

**Vetpath** is a specialist veterinary laboratory dedicated to providing our clients with the finest laboratory diagnostic service. A team of veterinary pathologists and medical scientists with extensive experience in veterinary diagnostic pathology forms the core of the Vetpath team.

# VN News

**FEBRUARY 2019**

## **Blood testing for aspergillosis**

Diagnosis of aspergillosis in dogs is based on multiple testing methodologies including diagnostic imaging, blood tests, cytology, histopathology and fungal culture.

The two available screening blood tests for *Aspergillus sp.* are galactomannan and *Aspergillus* serology, and the test of choice is dependent on which form of aspergillosis is suspected; sino-nasal or systemic.

Galactomannan is a polysaccharide that is a component of the *Aspergillus* cell wall. This test has good sensitivity and specificity for diagnosis of **systemic** aspergillosis, but is of minimal diagnostic use for diagnosis of sino-nasal aspergillosis.

*Aspergillus* serology detects antibodies to *A. fumigatus* and is moderately sensitive and fairly specific for **sino-nasal** aspergillosis. *A. fumigatus* serology is insensitive for the diagnosis of systemic aspergillosis which is more likely caused by *A. terreus* or *A. deflexus*.

False positive and false negative results can occur with both tests. Galactomannan can be detected with other fungal infections or with treatment with *Penicillium*-derived antibiotics (amoxicillin-clavulanate, B-lactam antibiotics) and *A. fumigatus* antibodies can be detected after exposure to the organism.

The blood tests are designed to be used in conjunction with the other diagnostic tests mentioned above, and should not be used in isolation for diagnosis of this condition.

### **References:**

Shultz RM et al. JVIM 2008; 22(4): 851-9.  
Sykes JE, 2014. Canine and Feline Infectious Diseases, Elsevier.



## **Sending samples during summer**

Sending samples overnight (or over a few days) to the lab can be problematic in summer. Exposure to heat and a prolonged delay in processing can cause artifactual changes to test results. Some tips to minimize sample degeneration include:

1. Refrigerate blood samples until sending.
2. Wrap blood tubes in paper towel, then pack with an ice pack.
3. Send a freshly made blood smear.
4. Use the appropriate sized tube for the volume of blood.
5. Centrifuge and separate serum samples to prevent haemolysis.

## Is free T4 useful in cats?

T4 is the major hormone produced by the thyroid gland. Most T4 is protein-bound and acts as a reservoir of the biologically active free-T4.

In dogs, free T4 tends to be less affected by euthyroid sick syndrome than total T4 and therefore provides some advantages for diagnosis of hypothyroidism. However, is free T4 also the more useful parameter for diagnosis of hyperthyroidism in cats?

The answer is no. Although free T4 is sensitive for diagnosing hyperthyroidism, the test specificity is poor. Up to 20% of sick (and some clinically normal) cats have elevated free T4 concentrations, making **free T4 a poor screening test** for hyperthyroidism. The free T4 concentration should always be interpreted with the total T4 concentration, and in conjunction with the clinical signs.

**Reference:** Peterson ME, Compendium 2013 E1-E6.



## Synovial fluid

Cytological assessment of synovial fluid is commonly performed to screen for inflammatory arthritis.

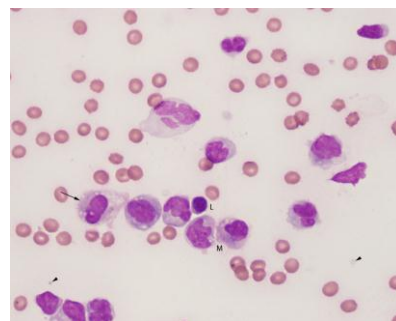
How synovial fluid is submitted is dependent on how much fluid is aspirated. A well-made smear should be prioritized and any remaining fluid can be placed into an EDTA tube to help preserve the cells. If culture is required, fluid can be placed into a plain tube, onto a swab, or into a blood culture bottle.

At least 0.2m of fluid is required for a full joint analysis, which includes a total cell count, refractometer protein concentration and smear evaluation. Multiple joints can be evaluated using the **polyarthritis screen**, which includes one full synovial fluid analysis, and examination of smears from up to 6 additional joints providing estimated cellularity and a differential count. The interpretation will collate the findings from all submitted joints.

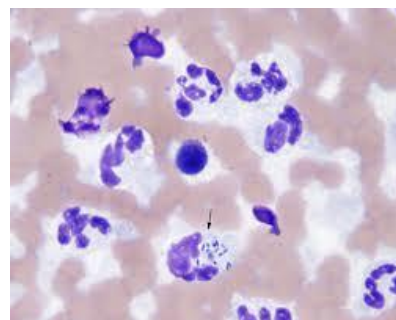
Culture and sensitivity are not included in standard synovial fluid analysis or the polyarthritis screen, and must be requested separately.

The primary goals of cytological assessment of synovial fluid are to evaluate for inflammation, sepsis, haemorrhage and rarely, neoplasia. Valuable information

can be gained from a single well-made smear if only a small amount of fluid can be obtained.



**Figure 1:** Reactive mononuclear cells with blood contamination from a joint with degenerative disease.



**Figure 2:** Neutrophils with bacteriophagia from a joint with septic arthritis.

Source: eclinpath.com



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