

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

SEPTEMBER 2019

Can ultrasound predict urinary sediment?

Assessment of urinary sediment is an important diagnostic tool for patients exhibiting lower urinary tract clinical signs.

Ultrasonographical evaluation of the bladder is also becoming more common in veterinary practice. The association between ultrasonographical appearance of urine and the results of urinary sediment examination was evaluated in a recent study published in the *Journal of Small Animal Practice*.

A total of 194 patients (140 dogs and 54 cats) were included in the study. The ultrasonographical appearance of their urine was classified as echoic (see figure 1) or anechoic, and their urinary sediment was classified as active

(containing pyuria, haematuria and/or bacteriuria; see figure 2) or inactive.



Figure 1: Ultrasonographically echoic urine. *JSAP* June 2019; Vol 60: 361-366.



Figure 2: WBC (arrowheads) and RBC (arrows) in urinary sediment. eclin.path.com, Cornell University.

All patients with urine samples with a specific gravity less than 1.015 were described as anechoic. The negative predictive value (NPV) of urine echogenicity was moderate for an active sediment (78%) and

bacteriuria (82%) and high for pyuria (97%) and haematuria (96%). This indicates that anechoic urine is more likely to be associated with an inactive sediment. There was also a high NPV for urine echogenicity for crystalluria, suggesting anechoic urine is less likely to contain crystals.

Despite the high NPV of urine echogenicity for an active urine sediment or crystalluria, the sensitivity and specificity were low, likely due to the low prevalence of sediment abnormalities in the study population.

The study concluded that although anechoic urine is more likely associated with an inactive sediment, microscopic evaluation of urine sediment is still indicated. This is particularly the case in patients with poorly concentrated, anechoic urine.

Reference: *JSAP* June 2019; Vol 60: 361-366.

Baseline cortisol measurement and trilostane monitoring

The ACTH stimulation test is routinely used for evaluation of trilostane therapy in dogs with hyperadrenocorticism.

While the ACTH stimulation test is not technically difficult to perform, it does require short hospitalization of the patient. Synthetic ACTH (eg Synacthen) is also expensive and has been periodically unavailable in the past.

Screening Cushingoid patients with a single cortisol collected 4 - 6 hours after trilostane administration is an alternative method of monitoring therapy. Measurement of baseline cortisol is appropriate for healthy patients with normal water intake and no ongoing clinical signs of hyperadrenocorticism. An ACTH stimulation test should be still performed in any patients that are clinically unwell or displaying ongoing clinical signs of hyperadrenocorticism.

The goal of monitoring patients receiving trilostane is to confirm there is adequate control of hyperadrenocorticism without iatrogenic hypocortisolemia. In a study of over 100 hyperadrenocorticoid dogs, a baseline cortisol of

≥ 35.9 mmol/L accurately excluded excessive suppression (defined by post-ACTH stimulation cortisol concentration of < 41.4 mmol/L) in 98% of dogs. Conversely, a baseline cortisol concentration of ≤ 80.0 mmol/L excluded inadequate control (defined by post-ACTH stimulation cortisol concentration of > 250.1 mmol/L) in 95% of dogs. Baseline cortisol concentrations between **35.9 mmol/L** and **80.0 mmol/L** correctly predicted adequate control in 88% of dogs. Dogs with cortisol concentrations in this range should be able to continue to receive the current dose of trilostane.

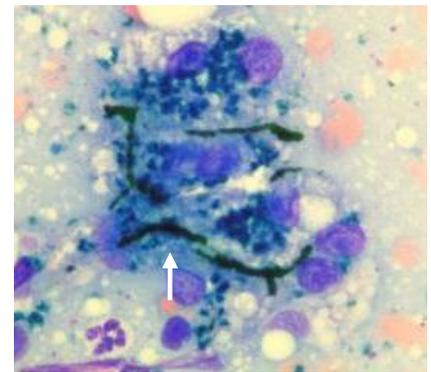
The study concluded that a baseline cortisol concentration measured 4 - 6 hours after administration of trilostane was an accurate method of therapeutic monitoring in clinically well patients. Note that published cortisol concentrations provided above are a guide only and must be interpreted in conjunction with clinical presentation.

Reference: JAVMA 2010 237 (7): 801-805.



Can you identify these structures?

The image below displays a cluster of hepatocytes. Can you identify the black linear structures associated with the hepatocytes (white arrow)?



The structures are **bile casts**. These are linear aggregates of bile that are retained in the biliary cannaliculi. Bile casts are often observed in hepatic aspirates from patients with cholestasis.

Other interesting images can be found on Vetpath's Instagram page. Search for:

[vetpath.laboratory.services](https://www.vetpath.laboratory.services)



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vNews



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