

PERIPARTURIENT CATTLE PROFILE

With another spring upon us New Zealand Veterinary Pathology continues to offer the periparturient cattle profile providing comprehensive herd trace element and mineral status information at a particularly critical period in the farming calendar.

The standard profile includes the following tests:

- 10 x Mg
- 10 x BOH or NEFA
- 10 x Ca
- 6 x Fx
- 5 x B12
- 4 x Se

This is at a cost of \$XXX (excl. GST) providing a saving of 12% in comparison to a selection of individual analytes.

PRE-PRINTED SAMPLE BAGS

Pre-printed sample bags are available free of charge. These bags are designed to facilitate submission of multiple vacutainers in association with trace element and/or serology testing but can also be used for multiple small sample bottles with faecal or milk sample submissions.

As always it is particularly helpful if the number of tests required is entered into the appropriate box and not merely a tick (see below).

Please ring Jackie in Specimen Reception on 0800 838 522 for your supply of these pre-printed bags.



NEW PRICE LIST

New prices came into effect on 14th July 2008. If you need more copies of the booklet, please ring the lab.



LARVAL CYATHOSTOMIASIS IN HORSES

Recently, New Zealand Veterinary Pathology has dealt with a number of cases of disease in young (yearling – two year old) horses due to migrating larval cyathostomiasis. These cases were clustered over the late autumn – early winter months, as they have been over past years as well.

The disease is a difficult one to diagnose and treat, and unfortunately is often only confirmed on necropsy. It can present in a range of severities, from chronic colitis, with soft faeces and hypoproteinaemia, to a severe, acute and ulcerative colitis accompanied by severe diarrhoea, colic, and hypoproteinaemia. Interestingly enough, this is a very similar range of symptoms to that observed with Salmonellosis, and these horses are frequently initially treated on suspicion of Salmonella.

Cases of the more chronic version seem to present with chronic diarrhoea, accompanied by moderate to marked hypoproteinaemia, and, in some cases, hypereosinophilia. Faecal egg counts are frequently normal, and often the horses have a recent worming history. The horses may also have evidence of inflammation on the CBC, with a neutrophilia and a mild left shift being evident in some animals. Cultures are typically done and are negative, making Salmonellosis unlikely. Larval cyathostomes are not picked up on a standard faecal egg count (unless they are so numerous that they can be seen wriggling in the faeces), and thus a special cyathostome preparation has to be performed to detect the live larvae. The cyathostome prep may reveal large numbers of larvae, confirming the diagnosis. Unfortunately, since large numbers of cyathostomes are not uniformly present in the faeces of affected animals (many remain trapped in the mucosa of the intestine), this test is not 100% sensitive and the possibility of false negatives exists. Histology on these more chronically affected animals may reveal numerous larval cyathostomes within the mucosa of the colon, associated with relatively mild inflammation. (Figure 1)

Cases of the acute disease often present with very sudden onset depression and recumbency, with dehydration. Sometimes 'sudden death' is the only known history. These horses may have symptoms

suggestive of acute colitis, with severe dehydration and shock. If aggressive medical support is not successful, then these animals frequently die. CBC results may vary, but severely affected animals may have a degenerative left shift, as well as marked hypoproteinaemia. Large numbers of larval cyathostomes may be present within the faeces; these may be visible grossly or require a cyathostome prep to be enumerated. On post mortem there is evidence

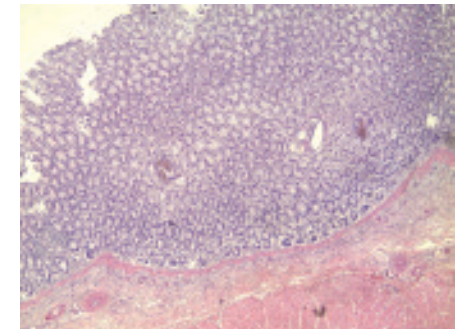


Figure 1. of a severe ulcerative colitis, sometimes with extension to a peritonitis. Histology confirms the presence of a colitis with numerous larval cyathostomes visible along a severely ulcerated mucosa. (Figure 2)

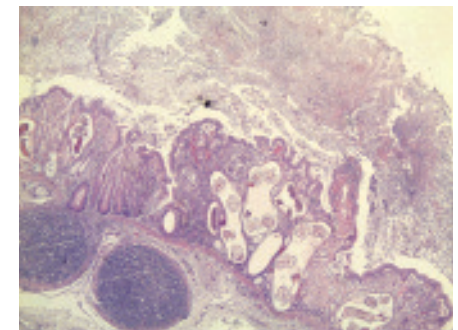


Figure 2. Continued page 2

LARVAL CYATHOSTOMIASIS IN HORSES cont.

Larval cyathostomiasis is caused by the intramural larval stages of small strongyles. Fourth stage larvae of the small strongyles migrate through the mucosa of the large intestine, often undergoing a period of hypobiosis within the mucosa before emerging. The stimulus for larval emergence is not well defined, but a definite seasonal pattern has been shown to occur in temperate areas of North America and Europe, where disease is most common in late fall or early winter. Larval emergence may also occur after anthelmintic treatment aimed at adult stages of the parasites. It is the larval emergence which causes the mucosal injury and ulceration responsible for the clinical appearance of disease. Whilst NZVP generally sees larval cyathostomiasis affecting young horses, this is not necessarily always the case, and horses of all ages may be affected.

Treatment of clinical larval cyathostomiasis is aimed at the encysted larval stages of the parasites and at reducing concurrent inflammation. Both moxidectin and fenbendazole

have been shown to be effective against the encysted larvae.

As with many parasitic disease, prevention is often better than the cure. On premises which are known to have a problem with larval cyathostomiasis, frequent deworming (every 6 weeks) during periods of high strongyle infectivity is recommended, to reduce the number of patent infections that occur and reduce pasture contamination with infective L3 larvae. Resistance to all classes of anthelmintics except macrocyclic lactones has been shown in small strongyles, so use of ivermectin or moxidectin is recommended. In the future, resistance may continue to limit the utility of even these newer anthelmintics.

Refs:
Lyons ET, Drudge JH, Tolliver SC. Larval Cyathostomiasis. Vet Clin North Am Equine Pract. 16(3): 501-513, 2000.
Reed SM, Bayly WM, Sellon DC. Equine Internal Medicine 2nd ed. Saunders, St Louis. 894-895, 2004.

Isobel Gibson

QUARANTINE SAMPLES

Given the recent outbreak of equine flu in Australia we thought it would be a good time to review the procedures for quarantine samples being sent to the lab. NZVP is a MAF Biosecurity (MAFBNZ) approved laboratory and as such we provide them with surveillance information, are actively involved in looking out for exotic disease and have to be able to contain and destroy potentially hazardous material received during the investigation of disease.

Biological hazardous material received by the laboratory may be in the form of quarantine samples, samples from suspect exotic/ MAFBNZ interest cases or commercially prepared biological material.

A quarantine sample is considered any sample or biological goods originating from another country. This includes samples from animals (cats, dogs and horses mainly) that have just been imported to New Zealand and are being held in quarantine. Such samples should be handled with extra care and the required procedures as set down by MAFBNZ strictly followed as quarantine samples could contain

organisms that are not present in New Zealand.

To comply with MAFBNZ protocol we would like you, as veterinarians, to do the following if you have any samples from a quarantine animal that need testing:

1. Advise the laboratory by telephone before you send the sample so that we'll be expecting it and can track it if it doesn't arrive.
2. The sample must be clearly labelled with animal details/ identification.
3. Please write in large letters "QUARANTINE SAMPLES" on the submission form.
4. For safe transport, MAFBNZ requires that these samples are double-bagged. This will help prevent leakage in case of breakage.

At the laboratory we have a protocol that we follow to identify and follow these samples as they make their way through the laboratory. Once testing is completed the samples are logged into the Biological Hazard Register and stored separately in a special Transitional



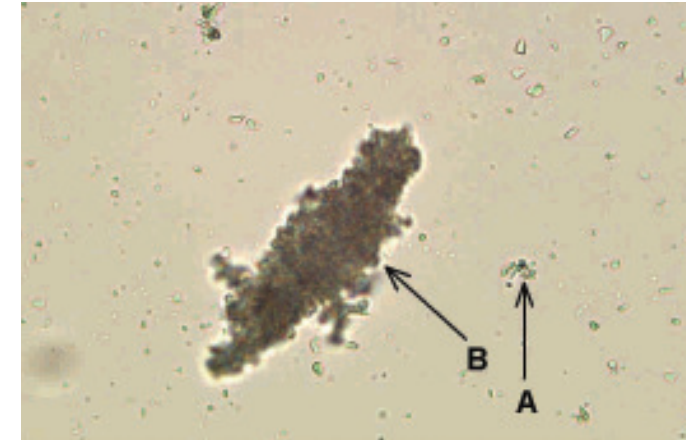
Area. After a month samples are disposed of by a MAFBNZ approved waste disposal company.

Thank you very much for your co-operation in this matter.

Yolandé Conrادية
Transitional Facility Operator

ODD CRYSTALLINE MATERIAL IN URINE SEDIMENTS

We have recently received a few urine samples with odd crystalline material in them (see photos). After some detective work it seems the common feature is that these samples are being sent in coated plastic tubes and we assume that the coating material is lifting off into the urine. The culprits are the Vacutainer plus CAT and Vacuette serum C/A plastic serum tubes, which are made of PET plastics coated with micronized silica particles to accelerate clotting. They can be identified by the CAT and C/A branding near the top of the tube.



When we spin down the sample for the sediment analysis the silica particles (A on the photo) get concentrated, possibly obscuring objects in the sediment examination, and could also be confused with amorphous crystals. We have on occasion seen the silica particles in clumps of similar size and shape to mucous threads or urinary casts (B and C).

When the sample is processed soon after collection suitable containers include plain glass red top tubes with no additives, additive free plastic tubes or plain plastic pottles (e.g. pink top pottles).



When there is a delay in processing, tubes containing preservative designed for urine samples, are best. These are:

- BD Urine saver tubes, (red + yellow top)
- GBO Urine Stabilur tubes (red + yellow top)

With the urine saver tube, sample integrity can be maintained for up to 72 hours at room temperature.

However, urine preservative tubes are suitable only for urinalysis (sediment, dipstick, and specific gravity) and may inhibit bacterial growth. When submitting a urine saver tube it is wise to send a smaller plain tube or culture preservative tube if culture may be required.

We know that it is not always possible, but would like to stress the importance of obtaining an adequate volume of urine for testing, ideally more than 1ml of sample. With small samples if nothing is found, it may just be because we haven't been able to look at sufficient volume.

If you have any questions about the suitability of any urine or blood collection products for diagnostic testing at NZVP please don't hesitate to contact us. Keep up the cysto samples (they make interpreting culture results so much easier!!) and keep that volume up!

James Connell, Microbiology