

**PERIPHERAL VESTIBULAR DISEASE***Inner ear / CN VIII / Vestibular ganglion***KEY CLINICAL SIGNS**

- Normal mentation
- Normal postural reactions and proprioception
- Horizontal or rotary nystagmus; fast phase away from lesion; direction stable with head position changes
- Paresis absent
- CN VII palsy may occur (anatomic proximity to inner ear)
- Horner's syndrome possible via 3rd-order oculosympathetic neuron

COMMON CAUSES

- Idiopathic vestibular syndrome, most common in older dogs
- Otitis media/interna
- Hypothyroidism
- Ototoxicity (aminoglycosides, chlorhexidine)
- Trauma to petrous temporal bone
- Congenital

PROGNOSIS

Idiopathic VD: improvement typically within 72 hours; significant recovery in 2 to 4 weeks. Permanent head tilt is possible. Prognosis for other causes depends on the underlying disease.

RECOMMENDED WORKUP

Any dog presenting with acute vestibular signs should receive blood pressure measurement and a senior blood panel before discharge.

CENTRAL VESTIBULAR DISEASE*Brainstem / Cerebellum***KEY CLINICAL SIGNS**

- ★ Altered mentation (ARAS involvement)
- ★ Proprioceptive deficits or paresis
- ★ Vertical, dysconjugate, or direction-changing nystagmus
- ★ Multiple cranial nerve deficits beyond CN VII or VIII
- ★ Head tilt contralateral to other deficits (paradoxical VD)
 - CN VII / Horner's: can occur centrally via brainstem pathways; evaluate in context with other cranial nerve deficits
 - ★ *Cannot occur with peripheral vestibular disease*
 - *Can occur with peripheral vestibular disease*

COMMON CAUSES

- Inflammatory or infectious: GME, NME, NLE
- Neoplasia
- Vascular: cerebral infarct or hemorrhage (stroke)
- Trauma
- Metabolic encephalopathy
- Thiamine deficiency

PROGNOSIS

Variable; depends on underlying cause. MRI required for definitive diagnosis. Early referral improves outcome. Vascular disease often carries a favorable prognosis; recovery depends on lesion location and severity.

SHARED PRESENTATION*Signs and causes common to both***SHARED SIGNS**

- Head tilt toward the lesion side
- Vestibular ataxia: leaning, falling, rolling
- Spontaneous nystagmus
- Positional strabismus
- Nausea or vomiting

SHARED CAUSES

- Trauma (peripheral or central structures)
- Neoplasia (cranial nerve or brainstem)
- Metabolic disease

CLINICAL NOTE

These signs alone cannot differentiate PVD from CVD. A full neurological examination is required. A peripheral-appearing presentation does not exclude central pathology: approximately one third of dogs with peripheral signs on neurological exam had a central vestibular lesion on MRI (n=496) [1].

EXAM RELIABILITY

Interobserver agreement for central vs. peripheral localization by neurological exam: kappa = 0.72 [1]. When central signs are present, they are highly predictive: 98.4% accuracy for central VD [2].

REFERRAL TRIGGERS: Consider Urgent MRI Referral if Any Present

- ★ Vertical or direction-changing nystagmus
- ★ Altered mentation
- ★ Proprioceptive deficits or paresis
- ★ Cranial nerve deficits beyond CN VII or VIII
- ★ Head tilt contralateral to other deficits (paradoxical VD)
 - Failure to improve within expected window for peripheral disease
 - Rapid or progressive deterioration

★ *Cannot occur with peripheral vestibular disease* • *Can occur with peripheral vestibular disease*

A peripheral-appearing presentation does not exclude central pathology. Approx. one third of dogs with peripheral signs on neurological exam had a central vestibular lesion on MRI (n=496) [1]. Maintain a low threshold for imaging.