

# Quarterly review of diagnostic cases – January to March 1999

## LabWorks Animal Health Ltd

### Cattle

A mid-Canterbury dairy herd experienced an unusual number of late returns. A few cows briefly discharged large amounts of vaginal pus, and small, firm vulval nodules were seen in 150 of 700 cows. Voluminous but transient vaginal discharges, and chronic multifocal lymphocytic vulvovaginitis, are suggestive of **ureaplasmosis**. *Ureaplasma diversum* is a potentially serious cause of bovine infertility, and it can cause abortions. Disease outbreaks have occurred in New Zealand, but it is not known how common they are. It is hard to secure a positive diagnosis. Culture is technically difficult and expensive, and even positive results may be inconclusive because the organism can be a commensal. Intercotyledonary histopathological lesions from abortions are almost pathognomonic, but abortions are uncommon. No *Ureaplasma* abortions have been found to date from the property of concern. *Ureaplasma* culture is in progress.

### Reference

Thornton RN, Wake HH. *Ureaplasma* in New Zealand dairy cattle. *Surveillance* 24(3), 15-6, 1997.

### Deer

Three of approximately 20 red deer hinds died, and others in the herd were in poor condition. Nothing was noted at necropsy, but histopathology revealed a significant eosinophilic gastroenteritis and moderate numbers of parasites. A parasitic aetiology was suspected, but **Salmonella Brandenburg** was subsequently cultured from the intestinal contents. The significance of the S Brandenburg isolate remained uncertain in this case because this disease is uncommon in deer and the gastroenteritis appeared typically parasitic.

Eight of 84 red deer yearlings were in poor condition, and three died. Deer had been farmed for less than 12 months on the property. Necropsy of one animal demonstrated a thickened gastrointestinal mucosa and enlarged mesenteric lymph nodes. Histopathology revealed a granulomatous enteritis and lymphadenitis with acid fast bacilli, and culture confirmed the presence of *Mycobacterium paratuberculosis*. Acute, epidemic *M paratuberculosis* enteritis is a recognised syndrome in yearling deer.

### Reference

Montgomery RH. *Mycobacteria* in New Zealand. *Surveillance* 26(1), 6-8, 1999.

### Pigs

Seven-day-old piglets were dying in a large pig rearing unit. The piglets had an enteropathy and red-speckled kidneys.

Each quarter, *Surveillance* publishes a review of selected diagnostic cases handled by New Zealand's regional animal health laboratories. These cases do not necessarily reflect New Zealand's national disease profile but they do represent diseases of particular concern to the livestock industry.

Histopathologically, there was a **clostridial enteritis**, with *Clostridia* being clearly associated with areas of mucosal necrosis.

### Cats

A 4-year-old cat from the South Island's West Coast had a mass in its neck. Neoplasia was suspected. The cat was euthanased and a necropsy revealed lesions in its lungs and lymph nodes. Tuberculosis was diagnosed microscopically, and *Mycobacterium bovis* was cultured.

### Birds

Antipodes Island Parakeets (*Cyanoramphus unicolor*) were being reared in an aviary. Proliferative foot lesions developed in a hen and her chick despite the egg having been removed at an early stage for hand rearing. The lesions on both birds were typical of **avian pox**. No other pox lesions were seen either in these birds or in other birds in the aviary.

Young budgerigars developed 'stress lines' in their feathers. Their feathers were also falling out and being replaced by a regrowth of poor quality. Histopathologically, feather follicle epithelial cells had ballooning degeneration and margination of chromatin. Additional changes included folliculitis and degenerate squamous debris in the centre of the feather pulp. No viral inclusions were seen but it was possible to make a morphological diagnosis of **psittacine beak and feather disease**.

Eight of twelve 7-day-old ostrich chicks died over a 12 hour period following a shift from a hatching to a rearing shed. Petechial haemorrhages were present throughout the intestinal mesentery. A diagnosis of **clostridial enteritis** was made histopathologically.

### Other Species

A male thar died with diarrhoea and dysentery. Salmonellosis was suspected but bacteriology was negative. Histopathologically, a combination of mucosal necrosis, dilatation of glandular crypts, and vacuolation of myenteric ganglion cells were reminiscent of enteric pestivirus (BVD) lesions in cattle. BVD antigen ELISA tests on spleen confirmed **pestivirus infection** in two other thar that subsequently died on the same property. The virus is being typed at the New Zealand Animal Health Reference Laboratory.

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## Alpha Scientific Ltd

### Cattle

Ten of 30 calves became depressed, pyrexia, jaundiced and haemoglobinuric. Clinical pathology revealed a severe regenerative anaemia and a marked cholestatic hepatopathy. The microscopic agglutination test revealed a serum antibody titre of 1:3200 to *Leptospira interrogans serovar. copenhageni*. A possible source of infection could have been meal contaminated by the brown rat (*Rattus norvegicus*).

Ten cows became recumbent within an hour of ingesting maize silage to which urea had been added. The affected animals trembled, bellowed, became bloated, and salivated. There was no clinical response to methylene blue for nitrate toxicity, and nitrate was undetectable in serum samples. Serum calcium, magnesium, and beta hydroxybutyrate levels were normal. The cows recovered after a few hours. Urea poisoning was thought likely, but this could not be confirmed in the laboratory as ammonia (the toxic product in urea poisoning) is very unstable. The cows were adapted to urea in the diet, but on this occasion it may not have been mixed adequately or an increased amount may have been fed.

### Deer

Six 1-month-old fawns were in poor condition and showed facial dermatitis and jaundice suggestive clinically of sporidesmin toxicity. Two animals were necropsied. Both had small, fibrotic livers and the kidneys of one were dark, suggesting haemoglobinuria. The main histopathological changes were marked cholangiolar proliferation and liver atrophy. Renal copper in the fawn with the dark kidneys was at a toxic concentration of 210  $\mu\text{mol/kg}$  wet weight, but renal copper in the fawn with the non-discoloured kidneys was normal. Consideration was given to congenital biliary atresia as described in lambs and calves in Australia, but the environmental conditions were different in Australia and those animals were several months old before they showed clinical signs. This problem occurred during a period of heightened regional sporidesmin production, and this was the presumptive diagnosis. However the true cause remained unknown.

### Reference

Harper PAW, et al. Congenital biliary atresia and jaundice in lambs and calves. *Australian Veterinary Journal* 67, 18-23, 1990.

### Goats

Two mature milking goats developed swollen vulvas. One goat also had a vaginal exudate and erosions. Herpesvirus was isolated from the lesions.



### Horses

A heavy growth of *Bordetella bronchiseptica* was isolated from the nasal discharge of a 5-year-old Standardbred gelding with a chronic cough. *B bronchiseptica* is a rare isolate from horses with respiratory disease.

### Dogs and Cats

A 9-year-old spayed female cat developed a crouching gait with a marked plantigrade posture of the hind limbs. Moderate hyperglycaemia and glucosuria suggested a diagnosis of diabetes mellitus with associated distal neuropathy, and an elevated serum fructosamine confirmed this. Diabetic neuropathy is a rare complication in diabetic cats and dogs. The cause has not been established, but vascular, axonal, and metabolic alterations have all been proposed. Glucoregulation may reverse the posterior weakness and plantigrade posture, but response to therapy is variable.

*Salmonella Typhimurium* was isolated from the faeces of a 4-year-old cat and a 4-year-old Great Dane. *Salmonella Enteritidis* was isolated from the faeces of a 15-year-old cat.

All of the pets had a similar history of weight loss, dehydration, pyrexia, inappetance, and diarrhoea.

### Birds

A yearling ostrich became lethargic and inappetent within a week of being transferred to a new property. The bird died, and at necropsy it had widespread hepatic microabscessation, massive mononcytosis, and intravascular coagulation. *Salmonella Typhimurium* was cultured. The ostrich had no known contact with infected cattle.

A budgerigar breeder and importer, whose birds showed poor breeding and hatchability along with feathering abnormalities, was concerned about avian polyomavirus infection in the flock. This virus is thought to exist in New Zealand but its presence has never been confirmed. Immunohistochemical stains of kidney and spleen done at the University of Georgia were negative for polyomavirus, and there were no histological lesions in the kidney to suggest this disease. The cause of the problem remained unknown.

### Other Species

A mature female whistling tree frog exhibited chronic ascities, with up to 1.5 ml of serous fluid having been drained from the abdominal cavity on several occasions over a 3 month period prior to death. Histology revealed a generalised fibro-granulomatous steatitis within the mesentery. This was centred upon an eosinophilic, refractile granular material, confirming a diagnosis of egg peritonitis.

A 3-year-old male chameleon became moribund and was euthanased. Histology revealed multi-focal to extensive granulomatous inflammation characterised by the presence of large histiocytes and multinucleate giant cells within the liver, spleen and

intestines. Several acid fast organisms were found, confirming a morphological diagnosis of mycobacteriosis.

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## AgriQuality Laboratory Network

### Cattle

Unusual weather provided ideal conditions for proliferation of the fungus *Pithomyces chartarum*, with almost record spore counts having been recorded in March. Elevated serum gamma glutamyl transferase (GGT) in cattle from the North Island suggested that 1999 may become the worst of the last 10 years for clinical facial eczema. The disease has already been reported in areas that have hardly ever seen it before.

Fifteen of 250 cows had raised to pedunculated, firm, fibrous perineal lesions. Dermatofibroma was diagnosed histopathologically. Dermatofibromata in cattle have been associated with intradermal tuberculin injection, but these cows had not been tuberculin tested recently and a perianal distribution would not have been expected. Dermatofibroma is associated with papillomavirus infection. The large number of cows affected suggested a common source of infection - possibly a bull.

### Reference

Johnstone AC, Hughes PL, Haines DM.

Papillomavirus-induced dermatofibroma in cattle following tuberculin testing. New Zealand Veterinary Journal, 42, 133-5, 1994.

### Cats

Nodules removed from the limbs of a cat were diagnosed histopathologically as atypical mycobacteriosis. Several types of atypical *Mycobacteria* cause subcutaneous granulomata in cats. They are of zoonotic interest only in pet owners with an immunosuppressive disease, but they must be distinguished from skin lesions caused by the universally zoonotic *M bovis* and *M tuberculosis* bacteria.

### Birds

Several 26-week-old roosters in a commercial rearing shed became lame and inappetent. Their feet were ulcerated, and their leg joints were swollen. At necropsy, all of three birds had 0.5-3.0 ml of cream coloured purulent exudate in the hock and metatarsal joints. Fibrin tags overlay the pericardium and peritoneum of one bird. Pure cultures of *Pasteurella multocida* were grown from joint aspirates from two of the birds, confirming a diagnosis of fowl cholera. Chronic fowl cholera is characterised by localised infections, and this contrasts with the acute septicæmic form which is a notifiable disease in New Zealand.

A high death rate (>2%) and ill thrift occurred in 7-week-old Shaver layer poultry chicks. Histologically, the only significant findings were in the bursa of Fabricius, which had severely depleted follicular lymphocytes, mild focal heterophilic inflammation, and numerous *Cryptosporidium* spp. lining the mucosal surface. Two species of cryptosporidia have been described in poultry - *C meleagridis* and *C baileyi* - but this is the first published record of cryptosporidiosis in chickens in New Zealand. *C meleagridis* may infect the intestines, bursa and cloaca; *C baileyi* may infect the respiratory tract, bursa and cloaca. It is rare for both infections to occur together. These cases of cryptosporidiosis were thought to be secondary to debilitation from starvation since the food pellets being fed to the chicks were too large.

Several of a group of 3 to 6-week-old ostriches became moribund and died after a days illness. The predominant microscopic finding was acute multifocal hepatic necrosis with no visible aetiological agent. Only bacterial contaminants were cultured. This hepatic necrosis syndrome has been reported in New Zealand, Australia and USA. Its cause has not been established, but both *Campylobacter* and *Clostridia* have been implicated.

Clostridial enteritis was diagnosed histopathologically on a farm where deaths were occurring in 4-week-old emu chicks. *Clostridium perfringens* was cultured from the gut of an affected chick.

Ninety 3 to 8-week-old ostrich chicks failed to thrive. They had no diarrhoea, but grossly there was a mild oedematous enteritis. Histologically there was a mild enteritis, and the intestinal crypts



were lined by vast numbers of small, ovoid, basophilic protozoa. Electron microscopy is proceeding in order to see if the protozoa are *Hexamita* spp, which have been recorded in ostriches overseas but not in New Zealand.

Protozoa resembling *Balantidium* spp were observed histologically as an incidental finding in the colonic lumen of a 7-week-old ostrich. Balantidiosis is known to occur in ostriches, but it has not previously been recorded in ostriches in New Zealand.

Sub-adult racing pigeons lost weight and died over a 5 day period. Each of two necropsied birds were thin and had a very pale spleen, and one bird had focal hepatic necrosis. Histology revealed splenic

histiocytosis and severe atrophy of follicular lymphocytes in the bursa of Fabricius. Large, basophilic intra-cytoplasmic inclusions were present in bursal macrophages in one bird. Intra-nuclear inclusions were within hepatocytes of the other bird. Subacute Gram-negative bacterial granulomata were within the liver and kidneys of both birds. The gross and microscopic lesions are suggestive of circovirus infection of pigeons. Infection in New Zealand has been confirmed in a black-backed seagull but this is the first presumptive diagnosis in pigeons.

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## LABNET Invermay Ltd

### Cattle

Seven 18-month-old heifers died over 24 hours. Another heifer developed severe ataxia and manic behaviour. Kidney lead was normal, and no microscopic lesions were visible in the brain. Salt concentration in the fixed brain was 2.8 g/kg (normal 0.04-0.07 g/kg). This indicated water deprivation/salt poisoning as the cause of death, and investigation showed that there had been a period of water deprivation.

### Sheep

Salmonellosis was less common this quarter due to drier than normal weather. *Salmonella* Hindmarsh was the most common isolate, followed by *S* Typhimurium. There were no isolates of *S* Brandenburg.

*Listeria monocytogenes* was isolated from the abomasum and colon of one of four 4-year-old ewes that died soon after developing a green scour, and in which there was gross evidence of an haemorrhagic gastroenterocolitis. The ewes were under stress in very dry conditions, and they were being fed baleage. *Salmonella* culture was negative.

Unusually warm weather facilitated the intrusion of the Australian green blowfly further into Otago and Southland. This resulted in more flystrike than usual, and this sometimes involved clean areas on woolly sheep.

Ryegrass staggers was unusually common in sheep this quarter, and some lambs died as a consequence of it.

### Deer

Johne's disease killed one yearling deer every 2 to 3 weeks on a Southland farm. Affected deer developed diarrhoea, lost condition, and died within a month of onset. Histology revealed a severe granulomatous enteritis with many acid fast organisms.

Heavy and prolonged rainfall precipitated death from exposure in 17 of 80 emaciated hinds. Poisoning had been suspected because of the high death rate, and that fact that a stream ran through the field, but

tests for arsenic and organophosphates were negative. Histology confirmed severe cachexia and excluded an infectious aetiology.

### Horses

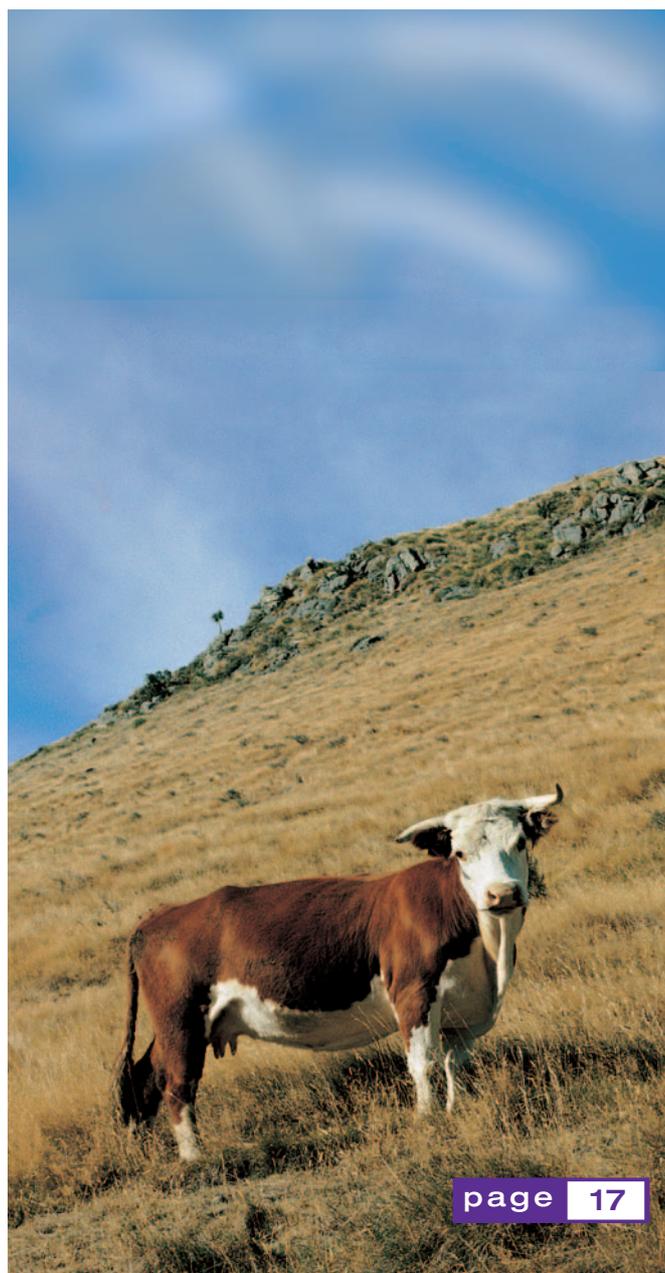
Ryegrass staggers was unusually common in horses this quarter, and this reflected their need to graze the litter of almost bare fields in very dry conditions. The clinical signs resolved once the horses were removed to green pasture.

### Dogs and Cats

*Salmonella* Brandenburg was isolated from the urethra of a 4-year-old farm dog that had a urethral discharge and an enlarged, painful epididymis. The dog belonged to a shearer, and it had visited farms affected last winter by a *Salmonella* Brandenburg abortion epidemic in ewes. Pyometra and haemorrhagic enteritis had occurred in working dogs during that epidemic.

An 8-year-old huntaway died suddenly due to peracute enteritis caused by *Salmonella* Typhimurium.

An *Haemaphysalis* tick was found on a dog living close to Queenstown airport and a deer farm. These ticks are not uncommon on cattle and deer in Northland, and in northern parts



of the South Island, but they are rare in Otago and Southland.

*Mycobacterium bovis* was cultured from a submandibular swelling in a cat that was a good hunter in an endemic TB area. A presumptive histopathological diagnosis of tuberculosis had already been made since the lesion was a chronic necrosuppurative pyogranulomatous inflammation containing a few acid fast organisms.

A subcutaneous fibrosarcoma with accompanying inflammation developed on the back of the neck of a young cat that had been vaccinated annually against FeLV for at least 2 years.

## Birds

Fifteen of a group of 150 ostriches died, and 30 were unwell with wasting and respiratory disease. Histology confirmed a diagnosis of pneumonic aspergillosis.

Twenty percent of a group of 10 to 15 day-old ostrich chicks became depressed and emaciated over a period of 1 week. The egg sac looked normal at necropsy, but a nearly pure growth of *Candida albicans* could be cultured from the jejunum. This yeast may cause upper digestive tract infection in ostrich chicks in damp environments or in association with antibiotic medication.

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