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.

VNews

VETPATH LABORATORY SERVICES

MAY 2017

Babesia gibsoni in WA

Babesia gibsoni is a protozoal organism that infects canine erythrocytes. *B. gibsoni* is the small form of canine babesiosis, with the larger *B. canis* also being present in Australia.

B. gibsoni was first reported in Australia in 2002, after three related male American Pit Bull Terriers in Victoria were found to be infected. In recent years, it has been determined that *B. gibsoni* is most commonly transmitted through dog bites and fighting but may also be vertically transmitted from mother to pups. Genetic testing of the organisms has found a lack of genetic diversity, indicating that sexual reproduction has not occurred in a vector, and that the dogs are the reservoir for *B. gibsoni*.

Our experience in Australia suggests the disease is most common in fighting dogs and in hunting dogs. The disease is seldom fatal but causes significant anaemia. There is no effective treatment that will sterilise the infections resulting in animals being lifelong carriers and remaining infective to other in-contact dogs.

VETPATH has recently confirmed *B. gibsoni* infection is present in hunting dogs in the southwest of Western Australia. The frequency with which pets travel now means that veterinarians in all parts of the country must be aware of this significant infectious disease.

Cases of acute babesiosis can be diagnosed by blood smear evaluation (part of every CBC; see Figure 1). Serological testing is preferred for diagnosis of more chronic cases with a minimal parasitaemia, and for screening of potential carriers. Serological testing has been shown to be more reliable in detecting these chronic carriers than PCR. Blood smear examination and serological diagnosis are performed routinely at VETPATH Laboratory Services. Note that a full CBC provides much more information than a smear evaluation for minimal extra cost.

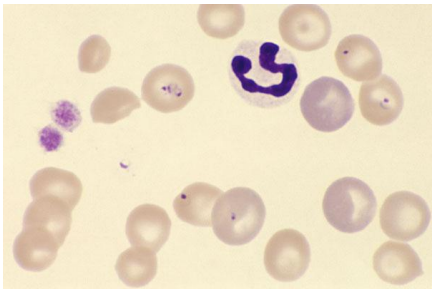

Figure 1: *Babesia gibsoni* in a dog.

References:

Muhlnickel R et al. 2002. AVJ 80 (10): 606-610.
Irwin, P. 2009. Parasites & Vectors, 2 (Suppl 1): S4

What does "criteria of malignancy" mean?

Cytologists sometimes use the term "criteria of malignancy". But what does that term actually mean?

Assessment of cytology smears is often completed in a series of steps that help to get closer to a more specific diagnosis. Sometimes, the diagnosis is immediately apparent, such as with a mast cell tumour. However, sometimes the aspirated cells must be first classified into a particular tissue type (epithelial, mesenchymal, round or neuroendocrine). Further division into benign or malignant cells can occur with assessment of criteria of malignancy.

Some of the criteria of malignancy that cytologists look for include (see Figure 1):

1. Anisocytosis – variation in cell size.
2. Anisokaryosis – variation in nuclear size.
3. Coarse or ropey immature chromatin.
4. Nuclear molding – nuclei lose their normal crowding inhibition.
5. Multinucleation.
6. Nucleolar changes – variations in size, shape and prominence.
7. Abnormal or more numerous mitotic figures.

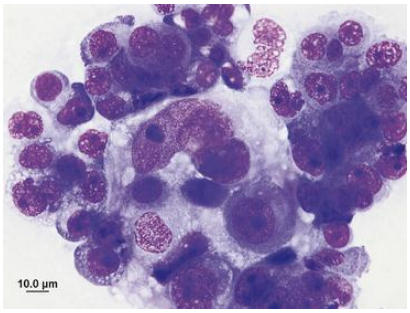

Figure 1: Thoracic fluid with neoplastic epithelial cells. Criteria of malignancy include anisocytosis, anisokaryosis, multinucleation, coarsely clumped chromatin and prominent nucleoli.

Of course, there are always exceptions to the rule! Cutaneous plasmacytomas are tumours that behave benignly, however exhibit multiple criteria of malignancy on cytology. Some of these features include anisocytosis, anisokaryosis and multinucleation (Figure 2).

Conversely, an anal sac apocrine gland adenocarcinoma is a highly malignant neoplasm that shows minimal cellular anaplasia on cytology (Figure 3). The absence of pleomorphism in an epithelial cell population is one of the identifying features of neuroendocrine or naked nuclei lesions.

Knowledge of the cellular appearance and behaviour of specific tumours helps pathologists make a confident cytological diagnosis and to accurately determine the prognosis for the patient.

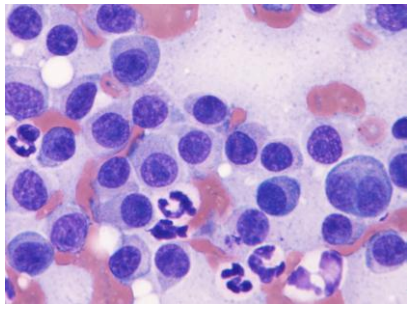

Figure 2: Behaviourally benign cutaneous plasmacytoma displaying moderate anisocytosis and anisokaryosis, binucleation and prominent nucleoli.

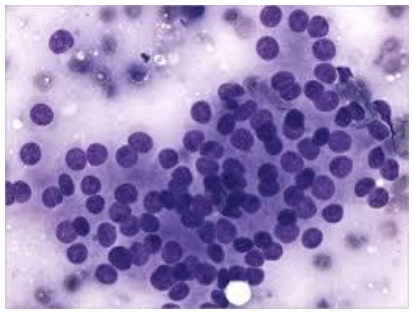

Figure 3: Malignant anal sac apocrine gland adenocarcinoma displaying small uniform nuclei.

Next month – why is my cytology inconclusive?

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