Chronic copper toxicity has been diagnosed on a number of farms in the North Island over the past few weeks and here at Gribbles Veterinary we are becoming aware that this may be a much larger problem than at first apparent.

**Pathogenesis:**
- There is a gradual increase in copper in the liver through over supplementation of copper and/or low molybdenum/sulphur in diet.
- A stressor causes sudden release of copper from the liver.
- Massive hepatocellular necrosis occurs.
- Methaemoglobin and Heinz bodies are formed.
- There may be haemoglobinuria and nephrosis present.

**History of recent cases:**
Cows are reported as ‘going down’ or dying suddenly with few clinical signs. On some farms there are large numbers of animal affected. The initial differential diagnosis is metabolic problems, nitrate/nitrite toxicity, hypomagnesaemia or clostridial disease.

In most cases cattle have been fed palm kernel, tapioca and other supplements, sometimes with copper and mineral supplementation as well. Problems are occurring once a stressor such as drying off or feed reduction takes place.

Where complete biochemical panels are carried out there are massive increases in GDH up to or greater than about 2500U/L indicating massive hepatocellular necrosis. In cases where histopathology is performed this necrosis is confirmed. We have measured some serum copper levels on these cases between 42–>100µmol/L (normal values 8-18µmol/L)

Where incomplete biochemistry is requested there may also be small changes in the biochemical results that confuse or lead to an incorrect final diagnosis.

**Diagnosis:**
We strongly recommend that you add GDH to your panels to rule possible hepatocellular necrosis in/out.

Measure liver and kidney copper levels from dead cattle and serum copper levels from live cattle. Sometimes liver copper may not be significantly increased if the majority of extra copper has been mobilised.

The production of methaemoglobin may be caused by nitrate/nitrite and copper toxicity so consider both diagnoses where brown blood is reported.

Check the diet and supplements fed to cattle.

Recommend checking Cu/Mo/S ratios and Fe on cattle feed supplements.

If there is a suspected problem, remove mineral supplements until toxicity can be ruled out.

Avoid any stresses to cattle eg yarding, transport etc.

Treating with oral sodium molybdate at 200mg/cow/day has been successfully reducing liver copper concentrations.

Welcome to the latest edition of *Paws, Claws and Udder Things*. This month Gribbles Veterinary was proud to be an official Supporter of the NZVAs ‘Back to the Future’ conference in Hamilton. This was the fifth NZVA conference at which I have represented Gribbles Veterinary and I believe it was the most successful conference to date. As a service provider with no products to demonstrate or sell, we use this event as an opportunity to meet informally with clients and, as always, I was humbled by the support that we receive from practitioners and their clinic staff from around the country. Thank you to everyone who visited us on our stand during the event.

Kevin Darling
General Manager
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Ovine abortion investigations

The main causes of ovine abortion are toxoplasmosis and campylobacteriosis. The samples we recommend you collect/submit (ideally from two lambs) are:

**Fresh:** stomach contents (preferred) or liver or lung, and heart blood (preferred) or thoracic fluid.

**Fixed:** liver, lung, kidney, heart, brain, placenta.

We suggest examination and/or culture of stomach contents for *Campylobacter spp.,* and serology of heart blood or thoracic fluid for toxoplasmosis. Other samples would be held for two weeks pending further test requests as necessary.

Canine vaccination titre testing - in-clinic test format now available

In April, Gribbles Veterinary launched New Zealand’s first serological tests to assess vaccinal immunity against canine distemper virus (CDV) and canine parvovirus (CPV). These tests were launched in direct response to the release of the updated World Small Animal Veterinary Association (WSAVA) Guidelines for the Vaccination of Dogs and Cats (2010), which encourage testing of antibody status rather than routinely administering vaccine boosters.

Following the successful launch of these tests, a number of clinics and practices contacted us asking if we could supply an in-clinic version of the test that would potentially offer improved turnaround times and enhanced profitability.

Given the level of interest in in-clinic titre testing, we are pleased to be able to offer the TiterCHEK™ CDV/CPV ELISA test kit exclusively to practitioners. Each kit contains 32 test wells (16 for CDV and 16 for CPV), a positive and negative control, disposable 1µl sample loops, along with conjugate, chromogenic substrate and wash solution.

Testing can be performed on individual animals or in batches. Since a positive and negative control is required each time the kit is used, the manner in which testing is carried out will directly impact the number of tests that can be obtained from each kit. When testing individual animals, the test kit is sufficient for five animals; however, where samples are batched significantly greater numbers of animals can be tested per kit. For example, if samples are refrigerated (serum/plasma samples will remain stable for up to seven days under refrigeration) and run in batches of six at a time, a total of 12 animals can be tested. For optimum utilisation of the ELISA kit, test 14 animals in a single batch. This can be achieved either by freezing and batching samples or by proactively raising awareness of titre testing as an alternative to revaccination and running canine vaccinal immunity sessions where multiple dogs can be bled at once. This would also provide practitioners with an opportunity to link titre testing to the annual wellness check, thereby reinforcing the importance of this visit.

The TiterCHEK™ CDV/CPV ELISA test kit can be ordered using the Gribbles Veterinary consumables order form and costs $330.00 (excl. GST). This equates to a cost per test (CDV and CPV) of $66.00 (excl. GST) when testing animals individually, or just $23.57 (excl. GST) when testing 14 animals in a single batch.

Gribbles Veterinary will continue to offer vaccination titre testing via its network of laboratories at a cost of $70.00 (excl. GST) for both CDV and CPV, or $40.00 (excl. GST) each when performed individually.

Similar tests for determining the vaccinal immunity status of cats are currently being investigated.

For further information, please contact your local Gribbles Veterinary laboratory or your business development manager.
Surgical oncology of spindle cell tumours of soft tissue

Dr Jonathan Bray, recently returned from the UK, brought clinicians and surgeons alike up to speed on the subject of spindle cell tumours of soft tissue recently. An excellent turn-out of around 70 people attended the evening meeting in Auckland sponsored by Gribbles Veterinary and hosted by the Auckland Veterinary Society. This was a welcome CE opportunity for those seeking information on the management of this challenging group of tumours. Jonathan has research interests in spindle cell tumours of soft tissue, including injection site sarcomas, as well as wound management, and airway surgery. He is developing an Oncology and Soft Tissue Referral Service in the Institute of Veterinary, Animal, and Biological Sciences at Massey University.

Calf health, buying and selling of calves, and GGT measurements

Calving is just around the corner and we would like to remind practitioners that the adequate absorption of colostrum may be monitored indirectly by the measurement of GGT in serum soon after birth. GGT is absorbed along with antibody from the colostrum in the first 24-48 hours after birth. Concentrations may be very high initially, declining rapidly to reach normal adult values about 28-30 days following birth. Note that if calves have sufficient colostrum but are kept in unhygienic conditions they are still susceptible to infection. GGT concentrations are indirect and are not a measure of the quality of the colostrum. To do this IgG can be measured on either serum or colostrum/milk.

We suggest that where groups of calves are being sold, serum GGT concentrations are measured. This will maximise the possibilities of farmers obtaining healthy calves and minimise setbacks due to scours and other infections. Farmers buying calves should ask if the calves have had sufficient colostrum, which can be proved by prior testing. Farmers selling calves may be able to obtain a better price if they can prove that the calves have ingested sufficient colostrum.

As a approximate guide:

- At 1 day GGT should be > 600 U/L
- At 3 days GGT should be > 400 U/L
- At 5–10 days GGT should > 130 U/L
- At 10–15 days GGT should be > 65 U/L
- At > 15 days GGT is not recommended

Contact us

Contacting Gribbles Veterinary couldn’t be easier:

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Alternatively, you can contact us using our Free Phone number (0800 474 225) or by using the online enquiry service, available through the Gribbles Veterinary website: www.gribblesvets.co.nz

Last but not least, please feel free to contact your local Business Development Manager:

Lyndall Clarke (North Island) - 027 476 7714
Jack Gillman (South Island) - 027 476 7713

Breaking news

- Congratulations to Jean-Pierre Le Prou from Coastal Veterinary Services Ltd., Opunake who was the lucky winner of the Philips GoGear Raga MP3 player given away by Gribbles Veterinary at the NZVA conference in Hamilton last week. We hope you enjoy your prize Jean-Pierre!

- Please note that due to an increase in reagent costs beyond our control, the cost of Inhibitory Substances testing will increase to $30.60 (excl. GST) with immediate effect. Please also note that our latest Production Animal & Equine price list contains an error. The price for BVD Antigen ELISA testing on ear notch samples should be $13.34 (excl. GST). BVD Antigen ELISA testing on spleen and leukocyte samples is priced correctly at $20.96 (excl. GST). If you have any questions please contact your local laboratory or business development manager.