital defects in aborted, stillborn or neonatal calves were recorded during the reporting period.

Congenital renal agenesis, with bilateral absence of the kidneys and ureters and absence of the bladder and urethra was diagnosed in a four-day-old calf which had shown only poor viability from birth. Renal agenesis is recognised as a rare congenital defect in calves.

Transposition of the aorta to the pulmonary artery and complete occlusion of the left ventricular outflow into the aorta with atresia of the aortic segment between the heart and the ductus arteriosus was seen in a calf which died after a few hours. Transposition of the great arteries is also recognised as a rare congenital defect in calves.

Other cases involved more complex deformations for which no definite genetic basis could be established from the literature. It is important, in all abortion cases, that as full an examination as possible is always carried out, and this principle was applied in these cases with gross examination, histology, bacteriology, virology and foetal serology being carried out as well as infectious abortion serology on the dam's blood. Viral infections including BVDV, Schmallenberg virus (SBV) and Bluetongue virus (BTV) should always be ruled out as far as possible in cases of congenital deformity or malformation.

Mastitis

A total of 197 bacterial isolates were cultured from milk samples submitted from acute and chronic mastitis cases. Twenty-four (12.2 per cent) samples yielded cultures of more than two organisms and were considered to be potentially contaminated. No bacteria were cultured in a further 9 samples. *E. coli* was the most frequently isolated organism and accounted for 23.4 per cent of isolates cultured. Other frequently identified organisms included *Streptococcus uberis* (20.8 per cent), *Staphylococcus aureus* (7.6 per cent), *Streptococcus dysgalactiae* (5.6 per cent) and *Bacillus cereus* (3.6 per cent).

Neurological diseases

Clostridium botulinum type D toxicosis was diagnosed in 4 cases during the 2nd quarter of 2016.

In one instance involving a group of calves at grass, broiler house litter had been spread on neighbouring fields two days prior to the outbreak. From a group of thirty seven calves; one died, two became recumbent and several others showed nervous signs and in- coordination.

A five-year-old cow was submitted following recumbency, flaccid tongue paralysis and nervous twitching. The history indicated that the cow was vaccinated against botulism. Severe histological changes consistent with listerial encephalitis were detected on histological examination of the brain and the *Cl. botulinum* C / D toxin ELISA gave a positive result on the abomasal contents demonstrating presence of toxin. However given the presence of the brain lesions and the history of vaccination it was most likely that the detection of toxin was incidental in this case.

Listerial encephalitis was diagnosed on post mortem examination of an adult dairy cow. Histology showed encephalitis, most severe in the brainstem, with parenchymal micro-abscessation containing many neutrophils. There was microglial reaction and microglial nodules were present. There was heavy peri-vascular cuffing with cuffs composed mainly of lymphocytes and histiocytes and occasional admixed neutrophils. There was oedema and rarefaction of the neuropil. There was meningitis affecting the cerebellum with heavy peri-vascular lymphocytic cuffing and frequent neutrophils.

Musculo-skeletal system disease

Arthritis due to *Mycoplasma bovis* infection

Severe arthritis, necrotic tendonitis, myositis and fasciitis due to *Myc. bovis* infection were diagnosed in heifers and cows from two herds during the quarter. Both herds affected had a high number of heifers (six out of a batch of twenty) or cows affected by lameness, joint swelling and recumbency and suffered substantial loss as a consequence. In all cases *Myc. bovis* nucleic acid was detected in necrotic tissue or purulent joint fluid.

Osteomyelitis due to *Salmonella* Dublin infection (FIGURE 6, next page) was diagnosed in a two-month-old calf from a herd in which several calves had shown apparent neuro-muscular disease. At post mortem examination osteomyelitis of the body of the first thoracic vertebra with a large necrotic sequestrum was seen, dislodging dorsally and impinging on the spinal cord.

S. Dublin was cultured from the necrotic vertebra.

**Figure 6**

Spinal osteomyelitis due to *S. Dublin* infection with sequestration and spinal cord damage

Cardiovascular disease

An eighteen-month-old bullock presented following sudden death. The gross post mortem findings were of heavy oedematous lungs, a swollen liver with a distinctive 'nutmeg' appearance consistent with centrilobular congestion and a large semi-solid protrusion from the internal wall of the left ventricle. Histological examination of the mass identified it as largely chronic fibrovascular and granulation tissue with extensive loss of cardiomyocytes and some replacement with fatty tissue. There were scattered neutrophils and lymphocytes present. The cause of death was likely congestive heart failure and the inciting cause of the granulation tissue may have been infection or trauma.

Vegetative endocarditis

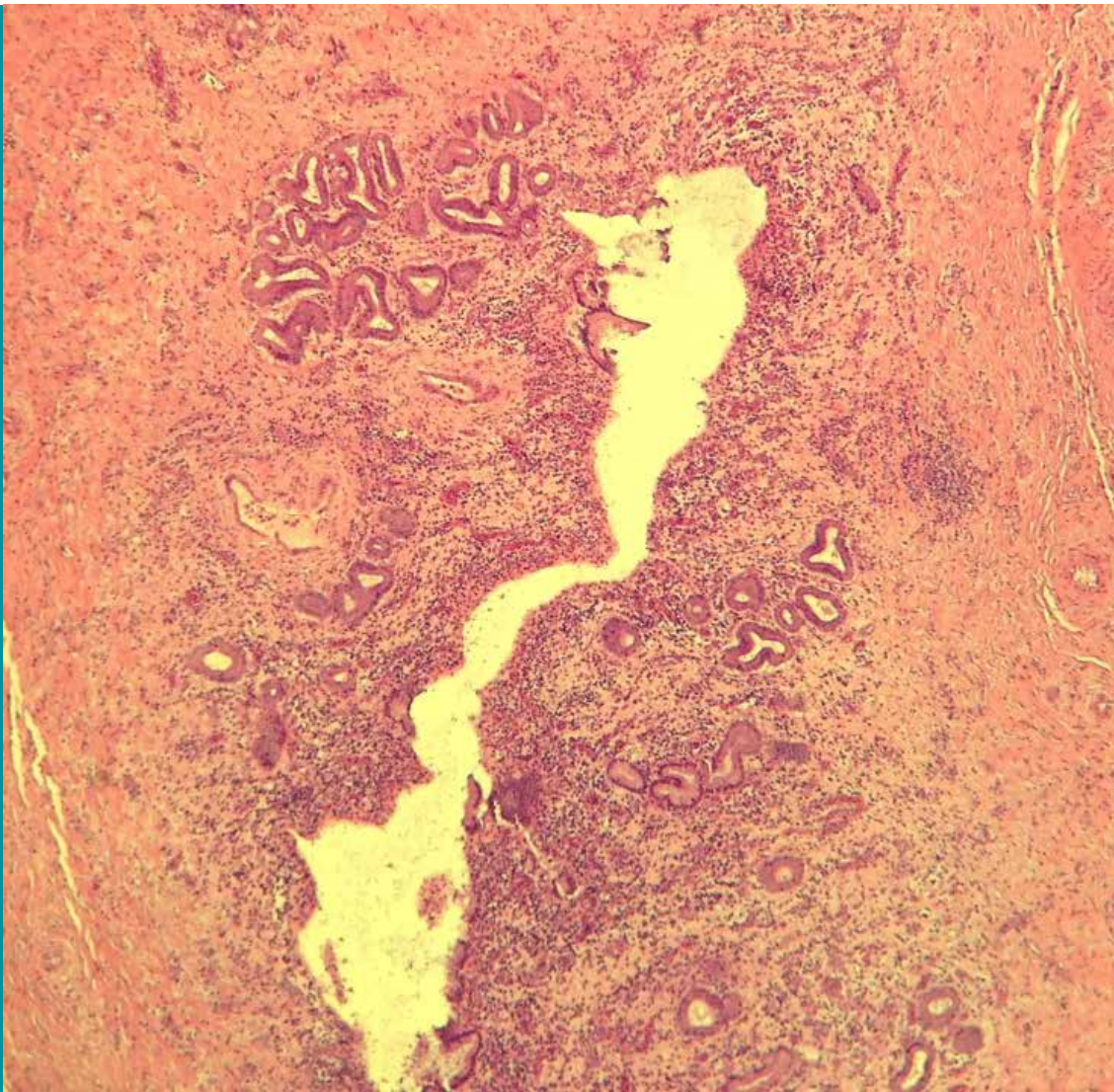
Vegetative endocarditis of the pulmonary valve and embolic haemorrhagic pneumonia due to *Salmonella* Mbandaka infection was diagnosed in an adult dairy cow. Valvular endocarditis of the right and left atrioventricular-valve was detected in a second cow submitted from the same herd a week later and in this case *S. Mbandaka* was cultured from the intestinal contents. *S. Mbandaka* has been shown to be feed-borne and associated with vegetable fat supplements in some documented cases.

Disseminated *S. aureus* infection was found to be the cause of hypopyon, polyarthropathy, nephritis, vegetative endocarditis and embolic suppurative pneumonia in an eight-week-old calf euthanased on welfare grounds.

Other diseases of cattle

A seventeen-week-old calf was euthanased on humane grounds and submitted for examination. The carcass was in thin condition and the liver was small with rounded borders, had a solid texture and was pale yellow in colour with areas of congestion. Histological examination of the liver showed only small numbers of hepatocytes, many of which were vacuolated. Normal bile duct structure was absent with some ductile proliferation. Fibroplasia was widespread and there were small foci of neutrophils. A congenital hepato-biliary dysplasia was suspected and from descriptions in the literature congenital hepatic fibrosis was considered possible (FIGURE 7, next page).

Congenital hepatic fibrosis has been shown to be a disorder of biliary system development (biliary dysgenesis) and ductal plate malformation has been implicated. The relatively prolonged survival of this calf was an unusual feature of this case.

**Figure 7**

Fibroplasia and biliary dysgenesis in the liver of a calf; the changes are consistent with congenital hepatic fibrosis

SMALL RUMINANTS: SHEEP

Respiratory diseases

Respiratory disease was identified in 26 ovine post mortem submissions during this quarter. *M. haemolytica* (fourteen cases), Jaagsiekte (seven cases), parasitic pneumonia (one case), and laryngeal chondritis (one case) were the most common diagnoses.

Laryngeal chondritis was diagnosed in an eight-week-old pedigree Texel lamb, two of a group of sixty affected. On gross examination, abscessation of the laryngeal cartilages was present with an associated acute broncho-pneumonia affecting the cranial lobes and involving around 20 % of the lung field. *M. haemolytica* Type A1 was recovered in profuse growth from the larynx and in moderate growth from the lung tissue. Cases of pneumonic pasteurellosis in lambs of around three- to- six weeks of age were diagnosed in several flocks. In many cases the ewes had been vaccinated against pasteurellosis but the period of expected passive protection of the lambs had lapsed prior to the onset of disease. It was noted that in some flocks early vaccination of lambs may be necessary in addition to the vaccination of the adult breeding flock and that veterinary advice should be sought on this.

Alimentary diseases

Nematodirosis in lambs

Nematodirosis in lambs was a common diagnosis during April and May. The AFBI Nematodirosis Forecast predicted that peak hatching of eggs would take place during the first and second weeks of April in Northern Ireland, and this was supported by the diagnoses reached during this period. It was noted that washings of the small intestine must be taken to achieve a diagnosis because many infections are pre-patent at the time of death.

Coccidiosis, haemonchosis and pulpy kidney disease were intercurrent diseases detected in affected lambs. Chronic fasciolosis was diagnosed in a shearling ewe. A pale fibrosed liver with adult *Fasciola hepatica* fragments present in the bile ducts was seen on gross examination. Histological examination showed peri-portal and bridging fibrosis with chronic peri-portal inflammation. Treatment with a flukicide active against adult and late immature stages had been given a short while previously but it was noted that this treatment had been mistimed with resultant chronic and severe liver damage and subsequent liver failure.

Johne's disease

Eight ovine faecal samples were examined microscopically using Ziehl-Neelsen staining for MAP. No samples contained any acid-fast organisms typical of MAP. Two faeces samples were tested by PCR, both were negative. No ovine bloods samples were tested for antibodies to MAP during this quarter.

Reproductive diseases

Abortion

Specimens from 25 ovine abortions and stillbirths were examined during the 2nd quarter of 2016. Significant pathogens were detected in 19 cases (76.0 per cent). Pathogens identified included *Toxoplasma gondii* (8 cases, 32.0 per cent), *Chlamydia abortus* (8 cases, 32.0 per cent), and *Listeria monocytogenes* (3 cases, 12.0 per cent).

Mastitis in ewes

S. aureus was recovered in profuse growth from the udder of a ewe with mastitis, one of a flock with several cases during early May. Gross examination of the udder showed extensive blood stained soft tissue oedema around the right gland which contained flecks of material in the teat cistern. White secretion was present in the teat cistern of the left gland.

Neurological diseases

Pulpy kidney disease in lambs due to epsilon toxin produced by *Cl. perfringens* Type D was diagnosed on the basis of brain histology which showed changes consistent with focal symmetrical encephalomalacia (FSE). On examination there were foci of malacia in the midbrain and parenchymal oedema with infiltration by a small number of scattered neutrophils. In some blood vessels endothelial cells were plump and there was peri-capillary pooling of proteinaceous fluid. It was noted that epsilon toxin is not always detectable in cases of FSE and diagnosis of this condition can be missed if histology is not carried out.

Skin diseases

No cases were examined for sheep scab during the 2nd quarter of 2016.

Other diseases of sheep

An eight-week-old lamb was presented with a history of lameness. Gross examination detected septic arthritis of the left stifle joint with associated vegetative lesions on the right atrioventricular valve. *T. pyogenes* was recovered in profuse growth from the joint and in septicaemic distribution.

Listerial septicaemias

Multiple cases of listerial septicaemia in young lambs were diagnosed on post mortem examination during the early spring. Characteristically these cases showed miliary pale foci in the liver and sometimes in the ventricular myocardium. Histologically there was multifocal necrotising hepatitis and multifocal necrotising myocarditis with intra-lesional bacteria. In one case there was an intussusception present in one affected lamb. *Listeria monocytogenes* was recovered from the liver and lung in most cases.

HORSES:

Fifty-five swabs were examined for the presence of *Tayorella equigenitalis* during this quarter, all of which were negative. 3 swabs were cultured from horses with a history suggestive of strangles during this quarter, all of which were negative.

PIGS:***E. coli* infections**

E. coli O-149 was implicated as the cause of enteritis and septicaemia in three-week-old pigs from a unit experiencing a spate of deaths. There was no evidence of an intercurrent PCV-2 infection.

Oedema disease due to *E. coli* O-138 and O-139 was diagnosed in two seven-week-old pigs from a unit with a history of sudden deaths. On gross examination both pigs showed mild cerebral oedema with slight flattening of the gyri. The mesenteric attachments of the large intestine and greater curvature of the stomach were oedematous and the serosa of the bowel had a generalised 'wet' appearance. Subcutaneous oedema with swelling of the eyelids was also present in one pig. *E. coli* O-138 and O-139 were recovered from the small intestine and spleen.

Splenic torsion

Torsion of the spleen was diagnosed in a two-year-old sow submitted with a history of sudden death. On gross examination, the spleen was enormously enlarged, avulsed from the stomach and twisted to the right hand side; the splenic pedicle was twisted and the blood vessels supplying the spleen were very congested.

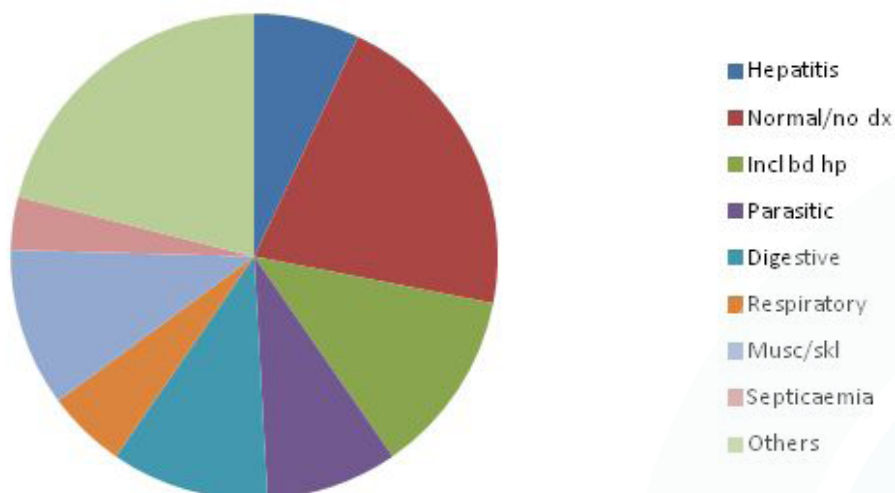
Pyelonephritis

A ten-month-old pot belly pig was submitted for post mortem examination. This pig was very fat with gross evidence of dermatitis with a mixed bacteria and yeast growth as well as gross evidence of a urinary tract infection. *Klebsiella pneumoniae* was recovered from multiple organs in a septicaemic pattern. *K. pneumoniae* is an opportunistic pathogen often gaining access via the urinary tract; it produces an endotoxin that causes inflammation, pyrexia, endothelial damage and microthrombosis. Histopathology showed evidence of ectoparasitism, most likely due to *Sarcoptes scabiei*. Histopathology also showed a tubulo-interstitial nephritis and a glomerulonephritis. There were mild changes in the liver suggestive of hepatosis dietetica (nutritional hepatic necrosis).

BIRDS: Poultry

The diagnostic analysis for poultry post mortem submissions during the quarter is given in CHART 1 below. Liver diseases including bacterial hepatitis and inclusion body hepatitis (eleven cases, 19.3 %), musculoskeletal disorders including tendonitis and tendon rupture (six cases, 10.5 %) and digestive disorders (six cases, 10.5 %) predominated.

POULTRY SUBMISSION DIAGNOSTIC ANALYSIS Q2 2016

**Chart 1**

Diagnostic analysis of poultry submissions, April to June 2016.

Egg peritonitis

Several cases of egg peritonitis and associated *E. coli* infection were diagnosed in laying poultry (chickens and turkeys) during the reporting period. It was noted that egg peritonitis is an inflammatory reaction of the peritoneum caused by the presence of yolk material in the coelomic cavity with secondary bacterial infection. The condition may occur in both back yard and commercial birds. In one case a group of affected free range layers had intercurrent *Dermanyssus gallinae* (red poultry mite) infestation and anaemia.