Lifelong Ear Partnership

Cytology Reference Guide

We're all ears

Cytology

Cytology is a quick, simple-to-perform method to achieve useful information about the possible etiology of cutaneous lesions. This reference guide was created as a source of step-by-step recommendations to assist the veterinary team in proper collection and preparation of appropriate cytological samples. Dechra's goal is to allow you to confidently diagnose and prescribe utilizing cytology.

Many thanks go out to the many veterinarians who helped write and contribute photos.

Routine Stain Maintenance:

1. Microorganisms can grow in stain solutions which can lead to artifact of bacterial overgrowth on slides. Recommended to maintain two separate staining set-ups: 'clean' cytology for blood smears and effusion cytology and 'dirty' cytology for otic, cutaneous impression and fecal smears. In a busy practice, stains may require changing weekly.
2. If samples are staining poorly, the stains should be replaced. Stain jars should be thoroughly cleaned and dried before filling with fresh stain solution.
3. Keep the lids closed on stain jars, especially the light blue fixative (first solution), as it evaporates quickly.
   NOTE: Keep all unstained slides away from formalin as exposure will interfere with staining.

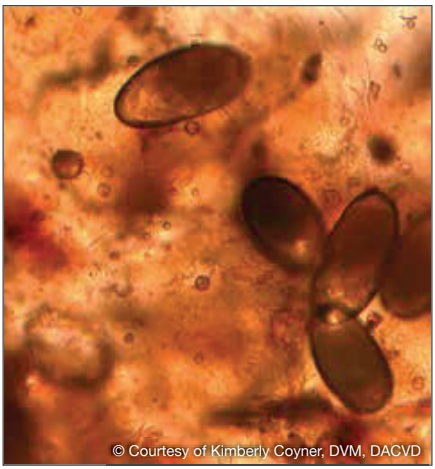
Otic Cytology

5. Scan slide on 100X magnification (10X objective lens) for representative areas. Yeast and bacteria are often found in clumps of keratinocytes.
6. Identify leukocytes, red blood cells, cornified epithelial cells, bacteria and yeast with 40X objective.
7. Further evaluate cells and microorganisms with higher magnification oil immersion lens (100X) to enhance visualization of the morphologic characteristics of bacteria and to identify phagocytosis by neutrophils.
8. Examine 5-10 areas to estimate the numbers of bacteria, yeast and/or leukocytes. Record estimates in medical file at each evaluation to monitor response to therapy at subsequent examinations.

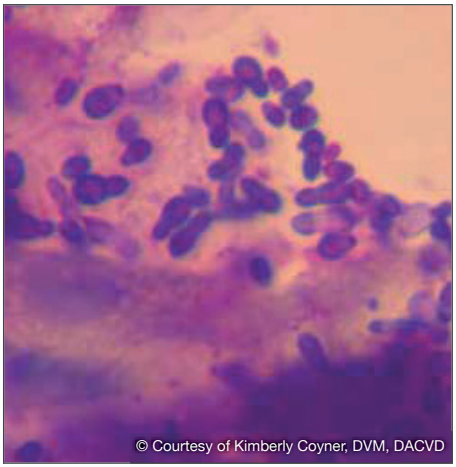
(Otic Cytology continued on next page)

Otic Cytology

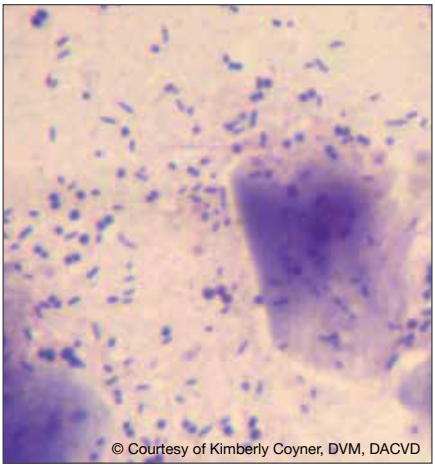
Ear Mites



Ear Mite Eggs



Otic cytology (Diff-Quik stain) showing yeast.



Otic cytology (Diff-Quik stain) showing cocci and rods (mixed) bacterial population.

Using The Microscope - Golden Rules

Steps:

1. Routine microscope cleaning and maintenance is important.
2. Use immersion oil sparingly and ONLY use with the oil immersion objective. If you are unsure which lens this is, look carefully at the lens – on most modern microscopes the oil immersion lens will actually bear the word ‘Oil’ on it. It is usually 100X, but some microscopes may also have a 50X oil immersion objective.
3. Do not leave the oil immersion lens in oil for any longer than necessary. If left in oil overnight, irreparable damage can occur.
4. Do not put the 4X, 10X or 40X objectives into the immersion oil. If this occurs, immediately clean the lens.
5. Clean the lens with proper lens tissue immediately after use.
6. Leave the low power objective in place when finished viewing and lower the stage.
7. If you spill solvents or chemicals, including mineral oil, they should be cleaned away immediately.

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Photos courtesy of Dr. Kimberly Coyner, DVM, DACVD, Dr. Jocelyn Wellington, DVM, DACVD and the University of Illinois.

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