

Horner's Syndrome

Ophthalmology Service



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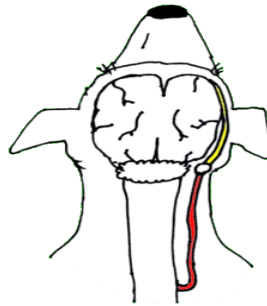
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What is Horner's Syndrome?

Horner's Syndrome results from a disruption of the nerves that control parts of the eye. The autonomic (or "automatic") nervous system controls the body functions that we don't have to consciously think about, like our heart beat and gastrointestinal function. Horner's syndrome results when this automatic innervation of the eye is disrupted somewhere along its pathway from the brain to the eye. Both dogs and cats can be affected by Horner's syndrome.

The Nerve Pathway

The nerve begins its journey in the brain and travels down the spinal cord (Nerve #1) until it reaches the first few thoracic vertebrae where it exits the spinal cord just inside the chest. The nerve then travels up the neck (Nerve #2) toward the head. It synapses with a new nerve just below the inner ear, and this new nerve (Nerve #3) continues to the eye. If damage to the nerve anywhere along this pathway occurs, the animal will exhibit the clinical signs of Horner's syndrome.



Diagnosis of Horner's Syndrome

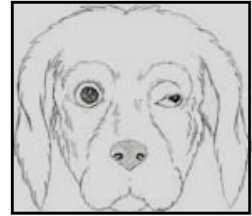
Diagnosis of Horner's syndrome is usually accomplished based on the clinical signs. However, it is important to localize the lesion, as treatment will depend on where the damage has occurred. An eye drop consisting of 1% phenylephrine should be put in both eyes. If the lesion is post-ganglionic, the affected eye will respond by resolving all of the clinical signs and thus appearing normal. If the damage has occurred in the central nervous system or in the pre-ganglionic nerve, further diagnostics are required. Chest radiographs should be taken to rule out a tumor in the chest. Further work-up with a neurologist may be necessary to identify the cause.

Treatment of Horner's Syndrome

If the lesion is determined to be post-ganglionic and there is no evidence of ear disease, then it is wise to allow the syndrome to run its course. The disease is not painful, does not affect vision and the clinical signs usually resolve on their own within 4-8 weeks, or longer. A correlation has been shown between Horner's syndrome and hypothyroidism in dogs, therefore it may be wise to have your pet tested for hypothyroidism, as well. If the lesion is not post-ganglionic then it will be necessary to treat the underlying cause.

Clinical Signs

- Miosis (constricted pupil)
- Ptosis (drooping eyelid)
- Enophthalmos (sunken globe)
- Protrusion of the 3rd eyelid



Causes of Horner's Syndrome

Damage to the nerve can occur in one of three places:

1. Central lesion—the nerve has been interrupted somewhere before the nerve exits the spinal cord. These animals usually exhibit other neurologic signs (head tilt, stumbling, incoordination). Brain or spinal cord tumors, blood clots and trauma can cause this damage.
2. Pre-ganglionic lesion—the nerve has been interrupted between the spinal cord and the synapse. Tumors in the chest/neck, or trauma to the neck such as with a strong jerk on the collar or leash can produce this damage.
3. Post-ganglionic lesion—the nerve has been interrupted between the synapse and the eye itself. Middle ear disease or vigorous ear cleaning can damage the nerve. The majority (42-55%) of post-ganglionic Horner's lesions are *idiopathic* (unknown cause).