

# Idiopathic Peripheral Vestibular Disease

A. Courtenay Freeman, DVM

Marc Kent, DVM, DACVIM (Small Animal and Neurology)

Scott J. Schatzberg, DVM, PhD, DACVIM (Neurology)

## BASIC INFORMATION

### Description

Idiopathic peripheral vestibular disease is a disorder that results in an acute loss of balance, head tilt, tendency to fall or circle in the same direction, and abnormal eye movements. Twelve pairs of nerves (one on each side of the head) originate at the base of the brain and are responsible for certain neurologic functions of the head and face. These paired nerves are called the *cranial nerves*, and they are numbered I through XII. The eighth cranial nerve (VIII) is the vestibulocochlear nerve, which is involved with the vestibular system and hearing. The vestibular system regulates balance, proper head position, and normal eye movements.

Anatomically, the vestibular system is divided into two portions—the peripheral and central vestibular systems. The peripheral vestibular system involves the vestibulocochlear nerve as it runs from receptors in the inner ear to the base of the brain. The central vestibular system is located in the base of the brain (brainstem). Regardless of the area affected, an abnormality of the vestibular system can result in clinical signs associated with imbalance or incoordination.

Idiopathic peripheral vestibular disease occurs in both dogs and cats. Affected dogs tend to be older (greater than 7 years of age). Sometimes the disease is referred to as *old dog* (or *geriatric*) *vestibular disease*. The disease occurs in cats of any age, but younger cats are more commonly affected. Feline idiopathic vestibular disease most commonly occurs in late July and August in the northeastern part of North America and tends to affect male, outdoor cats most often.

### Causes

The term *idiopathic* indicates that the cause of a condition is unknown. Although some cases of vestibular dysfunction have an identifiable origin (such as autoimmune inflammation, infections of the inner ear and brainstem, stroke, tumors, metabolic and nutritional disorders, antibiotic toxicity), in this disease the cause is not defined. Common causes of vestibular dysfunction must be ruled out in order to call it *idiopathic*.

### Clinical Signs

Onset of clinical signs is sudden, and severity can vary from mild to severe. The head is tilted to one side, making it look as if the animal is listening to the ground. Affected animals may have abnormal eye movements in which the eyes move rapidly side-to-side (*nystagmus*). The animal may stumble, fall, or circle to the same side as the head tilt. Walking and gait may be uncoordinated,

because balance is abnormal. Severely affected animals may continually roll over and be unable to walk. Some animals may be nauseated, refuse to eat, and vomit. Importantly, no additional neurologic abnormalities are seen with idiopathic peripheral vestibular disease.

### Diagnostic Tests

Diagnosis is based on the history, physical and neurologic examination findings, and exclusion of other diseases that may produce similar clinical signs. Other causes of vestibular disease must be investigated before the diagnosis of idiopathic peripheral vestibular disease can be made. The neurologic examination helps the veterinarian determine whether the peripheral or central vestibular system is involved. Careful inspection of the ears (otoscopy) is usually performed. Routine laboratory tests and sometimes x-rays of the bony parts of the ears are recommended. Computed tomography (CT scan) or magnetic resonance imaging (MRI) of the inner ear and brain are normal in animals with idiopathic peripheral vestibular disease.

## TREATMENT AND FOLLOW-UP

### Treatment Options

There is no specific treatment for this disorder. Affected animals usually show signs of improvement within several days. Severely affected animals may initially require hospitalization to receive intravenous fluid therapy and anti-nausea drugs. Good nursing care is often required at home until the animal can walk normally. The animal may need assistance walking and may need to be hand fed if it is too uncoordinated to stand. Soft, padded bedding will help keep the animal comfortable while it is recovering.

### Follow-up Care

Hospitalized animals are monitored with repeated neurologic examinations during the first few days until improvements are observed. Animals that are not hospitalized are usually re-evaluated after a few days to ensure that they are improving. Periodic recheck visits may be recommended until the animal has recovered. Complete recovery may take several weeks, and some animals may have a persistent head tilt. Long-term follow-up typically is not necessary once clinical signs have resolved.

### Prognosis

Prognosis for recovery is excellent; however, a permanent head tilt may remain. Rarely, idiopathic vestibular disease can recur.