

## Encephalitis

If MRI has ruled out a brain tumor, stroke, and cyst, and the CSF is abnormal, then the diagnosis would be encephalitis. Encephalitis is more common in small dogs, younger than 8 years of age, but any dog or cat can get the disease. Encephalitis means that there is inflammation of the brain – it does not imply that the cause of the inflammation is known. Encephalitis can be infectious or non-infectious. Encephalitis is a serious conditions and the rapid classification of the cause for encephalitis as infectious or non-infectious (GME) can provide for the best therapy and outcome.

## Granulomatous meningoencephalomyelitis (GME )

GME is diagnosed when there is an inflammation (more white blood cells than normal) in the brain, meninges, or spinal cord and there is no other demonstrated cause for the problem. Dogs with GME typically have poor balance but in addition they may have many of the central disease signs and/or just neck pain.

GME is diagnosed by excluding all of causes. MRI, CSF analysis, infectious disease tests, and an antibiotic trial are ideally done to make the diagnosis. GME can be rapidly progressive and about 10% of pets do not survive their initial manifestation of the disease.

There are many new drugs for GME which are allowing more dogs to do well. The current 1 year survival rate for this disease is about 70% with many patients living much longer, normal lives while on medication. A rapid diagnosis improves the odds of being able to survive the initial insult and go on to live well.



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## Poor Balance



### Who can be affected?

Poor balance can be a sign of a brain problem and can happen to any pet. The good news is that many brain problems are treatable and some may even get better on their own. It is important to determine the specific location of the problem, in order to best treat the cause of the poor balance.

This brochure will help you understand what may be the cause of your pet's balance problem.



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## Anatomy

Pets with poor balance will side step, lean, or stumble to one side, such that they appear drunk. When a patient with poor balance walks or appears drunk they exhibit vestibular ataxia.

The vestibule is in the inner ear where receptors sense movement or head position. Information from these receptors runs along the vestibular nerve into the brain. The brain then processes this information to make adjustments in head and body position.

There are two different locations that can cause poor balance, the vestibular nerve and the brainstem.

Vestibular nerve disease is called peripheral because the nerve is outside of the brain and disease of the brainstem is called central disease.

The disease processes that affect the vestibular nerve are generally self-limiting or easily treated, however, diseases of the brainstem can be life threatening, especially when left untreated.

A careful examination can offer hints about the location of the disease (peripheral vs. central) and therefore the severity of the disease.



## Signs of Disease

### Peripheral

- Horizontal or rotary nystagmus (eye twitching)
- Fast phase of nystagmus is opposite the direction of the head tilt
- Nystagmus at a rate of 1 beat per second
- Pets are able to walk and appear bright and responsive
- Vomiting can occur in the first few hours
- In cases of idiopathic vestibular disease the balance and nystagmus improves in 1-2 days and head tilt improves more slowly

### Central Disease Signs

- Vertical nystagmus or fast phase towards head tilt
- Slow rate of nystagmus or only seen when the head is in certain positions
- Inability to walk or high stepping when walking
- Dullness, glassy-eyed appearance, confusion, eliminating in the house.
- Seizure, blindness, head turn, different pupil sizes

## Disease

The common diseases of the peripheral nerve are bacterial infection of the inner ear, low thyroid, and a self-resolving process called idiopathic peripheral vestibular disease. The common diseases of the brainstem are granulomatous meningoencephalomyelitis (GME), tumor, stroke, low thyroid, and infection.

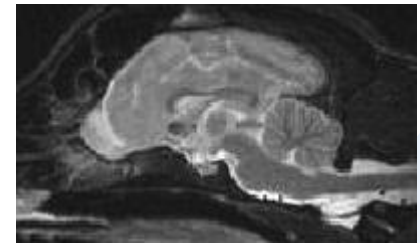
The brainstem also controls level of awareness, strength, walking, pupil size, breathing, and the heart beat. Some of the diseases that affect the brainstem can cause difficulty walking, coma, and even death. These diseases can be rapidly progressive; therefore distinguishing central from peripheral disease early on can be very important.

## Diagnosis

### Common Testing for Pets with Poor Balance

- Blood work (Chemistry, CBC, thyroid levels, tests for infectious disease)
- Blood pressure
- MRI
- Cerebral spinal fluid(CSF) analysis
- Antibiotic and/or steroid trial
- Brainstem auditory evoked response (BAER)

MRI is the optimal test in patients with poor balance. MRI detects most conditions of the brainstem and is the most accurate test for evaluating middle ear disease. Which test (s) we would choose first in any particular case often depends on age, breed, progression and clinical impression.



*MRI of a Canine Brain*

### When to See a Neurologist

Many veterinarians offer referral to get the best opinion about where the disease is located. Once this is determined, the most appropriate test become obvious. Therefore, referral may optimize your resources. Another common reason for referral is the suspicion that the disease may be in the brainstem and is life threatening. Timely advanced testing, followed by specific therapy, can be the difference between life and death.