

Encephalitis (Brain Inflammation)

By Dr. Karen Becker

Hi, I'm Dr. Karen Becker. Today, we're going to discuss encephalitis. Encephalitis refers to inflammation of the brain. "Encephalo" means brain and "itis" means inflammation. The brain and spinal cord make up the central nervous system (CNS), and inflammatory disease of the central nervous system is one of the most common causes of neurologic disease we see in animals. There can also be inflammation of the spinal cord which is called myelitis and/or meningitis, which is inflammation of the membranes that cover the brain, along with encephalitis. Certain dog breeds are predisposed to encephalitis, including German shorthaired pointers, maltese, and Yorkshire terriers.

There are two basic types of encephalitis: infectious and idiopathic. The infectious form of the disease can be caused by a bacterial, viral, or fungal infection, parasites, immune-mediated disorders, tick-borne disease, and foreign bodies. We diagnose the disorder of idiopathic encephalitis when we can't find an infectious cause for the disease.

Where a pet lives can often play a role in the cause of encephalitis. In areas of the U.S. where ticks are a problem, tick-borne infections such as Rocky Mountain spotted fever, ehrlichia, and lyme are common causes. In the southwest U.S., a fungal infection known as valley fever can also be the cause.

Bacterial infections that cause encephalitis are relatively rare in companion animals, but they can happen from time to time. Viral causes include canine distemper and feline infectious peritonitis. When a parasite is involved, it's oftentimes *Toxoplasma gondii* that's the culprit. When no infectious cause for the disease can be found, idiopathic encephalitis often has an underlying immune-mediated cause, meaning the animal's own immune system attacks its own brain or spinal cord.

Types of immune-mediated disease seen in dogs with encephalitis include granulomatous meningoencephalomyelitis (GME), which is seen most often in middle-aged small breed dogs. Another type is necrotizing meningoencephalitis (NME). Predisposed breeds include young to middle-aged pugs, maltese, chihuahuas, papillons, shih tzus, and Boston terriers. A third type of immune disorder that can cause encephalitis is called necrotizing leukoencephalitis (NLE), which affects yorkies, chihuahuas, and shih tzus most commonly.

Symptoms

Clinical signs of encephalitis depend on the area of the brain that's affected. Symptoms typically appear suddenly and are rapidly progressive. If the forebrain is involved, there can be seizures, blindness, behavior changes, depression, and circling. With brainstem disease, there can be loss of coordination, head tilting, tremors, and facial paralysis. Other signs can include fever, decreased responsiveness, and unequal size of the pupils, where one pupil is smaller than the other.

A dog or cat with encephalitis may have neurologic abnormalities that come from a single or focal area of the brain or multifocal areas of the brain. However, whereas many other diseases that can cause focal neurologic signs, such as a stroke or tumor, when the symptoms are multifocal, most of the time multifocal symptom is a pointed diagnosis of encephalitis, which is most oftentimes the cause.

While it's important for your veterinarian to run the usual diagnostic tests on your pet, which include blood work, urinalysis, chest X-rays, etc., it's possible for animals with encephalitis to show no abnormalities on these tests because what's happening in an animal's CNS can be totally separate from the rest of the body, which is why a definitive diagnosis of the disease often involves a spinal tap. The cerebrospinal fluid that surrounds the brain and spinal cord gives direct evidence of what is going on inside the central nervous system.

A significant increase in white blood cells in the spinal fluid usually indicates encephalitis. A spinal tap does carry some risk for certain animals. Your pet may require a magnetic resonance imaging (MRI) or computerized tomography (CT) scan of the brain prior to a spinal tap to look for signs of elevated intracranial pressure that can increase their risk for certain breeds with the procedure of spinal tap. Brain imaging can also be helpful in ruling out other causes of neurologic diseases like a brain tumor.

Treatment

Treatment of encephalitis focuses on reducing the severity of symptoms that your pet is currently experiencing. Typically, antibiotics or antifungals will be given if those infections are present. If the pet is having seizures, anticonvulsant medications may also be recommended. Low-dose steroid therapy can also be started if there's a significant inflammation on the brain to help reduce inflammation or the severity of clinical signs. Traditional treatments for immune-mediated encephalitis usually involve the intentional suppression of the immune system with high doses of drugs for three to six months, and sometimes longer.

Many holistic vets, including myself, have found that incorporating adjunctive therapies, such as homotoxicology, ozone therapy, and traditional Chinese herbal protocols that address "heat" and "wind," which is the Traditional Chinese Veterinary Medicine (TCM) diagnosis have been very beneficial for reducing symptoms and shortening the course of the disease for encephalitis patients. I firmly believe that all pets that have recovered from idiopathic or immune mediated encephalitis never be vaccinated again for anything. These animals should have vaccine titer checks performed in place of traditional vaccines.

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