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## Seizures (fits) in dogs and cats

Seizures are also known as convulsions or fits, and are a fairly common problem in dogs and cats. A seizure is a sudden episode of uncontrolled electrical activity of the brain. This often causes loss of consciousness and jerky muscle contractions, during which the cat or dog may lose control of urine and faecal output. However, not every animal that collapses is having a seizure. (Cats and dogs can suffer from sudden collapse due to fainting, heat stroke, heart problems, lack of oxygen, kidney failure or hypoglycaemia). A seizure will have some or all of the following features

- Loss of consciousness
- Contractions of the body muscles
- Change in mental awareness (ranging from non-responsiveness to hallucinations)
- Involuntary urination, defecation or salivation
- Behavioural changes, including non-recognition of owner, viciousness, pacing and running in circles

## Cause of seizures

Seizures can be caused by any problem within the body that disrupts normal function of the brain. Thus there are many, many causes of seizures. These include:

- Head trauma (causing swelling, bruising or scar tissue to arise in the brain tissue). The seizures may occur immediately after the traumatic episode, or even many months/years later.
- Poisoning – slug pellet, antifreeze, and chocolate poisoning are amongst the most common causes of unexpected fits.
- Liver or kidney disease (allowing a build up of toxic products in the bloodstream which affect the brain).
- Bleeding within the brain tissue.
- Inflammatory brain conditions
- Blockage or rupture of blood vessels within the brain
- Any mass arising within the brain such as brain abscess, haematoma or tumour.
- Epilepsy – seizures occurring with not physical or metabolic cause, similar to the condition in humans.

## Investigating seizures

If your pet has suffered a seizure your vet will take a thorough history concentrating on possible exposure to toxins, any history of head trauma, and your pet's recent health status. He or she will perform a thorough physical and neurological examination to look for signs of metabolic or cardiac disease, and to evaluate any neurological deficits.

A basic panel of blood tests is recommended to rule out disorders of the liver, kidneys, and abnormal sugar levels.

Are further investigations necessary?

If these tests and examinations are all normal, and there is no history of exposure to poison or any recent trauma there are decisions to be made as to how far to take any further investigations. If your pet is otherwise bright and well and has only had one seizure then it is usual to send your pet home without any treatment. This is because many animals will have only one seizure and go on for many years without any further episodes. If we put all of these animals onto anti-seizure medication after their first seizure we would be treating a lot of animals unnecessarily! It is most important to build up a picture of how frequently an animal is having seizures before commencing treatment, so that we know exactly what we are trying to control.

If your pet goes on to have further seizures at home, treatment will be necessary. 95% of dogs with generalized seizure onset between 6 months and 6 years of age, a normal physical and neurological examination and normal blood tests and have idiopathic epilepsy. This is similar to epilepsy in people and although it may be controlled easily with anti-seizure medication, there is no cure, so treatment will be lifelong.

Feline seizures differ from canine seizures. Focal seizure episodes are more common, with a high incidence of vocalisation, aggression and salivation. At the onset, the seizure frequency may be high, often with multiple short seizure episodes per day. This high frequency of onset does not necessarily equate to difficulty in controlling the seizures or a poor prognosis. Although idiopathic epilepsy in cats is an important cause of seizures, other systemic and/or neurological findings are common – it is therefore important to assess for the presence of underlying causes in cats.

In dogs, if their seizures are not typical, or if your vet feels that your pet is too old to suddenly develop idiopathic epilepsy, the suspicion is that there has been some damage to the brain (e.g. traumatic damage, bleeding within the brain, a brain tumour or abscess). The only way to find out if this is the case is to perform a brain scan (MRI). This will require referral to a specialist centre, we have three specialist centres able to perform this scan all within an hour of the practice. The cost is approximately £2500-£3000. A brain scan should give you an explanation as to what is causing your pet's seizures. However, in many cases a brain scan does not alter the treatment options available for your pet as most of the diagnoses made by scan cannot be treated other than to prescribe anti-seizure medications just as for epileptic pets. If a tumour is suspected, steroids can be used to help reduce inflammation. If you are not able to refer your pet we are still able to start treatment, your vet will be happy to discuss this decision in more detail with you.

Treatment

If the seizures are found to be secondary to heart disease, abnormal sugar levels, liver problems or other illness, treatment will be aimed at correcting these underlying conditions.

For animals with idiopathic epilepsy, and most other pets with seizures, treatment is aimed at reducing the frequency and severity of the seizures with anticonvulsant medication. In many cases it is not possible to prevent all further seizures. Once started, anticonvulsant therapy is likely to be continued permanently.

In dogs, if your pet has not had cluster seizures (defined as more than one distinct seizure episode in 24 hours) they will most likely be prescribed Pexion (Imepitoin). This medication does not require regular blood tests like the other epilepsy medications but regular monitoring will be required to adjust the dose. This medication is generally used for the milder cases of epilepsy.

If your dog has had cluster seizures, or if your vet feels the epilepsy is more severe they will most likely prescribe phenobarbitone (Epiphen), this is usually given every 12 hours. Side effects in some individuals may include sleepiness and increased appetite, but these effects usually wear off after a week or two of treatment as the body adapts. It is important not to stop phenobarbitone treatment suddenly as severe rebound seizures may result. Whilst on this treatment your dog will require blood tests to check the liver and to measure the level of the drug in the blood in order to achieve the correct dosage. There are also other medications available if the seizures are not well controlled and the vet will discuss the different options with you.

Treatment of seizures in cats relies on phenobarbital and/or levetiracetam as maintenance drugs of choice. Phenobarbital does not result in liver enzyme induction in cats. Imepitoin has not yet been safety tested in cats.

Are seizures dangerous for my pet?

Despite the dramatic signs of a seizure, animals feel no pain, only confusion. The important thing is to prevent your pet from falling and hurting itself. As long as your pet is on the ground there is little chance of harm occurring. In most cases seizures last less than a couple of minutes and they are basically well (if a little bewildered) following the seizure.

Occasionally seizures can continue for longer than a few minutes, and in this situation they are dangerous. A seizure that lasts for more than five minutes or clusters of seizures occurring every few minutes can cause your pet's body temperature to rise and this can endanger his or her life. These seizures usually require intravenous medication to stop them. Your pet must see a vet immediately if this type of seizure occurs.