

I Ear Your Messages...A Review of Ear Disease as it Pertains to the Anatolian Shepherd Dog



A few months ago I received an email asking me to address the increasing prevalence of ear infections in the Anatolian Shepherd Dog. This is a difficult subject for me to address because a dog with frequent ear infections is a dog that will have difficulty in the field. Although a deaf dog can be quite effective in the field, a distracted dog is not an effective guardian. This issue becomes even more difficult to address as there are opposing opinions within the breed club regarding the proper ear length and ear set. In an effort to avoid the controversy and to address the issue at hand I wrote a lengthy article discussing the ear anatomy and the various diseases, never addressing how this issue applies to our breed. So I went to insert on last picture into my article, I realized that I needed to address the age old argument: form follows function.

The Anatolian Shepherd Dog was bred to be a hearty livestock guardian in the fields of Turkey. To be successful, the flock guardian must be able to concentrate on the task at hand. Therefore, distractions must be kept to a minimum. Most of the working dogs in Turkey, not only wear the iron collars, but have had their ears cropped to aid them in completing their jobs. We have all heard the story that this is done after the animal has made its first kill, but realistically this is done to prevent injury, not reward it.



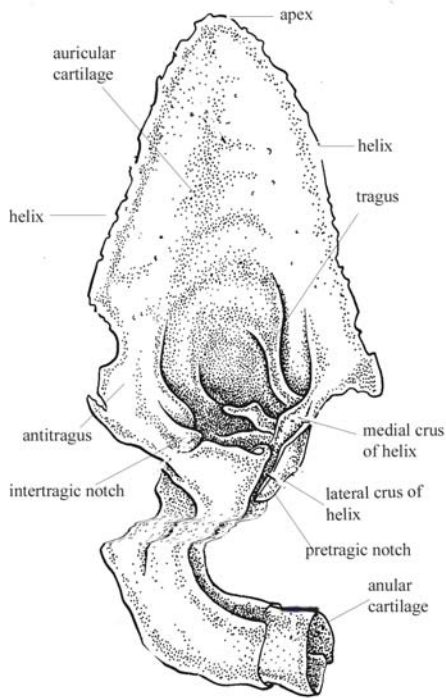
^bA bite to the ear can be very distracting, causing the dog to shake its head and possibly lose focus of the task at hand, protecting its flock from a fierce predator. Ear injuries are painful and often difficult to heal because of continued

irritation to the injury site. It is this same set of issues that makes ear disease problematic in the working dog. Instead of a scab that keeps getting scratched off, an inner ear infection can cause a dog to scratch and shake to the point of distraction and even worse self inflicted injury. Additionally, ear disease can lead to a loss of equilibrium or a decrease in hearing.

Ear diseases are among the most common reasons for a trip to the groomer and the veterinarian. They occur in all breeds and ages of pets. Some types of ear diseases are seen mostly in younger pets while others are more frequent as pets get older. Regardless of the cause they are painful and if untreated can cause serious complications. Ear size, thickness, and ear set are all contributing factors to ear disease, along with diet.

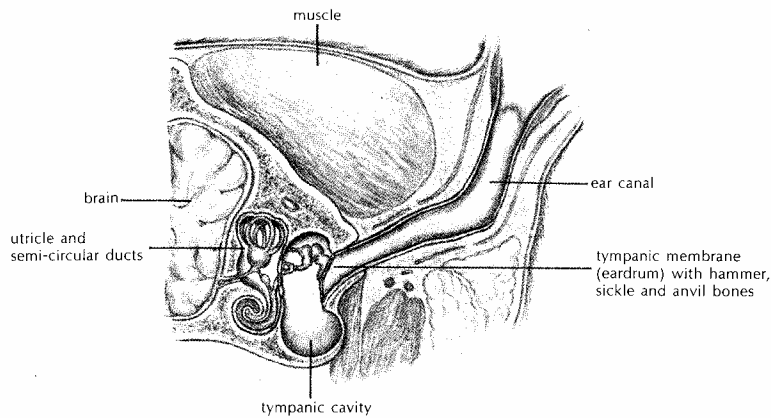
In this article I briefly discuss some of the most common ear diseases. However, first a review of ear anatomy and terminology is key to understanding the possible effects of each of the diseases discussed herein. In order to comprehend why your dog may be prone to yeast infections in the ear it is critical to understand what causes a yeast infection.

Figure 1. The Canine Outer Ear^c



When describing the ear, it is broken down into three sections; the outer ear, the middle ear and the inner ear. The auricle, which is also called the pinna. It is attached to the skull by muscles and ligaments; therefore, it is very flexible and mobile. The passageway from the pinna to the ear drum is called the external auditory meatus. Earwax is secreted from the glands in the external auditory meatus. This leads to the middle ear or tympanic cavity, which contains the opening to the auditory tube (Eustachian tube). The tympanic membrane, more commonly referred to as the eardrum, is a semi transparent partition between the external auditory meatus and the middle ear.

Figure 2. The Middle Ear^d



The auditory (eustachian tube) is a potential path for the spread of infection from the nasopharynx to the middle ear. The inner ear consists the colchlea, colchlear duct, round window, oval window, vestibule, semicircular ducts and canals. So now that we have reviewed ear anatomy, how does all of this work?

Sound waves reaching the ear are directed by the pinna to the external auditory meatus and down to the tympanic membrane. The tympanic membrane is vibrated and vibrations are gradually passed to the oval window through the malleus, incus and stapes. These vibrations initiate a wave-like motion in the perilymph through the the scal vestibule and scala tympani. The round window enlarges, filling in the middle ear and then back into the scala tympani. These wave-like motions displace hair cells in the spiral organ which in turn develops a nerve pulse. It is this nerve pulse that goes to the hearing centers in the brain.

The direction of sound waves into the ear by the pinna is directly impacted by the shape and thickness of the ear, as well as the ear set. Hounds use smell as their primary sense; therefore, the shape of the ear does not lend it self to sound hearing. Hound ears are primarily dropped and pendulous, extending well beyond the inner corner of the eye. The ear of the Anatolian Shepherd Dog is primarily dropped; however, the length is significantly less than that of the hound (extending to the outer corner of the eye)^e.



This changes the weight, temperature, and thickness of the ear canal. When discussing disease it is critical that we remember the environment that ear bugs thrive. Yeast likes warm, dark moist areas; bacteria likes warm, dark and often moist environments; while, mites love the protection of the nooks and crannies. Knowing the anatomy of our animal's ears helps us to understand why one dog may be more prone to disease over another.

The diseases that impact the various parts of the ear are just as varied as their causes. However, the treatment of each of the diseases is dictated by the route cause.

One type of ear disease which is found most often in young pets is caused by the ear mite *Otodectes cyanotes*. This bug is passed from an infected mother to nursing newborns when their ears open at about ten days of age. The disease can also be passed from one adult animal to another. Inside an infected ear thousands of mites are found crawling over a black crumbly mass of mites, mite eggs, dead mites, ear wax, dried blood and other debris. Ear mites itch! Dogs and cats often go into a frenzy of scratching which causes even more damage. Intense scratching pulls the hair off the ear flap, gouges the skin around the ear, and can even cause bleeding in and around the ear. Parasitic ear disease is often followed by bacterial infections. Your veterinarian should be able to diagnose ear mites with ease and provide you with an otic flush to kill the mites.

The other major type of ear diseases are ear infections. Infections may be caused by a number of different types of yeast and bacteria. Ear infections occur when bacteria and yeast on the skin work their way into a weakened ear canal. The canal may have become weakened and lose some of its ability to fight infection because of wetness (from bathing, or from a swim), allergies, skin disease, or because the ear canal has become injured from a scratch, insect bite or from various other causes. Any of these factors will weaken the ear's normally strong defense mechanisms and allow an infection get started.

The symptoms that are noticed with these types of infections vary considerably. A mild ear infection might be implied by an ear that constantly fills with wax, no matter how often you clean it. As the disease progresses from mild, to moderate, to severe, pain

begins and gradually gets more intense. Your pet may shake his head frequently, stand with his head at a tilted angle, or cry when he scratches his ear. In some cases blood and pus may be shaken out of the ear or a disagreeable odor might be noticed.

The first and most important step in treating an ear infection is to determine its cause. Ear mites can often be seen directly through the otoscope. The cause of other types of infections are determined by examining a stained ear discharge under the microscope. Once the cause is determined treatment can be determined.

Begin with a thorough ear cleaning which allows the medications to reach the bottom of the ear canal where the mites live. Since ear mite eggs are also found in between your pet's toes (they get there when he scratches) you should remember to treat these areas, as well.

As with an ear mite infection, it is of paramount importance that the medications be able to reach the "bug" that is causing the infection. If the ear canal is full of debris, this may be impossible without a thorough cleansing of the ear. The ear canal should be thoroughly cleaned until there are no discharges left to prevent the medications from reaching the infected lining of the canal. Bacterial infections are also treated with oral antibiotics and occasionally other oral medications. Very few ear infections get better without medical assistance. Left untreated the infection might cause the eardrum to rupture causing a middle ear infection and loss of your pet's balance. This condition is very hard to cure and will probably result in loss of hearing. Continual shaking of the head may cause a blood blister to develop in the ear flap which will need to be surgically corrected. Rarely the infection might travel up the acoustic nerve and cause a fatal brain infection.

Vestibular disease can be crippling to an Anatolian Shepherd Dog. Due to the size of the breed, mobility problems are very difficult to manage. An infection of the inner ear can cause you dog to become ataxic and even worse, immobile. This require immediate veterinary treatment to get the infection under control. The immobility caused by vestibular disease can lead to muscle atrophy and mores serious complications.

Some dogs do seem to be prone to infections, though. These dogs could helped by using a preventative solution a few times a week. A very important preventative procedure is to make sure the ear canals are dried thoroughly with a drying solution after you bathe your pet or after your pet swims. A pet with allergies (one of the prime causes of ear infections) should be treated for allergy as soon as he starts itching. If your dog is prone to infections, you should have a mild otic cleaner on hand. This can be obtained from your veterinarian.

^a African elephant. Mammal with the largest outer ear on earth.

^b Brindle Anatolian Shepherd Dog with cropped ears working the fields in Turkey (somewhere between Antalya and Ankara).

^c Pasquini , C. and Spurgeon, T. (1992) Anatomy of Domestic Animals. Systemic and regional approach. Pilot Point, Texas: SUDZ Publishing. 5th Edition. Page 551.

^d Spira, H. (1982) Canine Terminology. New York: Howell Book House. Page 44.

^e AKC/ASDCA approved breed standard.

^f Common ASD ear set.