

If you have a dog, chances are you've had to deal with an ear infection. The canine ear infection is one of the most common problems veterinarians see. For that reason this month's column will focus on some of the specific problems dogs have with their ears.

If Mother Nature had consulted with a veterinarian before designing the dog ear, a much simpler, less problem-prone model would have been recommended. The basic internal structure and function of the canine ear is similar in many ways to humans. This similarity ends though when we start looking at the external ear canal or tube; that portion of the ear outside of the eardrum. This is where most of the problems with dog ears originate. We call the problems in the ear canal otitis *externa*, in contrast to otitis *media*-those problems developing behind the eardrum or in the middle ear, and otitis *interna* – those problems involving the internal ear structures of balance and nerve connections to the brain.

Dogs have a long, elbow shaped external ear canal that leads from the external ear opening (that hole we can see) to the eardrum. The "skin" that lines this canal is continuous with the skin on the side of the face and head. Just like the surface of the skin, the skin lining the ear canal is inhabited by microorganisms-such as bacteria and fungi (yeast). On the skin surface of the healthy ear canal, these organisms live in very small numbers and cause no problems. They're part of what's called the "normal flora" of the ear canal and represent a balance between microbe growth and natural defenses. This delicate balance is kept in check by the dog's healthy immune system. This "ear canal immunity" is very important because when it fails or in some way becomes compromised the normal flora organisms of the ear canal (remember the sparsely numbered yeast and bacteria) can multiply unchecked. In large numbers these usually harmless microbes can cause problems. Since the resulting ear problem stems from microbes normally found in the ear the term *overgrowth* is sometimes used instead of *infection* when describing this problem.

What are some things or events that can compromise the ear canal's defenses (and ultimately result in a bacterial or yeast overgrowth)? Unfortunately there are many. The two most common culprits are increased moisture in the ear canal and allergy. It's very common for ear problems to develop a few days after a dog has had a bath or gone swimming. I usually encourage owners to put a cotton ball in their dog's ears before any baths. This will help keep some of the water from getting into the ear canal. If your dog swims often you might consider talking to your veterinarian about a preventative program to head off a problem before it starts. Interestingly, not all dogs that swim will develop ear problems, so check with your veterinarian before putting anything into your dog's ears.

While getting water in the ear canal is a common cause of otitis, the most common predisposing factor for ear problems in dogs is underlying allergy. Allergy can cause a whole host of skin problems in the dog. If we recall that the ear canal is basically an extension of the skin, it's easy to understand why so many dogs with allergies have so many ear problems.

There is little debate that the most common infection/overgrowth seen in the canine ear canal is from a type of yeast. For those of you who just have to know, its name is *Malassezia pachydermatitis*. No, this is not the same yeast that commonly infects people, nor is it the yeast that makes bread rise. "Yeast" just refers to a certain life stage of many types of fungi. A dog with a yeast overgrowth in his ear will usually develop ear pain that will cause him to shake his head, paw at his ear, hold the ear down, and sometimes cry out if you touch the ear. On the other hand, occasional stoic dogs won't show you any sign of discomfort. Owners often report a dark yellow to brown, waxy discharge from the ear. Often there will be a bad smell as well. Some have described this smell as a "sweet" or "rancid fat" like odor.

An accurate diagnosis can only be made by close evaluation of the ear canal. A microscopic evaluation of some of the debris from the sore ear can help differentiate yeast overgrowth from other kinds of problems-like bacterial overgrowths or ear mite infections. Foxtails or rarely tumors can also cause a sore ear.

Whatever the underlying cause, the initial treatment usually involves a gentle flushing of the ear canal to breakdown and remove the waxy debris. Very often I'm asked "why don't we just treat the ear infection with some antibiotic pills like the pediatrician does for my kids?" Indeed we do treat some ear

problems with oral antibiotics, but most times the pediatrician is treating kids with otitis *media*, (a bacterial infection *behind* the eardrum). This condition is quite different from a dog's otitis *externa* that is an infection or microbial overgrowth in the skin of the ear canal. Once the ear canal has been carefully flushed, otitis *externa* in dogs is best treated with topical medicine put directly into the ear canal for several days.

It is vitally important to follow the doctor's instructions for treating the ears once you get home. I frequently see ear problems that at first appear to be resistant to treatment, only later to find that we just need to review with the owner how to properly medicate the ears. Also very important are follow up visits that allow your veterinarian to check your dog's progress and possibly make some changes in therapy to optimize the treatment.

While ear problems will always be a challenging problem for many dogs, dog owners, and veterinarians alike, it's encouraging to know that with an accurate diagnosis and appropriate treatment most problems involving the canine ear can be effectively controlled.

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