

## AN UNUSUAL MYCOBACTERIA CASE

Leo is a 12 year old neutered male cat. Lesions on each eye had developed quickly, and had doubled in size in 4 days. Each was a raised soft mass, infiltrating through the cornea. There seems to be no corneal reaction (no neovascularisation or inflammatory response), and the cat showed no sign of pain (normal pupillary response etc).

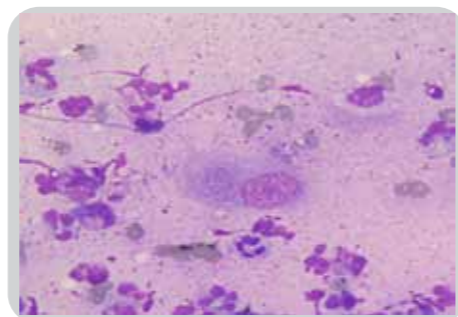
A fine needle aspirate was taken.



At the lab we found the material to be of high cellularity with large numbers of neutrophils and foamy macrophages scattered amongst them.

In the cytoplasm of the macrophages and in the background of the smear were non-staining rod shaped structures typical of Mycobacteria (see photo).

With thanks to Dr Sue Robb, Te Puke Veterinary Centre for this article and the photos.



It is always great to have good clinical cases like this so if anyone would like to contribute articles to Synapse please contact - [jenni@nzvp.co.nz](mailto:jenni@nzvp.co.nz)

## MAF EXOTIC DISEASE & PESTS HOTLINE

All of us should be familiar with MAF's 0800 80 99 66 number for reporting suspected outbreaks of exotic disease. What many of us may not know is that the scope for notifying MAF is wider than just exotic diseases and pests. MAF are also interested if a veterinarian suspects a new disease entity; including diseases which may be genetic, toxic, nutritional or infectious etc, or an unusual presentation of a disease entity known to be present in New Zealand.

We acknowledge that it can seem daunting to call a MAF HOTLINE. At NZVP we field quite a few calls seeking guidance about potential Notification situations. Though it goes unsaid many callers are quietly seeking reassurance, because they are wondering what to expect if they do call the HOTLINE.

A call to the HOTLINE does not mean that the army and police will swarm over your client's property and impose area wide lockdown. Also MAF will not treat you as if you are wasting their time. Obviously it is good for client relations to discuss notifying MAF with your client first.

The initial call to 0800 80 99 66 will be taken by an answering service. You will be asked for the name of the condition that you

are calling about and your return contact details. The duty MAF Animals Incursion Investigator will be paged and will call you back. They will ask you to describe the situation. Pertinent information includes the history, presenting signs, time course, number of animals affected, number of dead animals, number of animals at risk and the results of any diagnostics performed.

If the MAF Investigator determines that the case fits the criteria to warrant an investigation then MAF will pay for the testing relevant to their purposes, which will be determined on a case by case basis. Often it is simply a case of forwarding the appropriate specimens, either via NZVP or directly to IDC.

The Investigators are not a scary bunch. One of them even may have been in your class at University.

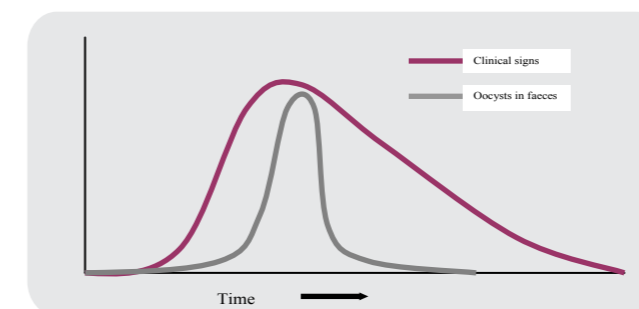
Sandy McLachlan



## COCCIDIOSIS

As calves grow older and move on to pasture coccidia becomes more and more of a problem. At NZVP, we often field questions from practitioners about the utility of floatation tests to detect coccidiosis. On some occasions, there seems to be very severe clinical disease even when oocysts numbers are relatively low.

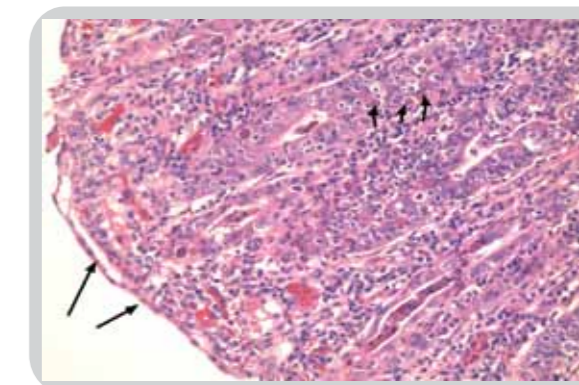
Younger, relatively naïve animals exposed to heavy loads of coccidial oocysts tend to get a synchronous, severe infection. This means that most of the coccidial forms in the gut are at the same stage of infection at any given time. Since much of the damage to the gut can occur before oocysts are even produced, it is possible to have a clinical syndrome of coccidiosis and a relatively low oocyst count. In addition, damage to the gut persists even after all of the oocysts have been shed, so enteritis continues for some time after the oocysts counts have decreased. The gut may take several weeks to completely recover, after which a degree of immunity develops which protects animals from as severe clinical disease the next time they are exposed. This means that there is only a relatively short period of time during which oocysts numbers will be very high, and it is easy to sample on either side of this period.



Oocysts are shed for a relatively short period of time when compared to the length of time clinical signs are observed. Recovery of the intestinal lining from coccidial infection may take some time.



The take home message here is that if clinical signs and epidemiology are consistent, it is likely worth treating for coccidiosis even if oocysts levels are relatively low. Coccidiosis may also be complicated by bacterial enteritis, including Yersinia and Salmonella. However concurrent bacterial infection is not necessary for severe disease to occur. Animals which have little immunity to coccidia may develop severe acute disease and die from coccidiosis alone.



Long arrows indicate severe attenuation of large intestinal epithelium, reflecting damage that would cause marked impairment of fluid resorption and diarrhoea. Short arrows indicate some of the numerous coccidial forms present within crypt epithelium.

Isobel Gibson

New Zealand Veterinary Pathology

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## ANGUS IS FIJI BOUND!

A significant change is imminent for Angus and family with a long-term move to Fiji planned for the end of April. This has been prompted by the opportunity of becoming involved in the Suva and Nadi based family business which revolves around both hospitality and wine importation/distribution.

Angus' shareholding and directorship within NZVP will remain essentially unchanged – however, his day to day duties will alter significantly. A much reduced role centred upon the interpretation of results remotely, with associated phone and email contact, is envisaged.

Angus will be Denarau based and is desperate to avoid "social isolation" – a blanket invitation is extended to any and all who may be visiting that part of the world to call in, enjoy a meal or even stay a day or two. Further details relating to Angus' replacement at NZVP will be forthcoming.

## THE BOSS'S BLOG

In our last edition Angus wrote about our recently launched cardiac tests for cats and dogs. This edition sees Sandra discussing our latest addition to the companion animal range with d-Dimers, the test for Disseminated change Intravascular Coagulation.

NZVP is the only lab offering this test in New Zealand and the decision to do so was a very interesting exercise. We received a small but regular level of inquiry for the test, mainly from the Massey University Teaching Hospital. As we do in all such cases we considered the costs of establishing the test. Often this is limited to reagents when a new test can be run on an existing analyser. In this case however we did need to spend a few thousand dollars on a new piece of equipment. We then used the collective experience of our pathologists and key technical people to estimate the likely uptake of the test.

At this point the test was clearly headed for the bin.

However this is also where NZVP is different. The next stage of our analysis is always to ask if the test is available in New

Zealand. If, as in this case, the answer is no we then consider if it would be of benefit to the veterinary profession to make it available. This is where d-Dimers passed our criteria.

We fully understand and accept that the test may well be of interest to a small group of clients who are likely to be operating at the referral and hospital end of the market. However it is a very clear part of our philosophy to ensure the profession has access to as many of the tests and technologies available elsewhere in the world even where these do not stack up in terms of providing an economic return. Our approach is to take a view of our whole financial position in such cases rather than accepting the bare numbers of the individual test.

The signal I always hope that this approach sends is that the more new clients and increased testing from our existing supporters that moves such as Cardiopet and d-Dimers generates the more NZVP can and will introduce new tests that will provide benefits to the vets and animal owners of New Zealand.

Richard Campbell

## CENTRIFUGES NOW AVAILABLE

NZVP is now offering centrifuges to veterinary clinics which can be used to separate blood samples and spin down urine in preparation for urinalysis. The Myfuge™ Mini centrifuge is a small bench top centrifuge able to spin at 6,000 rpm and can hold up to 4 X 0.5mL BD Microtainers. This makes the Myfuge™ Mini centrifuge ideal for separating EDTA plasma samples for the new Cardiopet™ proBNP test offered exclusively through NZVP.

The Myfuge™ Mini centrifuge is available through NZVP at a cost [redacted] + GST and comes with a 12 month warranty. Please contact your NZVP laboratory for further information.



## DIC, THROMBOEMBOLIC DISEASE AND THE D-DIMER ASSAY

We infrequently identify DIC and thromboembolic disease (TED) in our patients, not because they don't occur but because of the difficulty in recognising the conditions due to lack of tests that provide a definitive diagnosis. As a consequence treatment is not tailored to manage these particular aspects of a disease thus patients don't recover as rapidly as expected, or may die as a result. Additionally, even if DIC or TED is suspected, monitoring progress is compromised because there is no means to do so. Recently, Wiinberg et al (2010) developed a scoring system for diagnosing DIC in dogs that showed 90.9% sensitivity and 90.0% specificity when PT, aPTT, and fibrinogen and d-dimer concentrations were analysed. Similarly, Nelson (2005) determined that a normal d-dimer concentration rules out the presence of TED. To date d-dimer concentrations have been difficult to determine in New Zealand due

to lack of validated tests for use in cats and dogs. However, NZVP now has a validated assay for dogs. As often occurs cats are poor cousins and as yet there are no easily adapted tests for assessing d-dimer concentrations in this species. Results of d-dimer assays need to be interpreted carefully and in conjunction with the history and clinical signs because although false negative results are rare, dogs that do not have DIC or TED may have elevated d-dimer concentrations for a variety of other reasons. These include recent surgery or trauma, neoplasia, and liver and renal diseases. Not every patient with these conditions will have an increase in d-dimers but it pays to bear this in mind during interpretation and only those animals with consistent clinical signs should be assessed for d-dimer concentrations.

Diseases in which DIC has been associated	Diseases in which TED has been associated
Immune mediated thrombocytopenia	Sepsis
Immune mediated haemolytic anaemia	Neoplasia
Various tumours	Severe trauma
Acute hepatitis	Vasculitis
Pyometra	Shock
Lymphoma and leukaemia	IV catheter use
Meningitis	Heart disease
Sepsis	Haemoconcentration
Pancreatitis	Hyperproteinaemia → increased blood viscosity
Fever of unknown origin	Protein losing nephropathy
Acute renal failure	Hyperadrenocorticism
Haemorrhagic gastroenteritis	Pancreatitis
Malignant histiocytosis	IMHA
Pneumonia	GI disease – protein losing enteropathy
Following major trauma	
Haemothorax	
GDV	
Heat stroke	

D-dimer Test: A citrated sample is required which ideally should be centrifuged immediately to separate the plasma. Samples that remained unseparated for up to 6 hours have been validated but older samples are currently an unknown entity. The cost of the test is \$40.00 and will be run at the Palmerston North laboratory

### References

OL Nelson, C Andreasen. The utility of plasma d-dimer to identify thromboembolic disease in dogs. *Journal of Veterinary Internal Medicine* 17: 830-4, 2003.

B. Wiinberg, AL Jensen, PR Johansson et al: Development of a model based scoring system for diagnosis of canine disseminated intravascular coagulation with independent assessment of sensitivity and specificity. *The Veterinary Journal* 185: 292–8, 2010.

Sandra Forsyth