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

DECEMBER 2017

Haemostatic abnormalities in heatstroke

The summer months are coming and with it comes an increased risk of heat stroke in our veterinary patients.

Heatstroke is a potentially fatal syndrome caused by elevated core body temperature. Inflammation, haemostatic derangement and tissue damage occurs, leading to direct thermal tissue injury and secondary effects from activation of the inflammatory and coagulation pathways. The overall mortality rate in people and dogs is often over 50%.

A recent study published in the *Journal of Veterinary Emergency and Critical Care* investigated the haemostatic analyte changes that occurred in a group of 30 client owned dogs affected by heatstroke, as well as how these changes were associated with mortality.

The overall survival rate was 60%, with increased mortality being associated with older age, higher heart rate and rectal temperature on presentation, and time of onset to presentation. Haemostatic abnormalities at presentation were not associated with mortality, however prolonged PT and PTT at 12 – 24 hours post-presentation, and hypofibrinogenaemia at 24 hours post-presentation were associated with mortality. Increased D-dimers were also found, but were not associated with mortality. Over 60% of patients were thrombocytopenic on presentation.

The study highlights that DIC is a common sequel of heatstroke. The classic combination of abnormalities associated with DIC includes prolonged PT and PTT, hypofibrinogenaemia, thrombocytopenia, and increased D-dimers. With the exception D-dimers, these parameters are included in the coagulation screen performed at VETPATH.

The study also highlights the importance of serial measurement of haemostatic parameters during hospitalization for heatstroke, allowing rapid diagnosis and management of DIC. Although development of DIC was not associated with mortality, dogs that died of heatstroke had significantly more coagulation abnormalities compared to those that survived.

Reference: Bruchim Y, et al. JVECC 27(3) 2017: 315-324.

Helpful hints to assist in identifying and preserving surgical margins

To ink or not to ink, that is the question!

Inking the surgical margins prior to submission is encouraged. However, we frequently run into some minor issues with this technique. One of the main things to remember is, **less is more**.

Using a cotton swab/bud to place the ink on the biopsy is preferred. After placing ink onto the biopsy it is very important to allow the ink to **dry**. If it seems too wet, you can try to blot off some of the excess ink and allow the biopsy to dry further. Not allowing the ink to dry prior to placing in formalin can result in dyed formalin leading to unexpected dying of the entire biopsy sample you submitted (figures 1 and 2).

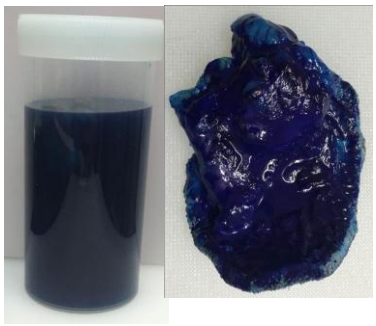

Figure 1: Excessive surgical ink has dyed the formalin and caused excessive dying of the tissue.

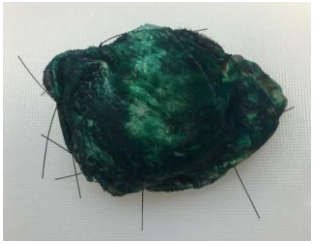

Figure 2: Biopsy with an appropriate amount of ink and tacked lateral surgical margins.

Well what if you have more than one margin you are concerned about? You can always use more than one ink colour. Well what if ink is too messy for me? Do not fear, there is a simple solution. You can suture the outside edges of the biopsy to designate cranial, caudal, lateral, medial, dorsal and ventral (figure 3). In addition, drawings/diagrams with descriptions of the sutures are equally encouraged if you believe they will assist in relaying important information to the pathologist.

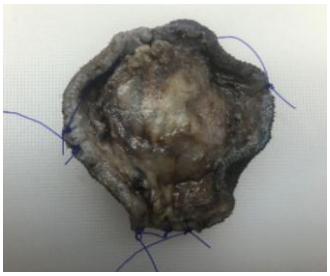

Figure 3: Sutures have been placed at specific margins.

A common, and easily avoidable mistake to make when submitting a biopsy is to incise the biopsy along a surgical margin prior to the sample fixing (figure 4). This can lead to tissue shrinkage with an artefactual absent (dirty) deep surgical margin.

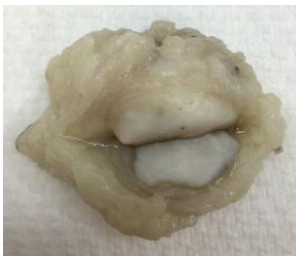

Figure 4: Incised deep surgical margin.

If you want to ensure the sample fixes properly, a simple and easy way to avoid cutting into the surgical margins is to cut along the dermal surface if it is a skin ellipse/skin biopsy (figure 5). Try and avoid cutting the biopsy along the deep surgical margin. The reason for this is that when the tissues begin to fix, they shrink, resulting in loss of the true surgical margins.

Figure 5: Dermal incision preserving margins.

NATA

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