

Ask The Vet Summer 2007 – Foxtails

At the parent club meeting this past May, several club members brought forth concern over infections spread by plant awns. Although any dog can be affected by this syndrome, the springer spaniels used in hunting competitions are at an increased risk by virtue of working out in fields that contain high numbers of the problematic grass awns.

“Wild barley” is scientifically known as *Hordeum murinum* but is most commonly called a “foxtail” because of the unique shape of the seed cluster. It can also be called Downey Brome grass, cheatgrass or speargrass. When the grass awns are green, they pose little threat, but as they dry out (usually around May or later) the seeds fall off the plant as animals brush past them. The seeds are “V” shaped and have a sharp point at the tip, with microscopic barbs along the “V”. These barbs allow only forward movement of the awn as it pierces some part of the dog’s anatomy- it can’t easily be moved backwards, and very efficiently moves forward. Unfortunately, the plant awns are covered with several bacteria that can cause infection anywhere they can gain access to. The most common bacteria carried by foxtails are [Actinomyces](#) and [Nocardia](#). Occasionally, foxtails may also spread fungal organisms.

[Foxtails](#) are found very commonly in some parts of the country, such as Southern California. It is an everyday occurrence to see a dog with a foxtail at most veterinary clinics in that part of the country. Elsewhere they are less common, but based on the discussion at the parent club meeting, many locations that are used for hunting purposes are being seeded intentionally with plant material to provide good cover for the birds. The mixture of plant seeds used to provide good ground cover has unfortunately been found to contain foxtail seeds as well, so now *Hordeum murinum* is being found more and more commonly in the Midwest and other areas that commonly hold field trials or hunt tests.

So what do grass awns do? A better question is what *don’t* they do? Depending on what part of the dog they gain access to, they can cause all sorts of problems- some obvious, some extremely hard to diagnose.

Commonly, the grass awn will catch on hair around the dog’s ears and end up in the ear canal. Usually, the owner would notice a very sudden onset of painful ears- shaking the head, pawing at the ear, whining. Examination by a veterinarian including being able to see well into the ear canal will identify the foxtail and it can be removed with forceps. An unidentified foxtail in an ear can lead to infection and/or a ruptured ear drum.

The eyes are another place foxtails commonly end up. As a dog moves through brush, the eyes are at a perfect level to come in contact with the foxtails. Usually a foxtail in the eye will end up underneath the eyelids or the third eyelid, where they cause severe pain, a scratched or ulcerated cornea and infection. Sudden onset of squinting, pawing at the eye, redness, discharge and pain are good clues that a foxtail may be in the eye. A veterinarian can remove the foxtail with the aid of topical eye anesthesia. Failure to identify and remove the foxtail could potentially lead to rupture of the eye.

One very obvious location for a foxtail is the nasal cavity. This will cause immediate and unrelenting sneezing which will become bloody very quickly. If the foxtail is not removed quickly, it can get sucked into the lungs where it can cause even more problems. Any dog suspected of having inhaled a foxtail into its nose needs emergency veterinary care immediately.

One of the more difficult places to identify and repair damage from foxtails is the skin. Very commonly, foxtails will lodge between the toes and work their way up the leg. They can also burrow into skin anywhere on the body. If caught quickly, a small wound is noted, and probing with forceps will retrieve the foxtail. However, often times the wound is not noted until the grass awn is a considerable distance up the leg. It can be nearly impossible to find a foxtail that has made it a significant distance from its entrance wound. In some cases extensive exploratory surgery is needed to remove infected tissue and to look for the grass awn. Sometimes, antibiotics are prescribed to control most of the infection, and the actual location of the plant awn can be narrowed down by locating where swelling persists after the antibiotics have had a chance to work (basically, antibiotics won't be able to eradicate infection at the level of the foxtail if it is still inside the dog). Prevention is the best cure for foxtails in the skin- check your dog's feet and coat frequently and remove all plant material before it gets a chance to migrate into the skin. Seek medical help quickly if you notice any break in the skin, especially if any drainage is present.

The throat can be affected if the dog chews on grass that contains foxtail awns, or if the dog grooms himself to remove foxtails from his coat (another good reason to groom the dog immediately after he has been exposed to a location known to contain foxtails). If a grass awn lodges in the throat or the esophagus, you might notice gagging, choking, coughing, extension of the head and neck, reverse sneezing, and possibly vomiting or dry heaving. The risk of inhaling the foxtail into the lungs exists, and also the risk of serious infection at the site of the foxtail is very real. A foxtail lodged in the throat needs to be removed immediately. Part of your grooming routine should be to look in the dog's mouth, especially way back in the corners and remove any foxtails noted.

One of the most classic and difficult to deal with infections caused by foxtails is called a [Pyothorax](#). This occurs when the foxtail penetrates the chest cavity, either through the skin or by migrating through the lungs if inhaled or the esophagus if swallowed. No symptoms would be noted at first, but as time goes by, the foreign material containing bacteria festers and produces a tomato soup like fluid that surrounds the lungs making it hard to breath. Early signs could include a mild cough that might be overlooked or diagnosed as "kennel cough". The dog might become easily fatigued, and then grow lethargic, and might run a fever. **The symptoms can be very vague until the disease gets well established.** A chest radiograph is imperative and will show fluid in the chest cavity surrounding the lungs, and might show consolidation of a lung lobe or an area of abscess formation. Treatment of pyothorax is a huge undertaking, involving surgical placement of drainage tubes to allow removal of the tomato soup like pus (which usually contains granules of bacteria that resemble minced garlic, which are known as sulphur

granules). Besides draining the pus, usually procedures are done at least daily to lavage in sterile fluid to “wash” the chest cavity, and then this fluid is drained as well. Often the chest has to be opened up to allow removal of damaged lung and to remove as much infection as possible. The dog is on antibiotics for months or longer. One “tongue in cheek” reference noted that antibiotics should be continued for “eons”. Antibiotics should be based on culture and sensitivity results, but in general, penicillin type drugs and Clindamycin are a good place to start.

Other infections that can be caused by foxtails include pneumonia, diskospondylitis (infection of the bone of the spine), peritonitis (very similar to pyothorax, except the infection is in the abdomen), urinary or genital tract foreign bodies or infection, and pericardial infection (infection of the sac that surrounds the heart). Really, any part of the body that a foxtail can migrate to can be infected by the bacteria they carry.

So what can you do to cut down on the chance of having to deal with foxtail related infections? Be vigilant- obviously if the dog is out hunting, you would check frequently for plant material on the coat, in the eyes and ears and in the mouth. Be aware of where the dog goes and if there is any chance that foxtail type grasses might be present. Be aware of your dog’s behavior and attitude. If the dog has been anywhere that a foxtail could have been picked up, and you note that he seems a bit quiet, or is off his food a little, or has a slight cough, etc., seek medical help! Voice your concerns to your veterinarian that the dog could have been exposed to a foxtail. Request radiographs and blood work even if the vet thinks they are not necessary. Avoid the easy syndrome of “let’s try some antibiotics and see how he does”. All that will do is give the foxtail more time to migrate deeper into the dog. Be prepared that you might have to spend a significant amount of money and accept referral to a specialist if your vet determines that your dog has a serious infection from a foxtail. Don’t try to cut corners on treatment. Successful outcome is dependent on aggressiveness of therapy.

With aggressive care, and early detection, full recovery from foxtail induced disease, even full blown pyothorax, is possible. I speak from the experience of having my own springer “Gunther” (who had none of the risk factors for exposure to foxtails) suffer from pyothorax when he was 10 years old. He recovered fully after aggressive therapy with multiple surgeries including having a lung lobe removed.