

## Allergic Skin Disease in Pets: Ear infections

In my last article, we discussed airborne allergies and the skin problems they cause. Today, we will be focusing on the ears.

The first hurdle to understanding ear infections is our tendency to relate them to people's ear infections. In our case, especially little kids, the infection is inside of the ear drum in the middle or inner chambers of the ear (basically in the skull). The infections got there from liquids seeping through a tear in the ear drum (advanced swimmer's ear) or via the blood stream. We call these otitis media or otitis interna. While we do see these infections in pets, it is FAR more common to see otitis externa: a skin infection of the ear canal. In humans, the ear canal is very short. You can easily touch your eardrum by inserting just the tip of your finger. In dogs, the canal can be 6-10 times the length of a human's. Plus, the canal undergoes an almost 90 degree turn as it approaches its opening. This long tube of skin will react to allergens the same way the rest of the skin does: it will become inflamed, itchy, and hot.

When certain pollens, molds, or other organic particles increase in the pet's environment, they will interact with the skin of the ear canal, allergic pets will respond by scratching at the ears, rubbing their heads on the floors/furniture, and shaking, sometimes violently. All of this trauma will cause micro-tears in the skin barrier of the ear canal. Like the skin, there is always a layer of bacteria and yeast inside the canal that is kept in check by the healthy skin. Once these tears occur and the inflammation becomes worse, these pathogens can migrate into the deeper skin of the ear canal and become an established infection. Because of the size and location of the ear canal, dogs can then start scratching or rubbing their cheek areas very hard against the floors to get at the irritation. This leads to deep skin infections (hot spots) of those areas.

As with skin infections, the first step is to address the underlying allergy. The new oral medication and long-acting monoclonal antibody injection are both viable and highly effective options. The next is to determine the pathogens causing the infection. We will take swabs from the ear canal and examine them under the microscope. This allows us to determine the types of bacteria and yeast growing in the tissue, as well as the ratios of these pathogens to each other. The reasons this is important are twofold: 1) It allows us to pick the appropriate treatment plan and, 2) We are now living in the age of antibiotic-resistant super bugs. If a pet fails to respond to the treatment, recheck of the samples will tell us if we may be dealing with a super bug and direct us to perform a culture.

Like skin infections, treatment of ear infections has also come a long way. In the recent past, we were stuck sending home ear flushes and ointments, along with instructions for owners to wrestle their pet like an episode of the Crocodile Hunter trying to clean daily debris buildup and apply medication. For the last 5 years, we have had long-acting treatments available. These allow us to do a thorough cleaning at the office and apply special gels that will treat the allergic reactions AND infection for 14-30 days, all while the owners do nothing at all at home. While some cases may still require at-home cleaning and treatment, those cases have become very rare.

We will typically recheck the ears 1-2 weeks after treatment to ensure there are no resistant bacteria present and assess healing. Without this recheck, one of these superbugs could take

over the ear canal and migrate into the inner chambers. This could be a disaster, sometimes necessitating surgical removal of the ear canal and drilling into the skull.

As with skin infections, allergy prevention is key. If your dog is treated early or consistently for its underlying allergies before the ear shaking and scratching occurs, the chance of developing an ear infection drops dramatically. Be sure to talk to your veterinarian about these new, safe options.

Watch out for Part three of this series where I will talk about Food Allergies.