

## SEIZURES IN DOGS

### *What is a seizure?*

Seizures are one of the most frequently seen neurological problems in dogs. A seizure is also known as a convulsion or fit. It may have all or any combination of the following:

1. Loss or derangement of consciousness
2. Contractions of all the muscles in the body
3. Changes in mental awareness from unresponsiveness to hallucinations
4. Involuntary urination, defecation, or salivation
5. Behavioral changes, including not recognizing the owner, viciousness, pacing, and running in circles

### *What are the three phases of a seizure?*

Seizures consist of three components:

- 1) The *pre-ictal phase*, or aura, is a period of altered behavior in which the dog may hide, appear nervous, or seek out the owner. It may be restless, nervous, whining, shaking, or salivating. This may last a few seconds to a few hours.
- 2) The *ictal phase* is the seizure itself and lasts from a few seconds to about five minutes. During this period, all of the muscles of the body contract strongly. The dog usually falls on its side and seems paralyzed while shaking. The head will be drawn backward. Urination, defecation, and salivation often occur. If it is not over within five minutes, the dog is said to be in *status epilepticus* or prolonged seizure.
- 3) During the *post-ictal phase*, there is confusion, disorientation, salivation, pacing, restlessness, and/or temporary blindness. There is no direct correlation between the severity of the seizure and the duration of the post-ictal phase.

### *Is the dog in trouble during a seizure?*

Despite the dramatic signs of a seizure, the dog feels no pain, only bewilderment. Dogs do not swallow their tongues. If you put your fingers into its mouth, you will not help your pet and you run a high risk of being bitten very badly. The important thing is to keep the dog from falling and hurting itself. As long as it is on the floor or ground, there is little chance of harm occurring. If seizures continue for longer than a

few minutes, the body temperature begins to rise. If hyperthermia develops secondary to a seizure, another set of problems may have to be addressed.

### ***What causes seizures?***

There are many, many causes of seizures. Epilepsy is the most common cause of seizures in the dog. Other causes include

- 1) Toxins eg Defender, Baysol, lead ingestion
- 2) Severe worm infestation
- 3) Congenital diseases eg hydrocephalus, portosystemic shunt
- 4) Low blood glucose, Low blood calcium
- 5) Liver disease
- 6) Infections or inflammation within the brain
- 7) Masses within the brain ( i.e. cancer)
- 8) Other metabolic problems e.g. uncontrolled diabetes, impaired fat digestion.

In animals less than 1 year of age seizures are usually caused by infections or inflammations of the brain. In animals more than 5 years of age that have normal blood test results, seizures are usually caused by a tumor growing off the skull and pressing on the brain (many of which are operable if found early).

### ***Now that the seizure is over, can anything be done to understand why it happened?***

When a seizure occurs, we begin by taking a thorough history concentrating on possible exposure to poisonous or hallucinogenic substances or history of head trauma. We also perform a physical examination, blood and urine tests. These tests rule out disorders of the liver, kidneys, heart, electrolytes, and blood sugar level. A heartworm test is performed if your dog is not taking heartworm preventative monthly.

If these tests are normal and there is no exposure to poison or recent trauma, further diagnostics may be performed depending on the severity and frequency of the seizures. Occasional seizures are of less concern than when the seizures are becoming more severe and frequent. In this instance, a spinal fluid analysis may be performed. Depending on availability specialized imaging of the head with a CAT scan or MRI might be performed.

### ***What can be done to prevent future seizures?***

In some cases the disease is curable with treatment whereas in other cases the seizuring can only be controlled with medication. In the latter cases the aim of treatment is to reduce the frequency, severity and duration of the fits to an acceptable level. The drug of choice is phenobarbitone, for those with refractory seizures other drugs ( e.g. potassium bromide or gabapentin) may be added to the regime.

Treatment should be started when:

- 1) Seizures occur in clusters, ie one after the other.
- 2) An isolated seizure occurs once a month or more. Obviously animals can not be observed all the time so many seizures may be missed and it may be best to play it safe.
- 3) The German Shepherd, Golden Retriever, Irish Setter and St Bernard breeds are notorious for difficult seizure control, so it is best to start treatment immediately as each seizure makes the next more difficult to control.

Phenobarbitone is a long-acting barbiturate that suppresses seizure activity in the brain. It takes several weeks to reach therapeutic levels. The side effects of the drug include a temporary sedation and unfortunately excessive thirst and appetite. It is essential blood tests are done to ensure the drug level in the blood stream is at an effective dose. Once the correct level is obtained, blood levels should be rechecked every 6 months (or sooner if breakthrough seizures occur). Another important part of drug monitoring is to check for toxicity as the drug can damage the liver. Potassium bromide takes 3 months to get to therapeutic levels and again blood monitoring is an essential part of monitoring the patient.

Once anticonvulsant medication is started, it must be given for life.

***You mentioned status epilepticus. What does that mean?***

Status epilepticus is a serious and life threatening situation. It is characterized by a seizure that lasts more than five minutes. When it occurs, the dog's life is endangered. Unless intravenous medication is given promptly, the patient may die. If this occurs, you should seek treatment by a veterinarian immediately.

For more information please ask.

A useful website that is a support and news group for owners of seizuring dogs is  
[www.canine-epilepsy.com](http://www.canine-epilepsy.com)