

**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.

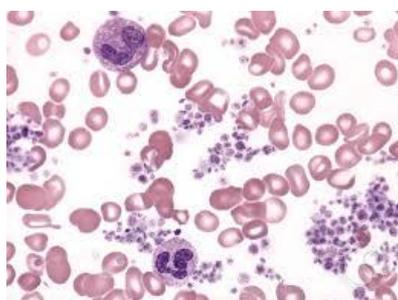
# VN News

**JULY 2016**

## How accurate is the platelet count?

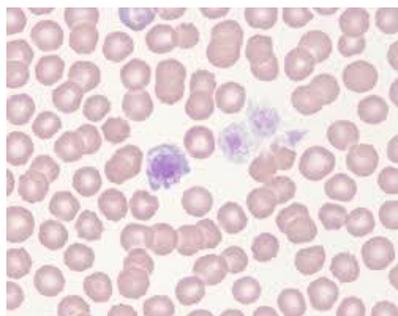
Assessment of platelet numbers and morphology is an important component of the complete blood count.

While automated platelet counts are useful, they can often be inaccurate. Platelet clumping is a very common and unavoidable consequence of anticoagulation with EDTA, particularly in cats and horses (see Figure 1). The presence of shift platelets is the other main cause of inaccuracies in the automated platelet count (see Figure 2). Both platelet clumps and shift platelets can cause the automated count to be decreased due to the haematology analyzer failing to identify the clumps and larger platelets as platelets.



**Figure 1:** Platelet clumping.

Automated platelet counts can be particularly inaccurate in Cavalier King Charles Spaniels. This breed often has an idiopathic asymptomatic thrombocytopenia. One study found that 46% of dogs evaluated had platelet counts less than  $100 \times 10^9/L$ , with counts as low as  $30 \times 10^9/L$  being seen in clinically normal dogs. These dogs also have an increased number of shift platelets which



**Figure 2:** Shift platelets.

cause the automated platelet count to be reduced further.

Smear evaluation is essential to determine whether the automated platelet count is accurate. An estimated count may be possible, however will likely also be affected by clumping. The estimated count can be performed using the 100x ocular and oil. Simply count the number of platelets in 10 fields, divide by 10 (to determine the average number of platelets per field) and multiple this number by 15. This gives you the platelet count  $\times 10^9/L$ . For example, if you counted 120 platelets over 10 fields, the calculation would be  $120/10 \times 15 = 180 \times 10^9/L$ .

Calculating an estimated platelet is very useful in determining whether a patient has sufficient platelets and highlights the need for smear evaluation with every CBC.

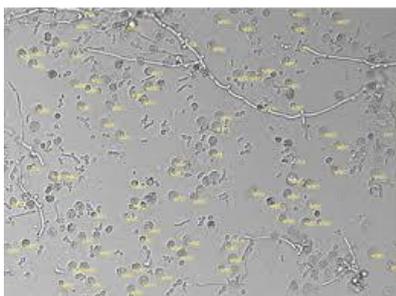
**Reference:** Pedersen HD et al. *JVIM* 2002; 16: 169-173.

## Urine cytology

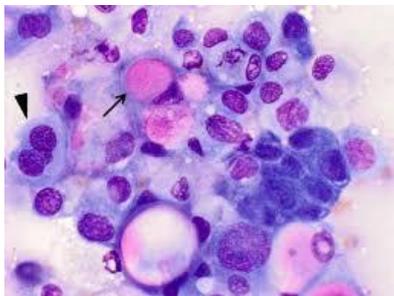
Vetpath offers a variety of options for urine sample testing and it can sometimes be difficult to know which is appropriate for your patient.

The two most common tests requested are **urine wet micro** and **urinalysis**. A urine wet micro (short for microscopy) is composed of a sediment examination to assess the sample for cells, crystals, casts and bacteria. The urine pH and specific gravity are also reported. A urinalysis includes the tests in a wet micro, as well as a urine dipstick to measure the biochemical components of the urine sample.

Wet microscopy (see Figure 1) of the urine sediment is adequate for assessment for inflammation, crystalluria and infection (if bacteria are present in sufficient numbers). Epithelial cells can also be identified, but are difficult to assess morphologically by wet microscopy alone.



**Figure 1:** Urine sediment.



**Figure 2:** Urine cytology of a transitional cell carcinoma.

**Urine cytology** (figure 2) is only of use in patients where a urinary neoplasm is suspected. Keep in mind that inflammation can hinder diagnosis of neoplasia. Epithelial cell dysplasia can be almost impossible to differentiate from neoplasia without assessing tissue architecture. Resolution of inflammation and infection may be required for accurate cytological assessment of urinary epithelial cells. The other challenging aspect of urine cytology is the rapid rate at which cells degenerate in urine. The sample must be as fresh as possible and a smear prepared from the urine sediment in the clinic may help preserve the cell population.

It is important to take the signalment of the patient into consideration when selecting the appropriate tests. For example, urine cytology is not indicated in a young patient showing clinical signs of infection. The terms microscopy and cytology are not interchangeable, and requesting cytology when neoplasia is unlikely only provides more cost and no additional information.

## New IMMULITE® 2000 XPi

Vetpath has recently acquired a new immunoassay analyzer for endocrine testing. The IMMULITE® 2000 is the most widely used analyzer for veterinary endocrinology. Extensive patient comparisons have been performed to ensure that there will be a seamless transition from our current analyzer to the new machine. Endogenous ACTH and insulin concentrations will now also be run at Vetpath, which will significantly improve turnaround times for these assays.



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