

Finding Trouble on the North Dakota Prairies

Last August Allen and I took the dogs out in North Dakota to train on the Prairies. In spite of the fact that North Dakota was in the midst of a miserable



Ruby at 5 months

drought, the birds were still plentiful and the training good. We worked our older string of dogs—and we also included Ruby, a five month old pup. She ran with the derby dogs. Although we generally wouldn't run young pups that way, we made an exception for Ruby. She easily held her own and kept pace with the pack. For a young pup she had an incredible stamina and ran with impressive style. She couldn't seem to get enough of it.

We returned to Ohio in late August and Al continued to train the dogs. But once she returned home, Ruby didn't really stretch out the way she had in North Dakota. Although she fought to hold the front position while out west, she seemed to lack that kind of enthusiasm and drive here at home. It was a subtle change; one we chalked up to Ohio turf. After all, we just don't have the kind of wide open spaces that North Dakota boasts.

As the weeks passed Ruby just didn't seem herself. We couldn't put our finger on something specific to tell the vet— she just seemed punk. Al wanted to give her a bigger place to run so he took her to Mingo Junction the week-end of September 16th. The grounds at Mingo are exceptional and he thought Ruby would appreciate the change to really break loose again.

But before he even got the dogs on the ground, things began to seriously fall apart. He called me to

say that Ruby had developed a harsh cough and seemed to have difficulty breathing. By the time I joined them, she was in such distress that she had to stand in order to breathe. Her lips and gums were cyanotic and we watched in horror as she deteriorated rapidly. We packed up and returned home to get her to a vet as quickly as possible.

Her white blood count was three times normal and the differential showed a marked infection. The chest film demonstrated pneumonia which was no surprise. We could hear her every breath as she gasped to stay alive.

Both of our vets are hunters who enjoy field trials. When we told them how well she had done in North Dakota, they immediately considered that a speargrass (or other inhalant) was causing the infection. Prognosis: *GRAVE!*

We needed answers fast! Drs. Pat McInteer and James W Mills had written a two section article about this complex set of diseases. Roger Boser rushed a copy of it to us and we took it to the veterinarian. That article and their protocol for rapid response and treatment literally saved Ruby's life. It occurred to me that every reader of *The Flushing Whip* should have a copy of it; you never know when you may need it in an emergency.

The first section (by Dr. McInteer) is written in simplified terms to help dog owners and handlers recognize the subtle early symptoms of the illness. Dr. Mills wrote the second portion— it is much more technical and geared for your veterinarian. This valuable information not only explains the most efficacious treatment of the disease, it outlines a preventive program to protect your dog. This is my gift to each of you— put it aside for safekeeping. Someday, it might even save your pup! Remember, a prompt diagnosis can indeed saves lives!

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Nocardia Infections in Dogs

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Nocardia, Actinomyces and speargrass infections are a complex set of diseases in sporting dogs that present varied and confusing symptoms. This article is designed to bring better understanding of this disease complex to dog owners so that they might understand and recognize it at an earlier stage. Also it is hoped that veterinarians unfamiliar with this condition might develop an understanding that will enable them to recognize and treat it successfully. The authors wish to emphasize that in this article, the complex disease syndrome has been somewhat simplified and categorized for the sake of clarity and that actual cases may be more complicated than the examples presented.

Nocardia

The year old setter spent the summer in training on the prairies of North Dakota. During the fall this promising pup ate well and seemed to feel well but his performance and stamina were not up to his usual standards. A routine check up at the vet's office revealed no recognizable causes. Two months showed no improvement. Suddenly he stopped eating, became severely depressed and died within two days. A severe chest infection with fluid in the chest cavity was found on necropsy.

The pointer derby placed in the quail futurity in November after training on the prairies of Oklahoma. In early spring, he lost some zip and three weeks later became very painful in the lower back region. He developed a large lump on his side in the front of the hip and behind the ribs. This abscess ruptured and drained, then healed and the process was repeated.

A two and a half year old foxhound developed a lump on his side beneath the skin. Over the next

month this swelling spread, ruptured and drained in several places.

These three cases represent three forms of a disease complex commonly referred to as Nocardia infections. "Nocardia," a term that brings dread to dog owners and handlers, is actually caused by two related bacteria: Actinomyces species and Nocardia species. Nocardia is commonly found in soil and may enter the dogs system through inhalation or ingestion but often enters through an injury site. Actinomyces commonly resides in the oral cavity of animals and requires an injury or foreign body to produce disease. These foreign bodies carry the bacteria which are found in the mouth into the body of the host. Foreign bodies definitely play a role in the development of the disease including dust, pollen, plant particles and seeds. Most notable among these foreign bodies are grass awns which migrate through the body ; some examples would be speargrass (needle grass), foxtail, and cheat grass. When these migrating grass awns are involved, the disease is usually more complicated because the seed migration carries the infection from the mouth to various locations in the body. Lesions are similar in both infections and dogs show abscesses, draining tracts, granulomas with fibrosis and respiratory involvement.

Presentation

There are three common forms or locations that the disease presents

- The subcutaneous form (under the skin) occurs most commonly on the dogs side. These subcutaneous Nocardia infections yield the best treatment results and least death loss because this form is easily diagnosed and does not affect critical organs. Because death from this form only occurs

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when the infection is advanced to a very late stage, treatment is usually successful. This is because the dog's vital organs systems are not affected thus allowing time for treatment results to occur. The subcutaneous form usually results from the entry of bacterial through a cut or foreign body wound. A mass or lump subsequently develops which then migrates in fistulous tracts in several directions. Drainage may occur from several sites, heal and then develop again. Surgery and or medication have been used to treat these lesions with success. Advanced cases may require months of therapy to completely resolve but the prognosis is usually good.

- The abdominal form of the disease results in a sore tender abdomen and back. Extreme and intense pain often occurs. This results from a deep abscess located high on the dog's side behind the ribcage and ahead of the hipbone. This abscess will eventually break open and drain, then seal over and the process will repeat again. This syndrome is usually caused by a migrating foreign body which resides below the spinal column under the lumbar vertebra in the abdominal cavity. These foreign bodies (usually migrating grass awns) probably are swallowed and penetrate the intestinal wall and carry the bacteria to establish in this location. Because these infections tend to develop a tract and drain to the outside of the body and not affect the organ systems, the prognosis is fairly good. Flushing the draining tract and long term medication have yielded excellent results for the authors.

The thoracic form of the disease is more difficult to diagnose and treat. This form carries a high death rate unless detected early; early detection is often difficult because the early symptoms are vague and not severe. The most common early

symptom of this form of "Nocardia" is poor performance and stamina below what is the usual for the canine athlete for an extended period over weeks or months.

To best understand how the authors believe this disease develops, dog owners should look at the back of the dog's throat when the dog has been hunting in late summer or early fall. This is best done with the dog facing you and the sun over your back before the dog drinks. The panting dog will readily open his mouth for a quick examination of the throat. What you will observe is a throat coated with dust, pollen and plant material. Behind this is the opening to the windpipe which goes directly to the lungs. This will be wide open as the panting hot dog breathes heavily. It will be obvious that some of the dust, pollen and plant material quite likely entered this opening thus gaining access to the lower respiratory tract. Every dog is exposed to this. For most dogs, the natural protective mechanisms of the respiratory tract bring these minute particles back to the throat in a mucous coating where the mucous is then either gagged out or swallowed (to be passed harmless through the bowels). Other particles may be lodged in the lower lungs where they are walled off and consumed by the body's protective system. Larger particles may also be walled off and surrounded by scar tissue to remain in the lung tissue. Bacterial and fungi are consumed by the body defenses.

In cases where disease develops pneumonia may develop acutely from the infusion of particles in the lung or these particles may be walled off but NOT destroyed by the body. In this case the bacteria (Nocardia or Actinomyces) develops into a small pocket of infection. The bacterial will spread

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creating an area of lung infection. Because this infection is isolated to the lungs, symptoms of systemic disease will not immediately present themselves. At this stage, the dog's temperature, white blood count, attitude and appetite will all be normal. Only his stamina and performance will decline. This is the point in the disease that diagnosis will be difficult. If the veterinarian is not familiar with strong canine athletes and this disease complex, he may dismiss the subtle symptoms exhibited in the clinic. The dog will be bright, alert, try to breed the poodle in the waiting room and pee on every chair. One look and the practitioner will assume that the owner is mistaken about a problem with the dog. A physical exam may only reveal a mild bronchial harshness in the lungs. Lab work may be normal or near normal because the infection is still isolated in the lungs and has not yet become systemic. Chest radiographs will only show some bronchial congestion with perhaps a few small spots in the lung tissue.

It is at this point that the authors would suspect an early *Nocardia* infection based on the history of poor performance—training in the late summer and early fall, vague symptoms seen on exam and radiographs and lack of other causes. (Obviously there are other clinical causes of poor performance.) At this point the diagnosis is impossible to confirm. However, if the veterinarian's suspicion is correct, aggressive therapy will save much more disease and heartache and likely save the dog's life. If the diagnosis is wrong, only the owner's wallet will be affected unless some other ailment was missed.

If undetected, this early stage (which may show up several months after exposure) will slowly progress. Eventually the lung lesions will spread and when a small abscess bursts on the surface of the

lung, the infection spreads into the thoracic cavity. At this stage, the disease becomes systemic and the infection progresses rapidly. Thick tomato juice like fluid will fill the thoracic cavity. This will put pressure on the lungs and the dog will become extremely ill. Breathing will be very labored and the dog will become weak. This severe worsening of symptoms can occur in a very short period (1-5 days). At this point, draining of the fluid in the chest cavity becomes an immediate necessity. It is during this stage of the disease that the death loss is high. This final stage of the disease may develop as long as three to six months after the initial exposure.

Historically, treatment of "*Nocardia*" infections has included radical surgery. But recently, Dr. Jim Mills developed long term massive antibiotic therapy that has proven successful in many cases (See below). Using his regimen and refining it, the authors have had improved success with both early and final stage cases while utilizing limited or no surgery at all. Draining chests filled with fluid has remained an absolute necessity in severe cases. Based on cases of the subcutaneous form where treatment progress can readily be seen and palpated, the authors determined that two or three month's therapy was an absolute minimum. At times, treatment schedules of four to six months may be required.

The authors are currently using Clindamycin in massive doses along with Trimethaprin Sulfa in normal doses. Follow up chest radiographs and blood work monitoring are essential to good results. This is a complex disease and diagnosis and treatment should not be attempted by dog owners without a thorough radiographic exam, work up and laboratory

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blood work by veterinarians.

These infections have often been associated with training on the prairies from Canada to Texas. Other regions have also produced problems. Interestingly, the majority of cases have occurred in young dogs one to three years of age. Occasionally dogs past this age group are affected but the fact that older dogs seem more resistant to the infection raises the possibility of an effective vaccination development.

For many years trainers referred to the effects of breaking dogs causing a reduction in range and independence during the first year of adult competition. Could this actually have been related to a low grade lung infection that was eventually conquered by the body's defense mechanisms? A radiologist at Kansas University Vet School related that almost all adult hunting dogs in the Midwest have rather extensive scarring in their lungs and bronchiole systems. This is no doubt caused by inhalation of material while hunting. It's something to always bear in mind in considering your bird dog's health. (End)

That's the disease— now how do you treat it? Dr. James Mills knows exactly what works and why. The following section contains vital information on life saving treatment of dogs with Actinomycosis/Nocardiosis infections. It is written by Dr. James W. Mills D.V.M. Dr. Mills became interested in this complex when he lost two prized dogs to this complex disease. He developed this particular protocol and has used it successfully for more than sixteen years.

Note Well! This portion was written strictly for veterinarians. Dog owners who suspect that their pup may have an Actinomycosis/Nocardiosis infections should seek professional medical care immediately. Do not attempt to treat the dog on

your own. These medications ALWAYS need strict professional supervision. Since, very few veterinarians specialize in sporting dog medicine, this complex infectious process may not be the first thing that comes to their minds. But time is precious when dealing with Actinomycosis/Nocardiosis infections. Copy this article today and give it to your veterinarian. It may someday save your dog's life!

Actinomycosis/Nocardiosis

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Actinomycosis is an infectious disease caused by a gram-positive, branching, pleomorphic, rod shaped bacteria of the genus *Actinomyces*. *Actinomyces* are normal inhabitants of the oral cavity. Actinomycosis is rarely found as a single bacterial agent in a lesion. It is thought to occur as an opportunistic infection in synergism with other organisms.

Nocardiosis is a soil saprophyte that enters the body through contamination of wounds or by the respiratory inhalation. Although Nocardiosis is seen occasionally as an infection in dogs, most infections in this complex are caused by *Actinomyces* species.

In diagnosis, the two organisms, Nocardiosis and *Actinomyces* cannot be distinguished cytologically. Culturing is diagnostic; use an aerobic culture on Sabouraud's medium for Nocardiosis and an anaerobic culture for the Actinomycosis. Symptoms are dependent on the location of lesions and were discussed (above) by Dr. Pat McInteer.

Treatment of Subcutaneous form:

Drain the abscess and place a drain tube. Flush with Betadine. Iodine will follow all the tracts and help eliminate the infection. Remove the drain tube after one week.

The drugs of choice are Clindamycin and

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Trimethaprim Sulfa. The Trimethaprim Sulfa should be given at the normal dose for seven days. Clindamycin is given at 20 mgm per pound for two weeks and then 10 mgm per pound for one month or until the lesion can no longer be palpated.

Treatment of the Abdominal Form

The drug dosage is the same as mentioned above; The Trimethaprim Sulfa should be given at the normal dose for two weeks and Clindamycin (20 mgm per pound) for two weeks and then 10 mgm per pound for two months. The extended period is very important. The dog may appear normal but if treatment is discontinued at this time, the symptoms almost certainly will reappear.

The abdominal form historically has a sublumbar abscess with some osteomyelitis of the lumbar vertebrae. For this reason the long term therapy is very important.

Treatment of the Thoracic Form

This form is extremely life threatening. Early and aggressive treatment is very important. For this reason, the author believes that "at risk" dogs should be started on this treatment until the Actinomycosis/Nocardiosis can be ruled out.

In cases of severe respiratory distress, the chest must be drained. Placement of a chest tube is not required. It is only necessary to drain as needed.

Again, the medication is Trimethaprim Sulfa at the normal dose for two weeks and Clindamycin (20 mgm per pound) for two weeks and then 10 mgm per pound for one month. If any lesions are present after radiographing the chest, continue Clindamycin at 10 mgm per pound for two more weeks. At the end of this treatment, repeat the radiograph, and if lesions are still present, treat another two weeks at 10 mgm per pound. When the radiographs are finally clear of lesions, treat one more week at 10 mgm per pound.

After dealing with this debilitating and life

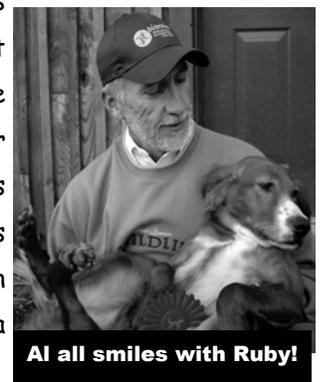
threatening disease, a search was instigated for a method of prevention. The method used here is intuitive, and not scientific, based only on the experience of the author in treating a kennel of high risk field trial dogs that train in the Pan Handle of Texas every summer.

Preventative Care

For Prevention, an average Bird Dog (40-50 pounds) is given 1050 mgm daily of Clindamycin at the end of every month of training for five days. This procedure is repeated at the end of every month of training in high risk areas; i.e. Texas, Western Oklahoma, Northern Prairies and Canada. The medication should be continued at the end of the month for two months after the dogs are no longer in the high risk areas. This preventive medication procedure has been used now for over sixteen years and has dramatically cut the incidence of this life threatening disease. (End)

This is Deb finishing up. While I hope none of you will ever need to use the information in these articles, please save it with your medical records and materials. I know that the information is valuable because our pup Ruby is living proof.

In the way of an update, Ruby's doing great. On 10/28/06 she competed in the Derby stake at the Wooster Amateur Field Trial Club. (They didn't have a puppy stake so Al stuck her in there.) Ruby ran against ten Derby dogs— and did it as a seven month old puppy. She ran beautifully; it was hard to imagine that just six weeks earlier she was knocking at death's door. Best of all she only placed second to her kennelmate, Flushing Whip's Flash Edition! (Newsletter's Namesake) I guess you can imagine that Al came home a very happy man! ☺



Al all smiles with Ruby!