

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

NOVEMBER 2014

Snake bite season

As the weather warms up, there is increased risk of snake envenomation in our veterinary patients.

Diagnosis of snake envenomation can be complicated due to variations in the components of venom (see table below), size of the patient, and the amount of venom received. One clinical sign associated with envenomation of all Australian snakes is paralysis and paresis due to a neurotoxin. Progressive paralysis, slow

pupillary light reflex, and mydriasis usually develop within 2 – 4 hours, however can take up to 24 hours to develop.

Other clinical consequences of envenomation include a coagulation defect, muscle damage, and nephrotoxicity. Haemorrhage can occur due to the pro-coagulant activity of many venomous snakes. Fibrinogen is consumed leading to decreased serum fibrinogen concentration and prolongation of PT and PTT. Platelet numbers and function remain normal.

Myolytic activity is present in some snake venom (such as Tiger snakes); however Brown snake (Dugite) venom does not

contain myotoxins. When present, myotoxins bind to muscle fibres causing destruction and an elevation in CK activity within several hours of the snake bite. Primary nephrotoxins are not present in Australian snake venom, however renal damage can occur secondary to hypotension, myolysis, and coagulation defects.



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| Snake | Clinical actions of venom | | | |
|-------------------------|---------------------------|---------------|----------------|----------|
| | Pro-Coagulant | Neurotoxicity | Nephrotoxicity | Myolysis |
| Brown Snake | Yes | Yes | Occasional | No |
| Tiger Snake | Yes | Yes | Secondary | Yes |
| Death Adder | Minor | Yes | No | No |
| King Brown | No | Yes | Secondary | Yes |
| Taipan | Yes | Yes | Secondary | Yes |
| Copperhead | Yes | Yes | Secondary | Yes |
| Red-bellied black snake | Yes | Yes | Secondary | No |

Table: Clinical actions of Australian snake venom.

Diagnosis of envenomation is often made from clinical signs, biochemical abnormalities (eg muscle damage), and haemostatic changes. However, another diagnostic test available is the Snake Venom Detection kit (SVDK) produced by CSL. The SVDK is an immunoassay that can identify venom of individual snakes in human and veterinary patients.

A urine sample is most commonly used in animals since a swab of the bite site is generally unavailable. Serum testing is only recommended if urine is unavailable (results are reportedly less reliable). The urine must be collected 4 – 48 hours after the snake bite to maximise the chance of a positive result. False negative results can occur due to a number of reasons; these include over-saturation of the binding antibodies in the kit due to a high venom concentration, or insufficient venom in the urine due incorrect timing of sample collection.

Although false negative results can occur, false positives are rare (the test is very specific). Therefore, a positive SVDK test is a very reliable indicator of snake envenomation.



Feline Coronavirus PCR testing

The feline faecal multiplex PCR panel includes PCR for feline Coronavirus (CoV). This test is primarily used for detection of intestinal CoV shedding. However, a positive CoV PCR test on a body cavity effusion, whole blood or tissue supports a diagnosis of FIP.

Note that due to the high sensitivity of PCR, a false positive result can occur if a small amount of CoV extravasates from blood to the effusion in viraemic cats. Identification of CoV within macrophages by direct IFA remains the most accurate method of diagnosing FIP.

Synacthen Depot

The recent shortage of Synacthen has required some practitioners to find alternate ACTH preparations for stimulation testing. One of the preparations available is Synacthen Depot (1mg in a 1ml vial). The Synacthen Depot is administered intramuscularly at 2 weight dependent doses:

Body weight <15kg: 0.25 mg/dog
Body weight >15kg: 0.5mg/dog

A baseline serum sample is collected (red top tube), and then the ACTH is given IM. A post-ACTH sample is collected **2 hours** after the pre-ACTH sample was taken.

Meet your pathologist!



Dr John Jardine is the primary histopathologist at Vetpath Laboratory Services. John trained in pathology in South Africa and is a registered specialist. As one of the original members of staff, John was instrumental in setting up many of the tests unique to Vetpath. John's interests outside of pathology include fishing, training for triathlons and bee keeping.



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