

**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 2016

## Why is my culture negative?

A negative culture result in a case of suspected infection can be very frustrating and a number of factors may influence the likelihood of successful isolation of pathogenic bacteria.

How a specimen is collected and transported to the laboratory are important considerations in the culture process. The sample must be collected from the actual site of infection with minimal contamination from adjacent tissues. The amount of material obtained also needs to contain sufficient organisms. A tissue biopsy or fluid sample is more likely to provide a positive result than a swab containing a small amount of material which may be inadequate for inoculation onto culture media.



Bacterial growth may also be inhibited by previous administration of antimicrobial drugs. If a sample for culture was not obtained before antibiotics were commenced, an appropriate withdrawal period is recommended before culture is performed.

The sample should be transported in gel media to ensure survival of the microorganisms. A dry swab will rapidly desiccate and any bacteria present will likely be compromised. Tissue biopsy samples can be submitted in a urine pot after wrapping in a piece of gauze moistened with sterile saline. Fluid samples are usually submitted in a sterile urine pot, but can also be placed into a blood culture bottle to further improve the likelihood of successful bacterial growth. Note

that exposure to air can inhibit growth of anaerobic bacteria.

Always remember to provide a detailed history including the site of collection to help the lab staff process your specimen appropriately.

**Reference:** Greene. *Infectious Diseases of the Dog and Cat*, 3rd ed. 2006.

## Urine cortisol: creatinine ratio

Urine cortisol:creatinine ratio (UCCR) is a screening test for hyperadrenocorticism. A normal UCCR effectively rules out hyperadrenocorticism. An elevated UCCR is consistent with hyperadrenocorticism but is not specific for this disease. Positive results should be further evaluated by means of a low dose dexamethasone test and/or an ACTH stimulation test.

VETPATH now runs this test in house and results are therefore available within 24 hours. At least 2 ml of urine is required to perform the test.

## Urine wet microscopy

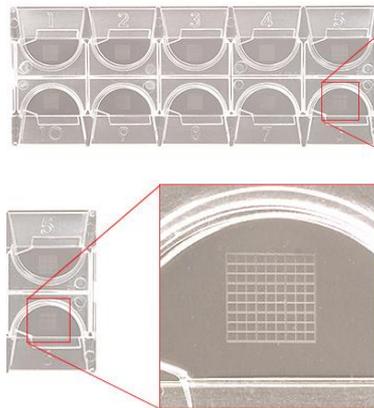
Cellular constituents of urine are traditionally reported per HPF (high power field). Why then, does VETPATH report cells per  $\mu\text{L}$ ?

Pre-analytical variables can have a significant effect on the accuracy of urine wet microscopy. These factors include initial sample volume, the speed of centrifugation of the sample, the volume of urine used to re-suspend the packed sediment and the distribution of elements on the slide.

VETPATH uses a slide system that is specifically produced for examination of urine sediments. The KOVA® Glasstic® Slide 10 with Grids system uses a slide (which also contains a built in cover slip) that has 10 chambers which hold exactly  $6.6 \mu\text{L}$  of urine sediment (see the figure).

The sample is processed using a specially shaped conical plastic tube. After centrifuging, the unique KOVA® "Petter" retains the sediment during decanting along with a fixed volume of supernatant sample. The pipette is then used to dispense a drop of the re-suspended sediment into a special chambered slide for microscopic exam. The KOVA® slide provides an even distribution of the urine that

greatly improves visualization of the cellular constituents of the sample. In addition, the use of a precise and standardized volume of urine allows the cellular contents to be reported per  $\mu\text{L}$ .



**Figure 1:** The KOVA® Glasstic® Slide 10 with Grids system

If only a small sample is submitted, un-concentrated urine can be used. Normal cat and dog urine samples have been found to have  $\text{RBC} < 5/\mu\text{L}$  and  $\text{WBC} < 3/\mu\text{L}$ . While the KOVA® system is designed to reduce the influence of urine sample size and sediment concentration on the wet microscopy, there is some decrease in accuracy with small samples ( $< 5\text{ml}$ ). In this case, the cell counts may be reported per HPF.

Always try to submit at least  $5\text{ml}$  of urine for analysis and keep the sample refrigerated before collection to help preserve the sediment and minimize bacterial overgrowth.

## Synovial fluid facts

### How much is needed for cytology?

Approximately  $0.5\text{ml}$  of synovial fluid is required to perform a full analysis, however valuable information can be obtained from only a few drops of fluid on a smear.

### Which tubes should I use?

EDTA tubes optimize cell preservation for cytology. An aliquot of the sample needs to be placed on a swab, or in a plain tube or blood culture bottle if culture is required.

### What about multiple joints?

VETPATH offers a Polyarthrititis Screen which is composed of a full cytological analysis of one joint, and evaluation of smears from up to 6 other joints. These include a description of cellularity and degree of haemodilution, and a differential cell count. The interpretation will summarize the cytological findings from all the joints submitted.



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