

# HEALTH PROBLEMS IN POST WEANING CALVES

We are beginning to receive a number of inquiries concerning health problems in post-weaning calves - often on a herd or mob basis.

Generally the problems tend to fall into three broad categories i.e. nervous, respiratory or illthrift (with or without scouring).

The most common diseases within these broad categories, in descending order of frequency, are listed below.

Samples recommended for submission are included.

## NERVOUS SIGNS

Polioencephalomalacia (thiamine deficiency)  
Response to Vitamin B1 supplementation often provides a diagnosis.

Dead: Fixed brain.

(Sections of cortex can be examined for fluorescence under U.V. light within a darkened room. However, a negative result does not rule it out).

Bacterial meningo-encephalitis

Live: EDTA blood for haematology (evidence of inflammation).

Dead: Fresh and fixed brain for culture and histology respectively.

Lead poisoning

Generally seen in younger calves but occasional cases are reported in older calves.

Live: EDTA blood for lead assay.

Dead: Fresh liver for lead assay.

Ryegrass staggers

Clinical signs are often diagnostic.

Dead: Fixed brain for histology may reveal cerebellar lesions.

## RESPIRATORY SIGNS

Infectious broncho-pneumonia

Live: EDTA blood for haematology (evidence of inflammation).

Dead: Fresh and fixed lung for culture and histology respectively.

Lungworm

Live: Faeces for larval recovery.

Tracheal wash (EDTA and plain tubes)

Dead: Fixed lung.

Atypical interstitial pneumonia

Pasture for tryptophan levels.

Dead: Fixed lung.

Aspiration pneumonia

Often circumstantial.

Dead: Fixed lung.



## ON THE MOVE ...

Jenni Donald, Clinical Pathologist in Palmerston North has moved. After two and a half years in Palmerston North Jenni has headed north - happily, she has not left NZVP, instead she has joined the pathology team in our Hamilton Laboratory with Pathologists Angus Black and Isobel Gibson. In Palmerston North, the Pathology team is Adrienne

French, Rebecca Allan and Sandra Forsyth, with assistance from Massey University pathologists as needed. The changes in NZVP's Pathology team will not affect service or turnaround times. If you need to, you can contact any NZVP pathologist at either laboratory site by calling freephone:

0800 VET LAB (0800 838 522)

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## BLACKLEG IN A CALF

A veterinarian had been called to visit a property which had been having deaths in 2 month old calves. After consultation with the farmer and examining a few live calves, he was just about to leave when he noticed one calf which had died within the past two hours. With some difficulty he persuaded the farmer to allow a post-mortem. In incising through the muscles of the hindlimb to open the abdominal cavity, this astute veterinarian noticed that a distinct patch of the muscles were abnormally dark, and had some crepitus suggestive of gas bubbles. Examination of impression gram stained impression smears from affected muscle revealed numerous large spore forming, gram positive rods, consistent with Clostridia. A diagnosis of clostridial myositis (likely due to Clostridium chauveoi, the agent of blackleg) was made. The animals had not been vaccinated. No recent management events (eg vaccination or injection at this site) had been performed that might have precipitated the disease.



This great case illustrates that a diagnosis of Clostridial disease can be made in cases where death has been very recent (within the last four hours), and where a gross lesion can be located. It is impossible to make a diagnosis of blackleg, pseudobackleg, or malignant edema unless there is a convincing gross lesion present.

In cases where a gross lesion can be identified, a gram stain of an impression smear made from the affected tissues may demonstrate the presence of Clostridial organisms. Histology, which should demonstrate an acute, necrotizing myositis (as distinct from tissue autolysis, or rot) can be used to corroborate the findings from the impression smear.

If you have a case of sudden death and wish to attempt to diagnose this disease on post mortem, it is well worth making several incisions in to the large muscles of the hindlimbs to see whether you can spot a lesion. Clostridium chauveoi can also cause a myocardial myositis as well, so don't ignore the heart either!

Thanks so much to David Oertly, The Veterinary Centre - Glenview, for submitting this case.

*Isobel Gibson*

DVM, DVSc, Diplomate ACV

## HORSE PREGNANCY: WHICH IS THE BEST TEST??

As foaling season winds up around the country, we are starting to see samples coming through for Equine pregnancy testing. We get numerous enquiries about which test is most appropriate for determining the mare's pregnancy status. There are two equine specific pregnancy testing options: MIP/PMSG ELISA or Oestrone Sulphate test. Both tests have advantages and disadvantages dependent upon current gestation length and the history of the animal itself. Including the first &/or last date of service and any other reproductive information, for example previous abortions, in the history can affect both which test will be the most appropriate and any pathologist interpretation.

### MIP or PMSG TEST

This is an ELISA test which targets Pregnant Mare Serum Gonadotrophin (PMSG) also known as Equine Chorionic Gonadotrophin (eCG) which is secreted by the endometrial cups at pregnancy significant levels beginning at approx day 40, peaking between day 60-80 and declining after day 100 as the endometrial cups break down. This test is the most appropriate test to use between day 40 and day 100 post-mating.

Sample Type: 1ml serum.  
Current Price: \$XX + GST  
Turnaround Time: 2- 3 days after arriving at testing lab

### Advantages:

- Test can be used from day 40 post-mating
- Test requires only a serum sample, enabling pregnancy testing on miniature horse where palpation per rectum can not be performed
- Early detection of failure to conceive may enable the mare to be mated again during the current season

### Disadvantages:

- Once the endometrial cups have formed at day 38-40 post-mating they will continue to secrete PMSG until they are naturally broken down at around 100 days post-mating regardless of whether the foal is viable or non-viable. Hence a false positive result could be obtained. NZVP recommends a follow up Oestrone Sulphate test at > 100 days post-mating to confirm pregnancy status especially in cases where a mare has a history of early pregnancy loss.

This test is performed at the Palmerston North laboratory. Samples submitted to the Hamilton lab will be forwarded overnight to Palmerston North for testing.



### OESTRONE SULPHATE TEST

This is a Rapid Immunomigration (RIM) test which targets Oestrone Sulphate, this is an estrogen secreted by the foetal-placental unit. This test is the most appropriate test to used from > 100 days post-mating until 10 months post-mating.

Sample Type: 1ml serum  
Current Price: \$XX + GST  
Turnaround Time: Same day

### Advantages:

- Test can differentiate between a viable and non-viable pregnancy. Oestrone sulphate is a product of the foetal-placental unit and declines within a few days of foetal death. A positive result indicates the presence of a viable foetus. A positive result followed by a negative result is a strong indication that foetal death may have occurred.
- If the Rapid Immunomigration (RIM) test result is inconclusive there is a quantitative Oestrone Sulphate test which can be performed at no extra cost. The turnaround time for this test is 3-4 days.
- Test requires only a serum sample, enabling pregnancy testing on miniature horse where palpation per rectum can not be performed

### Disadvantages:

- Test can not be used until 100 days post-mating at the earliest.
- At > 10 months post-mating a "false" negative result may occur as Oestrone Sulphate levels begin to decline close to parturition.

This test is performed at both the Palmerston North & Hamilton labs.

### POINTS TO NOTE:

- At > 10 months gestation levels of Oestrone Sulphate can begin to decline prior to parturition. As this happens, the level of Oestrone Sulphate produced by a mare carrying a viable foetus may fall below the cut-off level needed to produce a positive test reaction using the Rapid Immunomigration test, thus giving a false negative result. If the RIM test produces a negative result at > 10 months post-mating, NZVP recommends the quantitative Oestrone Sulphate test to determine the exact level of Oestrone Sulphate present. The levels of Oestrone Sulphate in a viably pregnant mare will typically only fall to non-pregnant (< 5 ng/ml) levels 2-3 days prior to parturition thus in most cases quantitative testing gives a more accurate determination of pregnancy status in the final stages of gestation.

- **DONKEYS:** A positive result for either MIP or Oestrone Sulphate testing in donkeys is considered a reliable indication of pregnancy status for the animal. However, donkeys are capable of maintaining a viable pregnancy at lower levels of both PMSG and Oestrone Sulphate than horses and therefore are significantly more likely to return at false negative result when using tests which have positive/negative cut-off points based on horse hormone levels. NZVP recommends pregnancy testing donkeys using the Oestrone Sulphate test and in the case of a negative result the sample will be automatically sent away for quantitative testing at no extra cost with a turnaround time of 3-4 days.

## BVD PCR UPDATE

Following on from our BVD testing article in the August 2006 issue of Synapse, there have been some developments in the field of BVD PCR testing that we feel are worth bringing to your attention.

Clinicians now have more options when choosing to test for BVD using a Pooled PCR test. GeneMark, a subsidiary of Livestock Improvement Corp (LIC), have released a commercial BVD PCR performed by their Hamilton based laboratory. Pools of up to 10 animals can be tested with no charge for follow-up testing on individual animals from BVD positive pools. There is also an option to run pooled EBL tests in conjunction with the BVD PCR testing at a special price. The most important thing to remember when submitting samples for the GeneMark tests is that they require a full 10ml EDTA tube.

The most cost effective method available in NZ for Pooled BVD PCR testing is using the GeneMark test. However, the lower price comes with a compromise to turnaround time. Pooled BVD PCR testing is most suitable in situations such as routine herd screening where a fast turnaround time is not required. For cases involving sick animals &/or other types of testing where time is a factor (e.g. sale animals), the ELISA is still the preferred method of testing due to the much shorter turnaround time (1-3 days). If only EBL ELISA testing is required, NZVP is still the less expensive option charging

PCR = Purple Container Required

GeneMark Tests	Prices (excl gst)
Pooled BVD PCR (No minimum sample limit)	\$XX, first 30 samples \$XX subsequent samples
EBL Pooled PCR (min 10 samples)	\$XX, first 30 samples \$XX subsequent samples
BVD PCR/EBL combo	\$XX, first 30 samples \$XX subsequent samples
Follow-up for individual animals from positive pools	Free
Sample Required	10ml EDTA (purple top) (7ml minimum)
Turnaround Time	8-12 working days

\$XXX + GST per pool (max 10 samples per pool) compared to \$XX + GST for testing a pool of 10 samples at GeneMark.

Note: Submissions of > 50 samples for BVD Antigen ELISA or any other serology test may be eligible for discounts. Please contact the Serology Dept for a quote by phoning 0800 VET LAB (0800 838 522) and press "2" for the Palmerston North Lab.

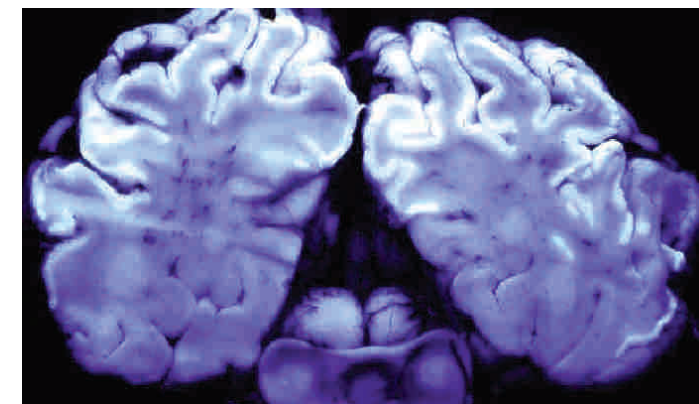
## POLIOENCEPHALOMALACIA (VITAMIN B1 DEFICIENCY) IN CALVES

We have seen a number of cases over recent weeks as is usual at this time of the year.

Diagnosis is often as straight forward as checking the brain (ideally sections of cortex) for fluorescence under a Wood's lamp in a darkened room or closet. If the brain fails to fluoresce this doesn't necessarily rule polio out. The test is quite specific but not absolutely sensitive.

In negative cases consider submission of the brain for histology – polio may still be diagnosed but histology also provides the opportunity to diagnose other causes of nervous disease.

Angus Black  
Veterinary Pathologist



Fluorescence of lamina cortical necrosis under a Wood's lamp.