

Welcome to our new-look newsletter brought to you by the team of veterinary pathologists and medical scientists with extensive experience in veterinary diagnostic pathology.

# VNews

**JULY 2010**

## **TESTING FOR FELINE INFECTIOUS PERITONITIS**

Feline infectious peritonitis (FIP) is a fatal immune mediated disease caused by virulent variants of feline corona virus. Diagnosis of FIP is often complicated due to non-specific clinical signs, lack of definitive diagnostic features on routine haematological and biochemistry tests and poor sensitivity and specificity of many of the routinely requested tests. Vetpath offers a variety of different tests that may be of use in cats showing clinical signs compatible with FIP, or suspected of having been exposed to feline corona virus.

### **Serum proteins**

Elevated serum proteins, hyperglobulinaemia and an A:G ratio

of <0.8 are features which are commonly associated with FIP. Although these features are not pathognomic for FIP, hyperglobulinaemia in a cat of less than 1 year of age, and with no evidence of sepsis, is most likely to be associated with FIP.

$\alpha$  1 acid- glycoprotein is an acute phase protein which may increase with a variety of inflammatory conditions including FIP. The severe and sustained inflammation encountered with FIP typically results in significant elevations in  $\alpha$  1 acid- glycoprotein. An  $\alpha$  1 acid- glycoprotein concentration >1.5g/L therefore provides strong supportive evidence of FIP, in the absence of sepsis.

### **Feline corona virus IFA**

This test measures the concentration of antibodies to feline corona virus within the serum. The presence of feline corona virus antibodies indicates previous exposure to feline corona virus but is not synonymous with FIP, as the titre does not differentiate between enteric based corona viruses and mutant forms capable of causing FIP. This test is therefore used to assess the likelihood of exposure to feline corona virus. Depending on the magnitude of the titre, conclusions

may be drawn regarding the probability that the patient may be shedding feline corona virus as well as the probability of clinical FIP. In general, cats with clinical FIP with have a titre in excess of 1:640. Cats with higher titres are also likely to be shedding the virus which may be of concern in breeding colonies, welfare organizations and when cats are being introduced to multi-cat homes.

### **Effusion analysis**

If an effusion is present, fluid analysis remains one of the best diagnostic tools. Fluids with protein concentrations in excess of 35g/l and low cellularity (<1.0 x 10<sup>6</sup>/L) are typical for FIP. Cytological evaluation allows for characterization of the cell population as a mixture of macrophages and neutrophils, and also allows for the exclusion of septic peritonitis and neoplastic disease such as lymphoma. Vetpath routinely performs a Rivalta's test on all effusion fluids from cats. This test detects the presence of inflammatory proteins, and when used in cases of suspected FIP has a positive predictive value of 86% and a negative predictive value of 97%.

This equates to a 3% chance of a patient with a negative test having FIP.



### Immunocytochemistry

This test identifies the presence of virus within macrophages in an effusion and has greatly enhanced diagnostic specificity in ante-mortem samples.

Immunocytochemistry has a positive predictive value index of 1.0 which equates to no false positive results. False negative results do however occur, and are particularly associated with poorly cellular or aged samples. Immunocytochemistry should be preceded by routine cytology to ensure that there are sufficient macrophages present to deliver a reliable result and to exclude other cytologically apparent causes of effusion such as neoplastic disease and sepsis.

### Histopathology

Histopathology remains the cornerstone for diagnosis of FIP. Unfortunately histopathology is seldom practical in clinical cases and its use is largely restricted to post-mortem diagnosis. Routine histopathology may be augmented by immunohistochemistry, a test which detects the presence of virus within macrophages. This yields a more sensitive and definitive diagnostic test. Immunohistochemistry and immunocytochemistry are performed at the University of Sydney.

**Reference: Cowell RL** Diagnostic Cytology Mosby, **2008.**

### Overnight Locked Boxes

Practices around Perth have begun using the locked boxes for an additional overnight courier pick up on week days. This service is performed by the Western Diagnostic Courier Service with the samples being delivered to Vetpath early the next morning.

The locked boxes are a week day only service and have been placed at veterinary clinics throughout Perth. The cut-off time for these boxes is 6:45pm. If samples are dropped off, VETPATH must be notified by this time in order for the sample to be collected. A key to the boxes is held at the clinic where the box is located and a copy has been provided to those surrounding clinics using this service. The keys for the locked boxes are identical.

Vetpath has also added a locked box at the laboratory. This box is located on the front veranda near the after-hours box. If you do not need the sample processed until the following work day, you do not need to notify the laboratory of the intended drop off. Both the locked box and the after-hours box will be checked every morning, with samples being processed earlier in the morning than if they were picked up by the routine Vetpath couriers. However, if you require immediate processing and testing of the sample after hours, you must notify the Scientist on call.

If you have questions regarding the locked boxes, please contact the laboratory manager on (08) 9259 3600.

### Expected turn around times for microbiology samples

Turn around times for culture of samples varies depending on the organism being identified and tissue being cultured. Below is a general guide for turn around times for bacterial and fungal culture:

#### Aerobic and anaerobic bacterial culture:

Culture of organisms: 24 hours (some take longer).

Sensitivity testing: 48 hours.

Acid-fast bacteria: May take up to 4 weeks.

#### Fungal culture:

Up to 4 weeks.

Note that some slow growing bacteria can take longer than 24 hours to grow.



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