Merck

Cytologic evaluation of exudate or cerumen taken from the horizontal ear canal may provide immediate diagnostic information. The external ear canals of most dogs and cats harbor small numbers of commensal gram-positive cocci. These organisms may become pathogenic if the microenvironment is changed and encourages their overgrowth. Exudate obtained with a cotton-tipped applicator can be rolled onto a glass slide, stained with a 3-step quick stain or modified Wright's stain, and examined under a microscope. (A recent study has shown that heat fixing is not necessary for ear swab cytology.) Smears should be examined microscopically under 4X, 10X, and oil immersion to look for numbers and morphology of keratinocytes, bacteria, yeasts, and WBCs; evidence of phagocytosis of microorganisms; fungal hyphae; and acantholytic or neoplastic cells.

A stained smear can quickly determine whether microbial overgrowth is present. Coccal organisms are usually staphylococci or streptococci. Rod-shaped organisms are usually *Pseudomonas aeruginosa*,*Escherichia coli*, or *Proteus mirabilis*; their appearance in large numbers indicates that a bacterial culture with antibiotic sensitivity should be performed because of their known resistance to many antimicrobial agents. The presence of many neutrophils phagocytizing bacteria confirms the pathogenic nature of the organisms.

The yeast *Malassezia pachydermatis* is found in low numbers in the ear canals of many healthy dogs and cats. Because yeasts colonize the surface of the ear canal, they are most easily found adhered to clumps of exfoliated squamous epithelial cells. *M pachydermatis* is identified readily on microscopic examination and its numbers easily assessed. There is no specific number that indicates yeast overgrowth. The key determining factor is whether the ears are pruritic. In addition, if previous treatment did not include antifungal therapy and if otitis externa is recurrent, antifungal therapy is warranted.

A dark exudate in the canal usually signals the presence of either *Malassezia* spp or a parasite but may also be seen with a bacterial or mixed infection. In addition to stained cytology, otic exudate should be examined for eggs, larvae, or adults of the ear mite *Otodectes cynotis* and for *Demodex* mites in dogs and cats, and *Psoroptes cuniculi* in rabbits and goats. Smears are made by combining cerumen and otic discharge with a small quantity of mineral oil on a glass slide. A coverglass should be used, with the smear examined under low-power magnification. Rarely, refractory ceruminous otitis externa may be associated with localized proliferation of *Demodex* sp in the external ear canals of dogs and cats and may be the only area on the body affected.