

THE PET HEALTH LIBRARY

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Horner's Syndrome

A syndrome is a collection of symptoms that have significance when they go together. It is important to realize that having a syndrome is not the same as having a diagnosis. A syndrome, however, often has a limited number of causes such that recognizing a specific syndrome brings one substantially closer to a diagnosis.



What is Horner's Syndrome?

Horner's syndrome consists of five signs:

- Constricted pupil
- Elevated third eyelid
- Retraction of the eyeball into the head
- Slight drooping of the eyelid
- Increased pink color and warmth of the ear and nose on the affected side (very hard to detect in small animals)

All these signs are caused by damage to sympathetic nervous system as it supplies the eye on the affected side of the head.

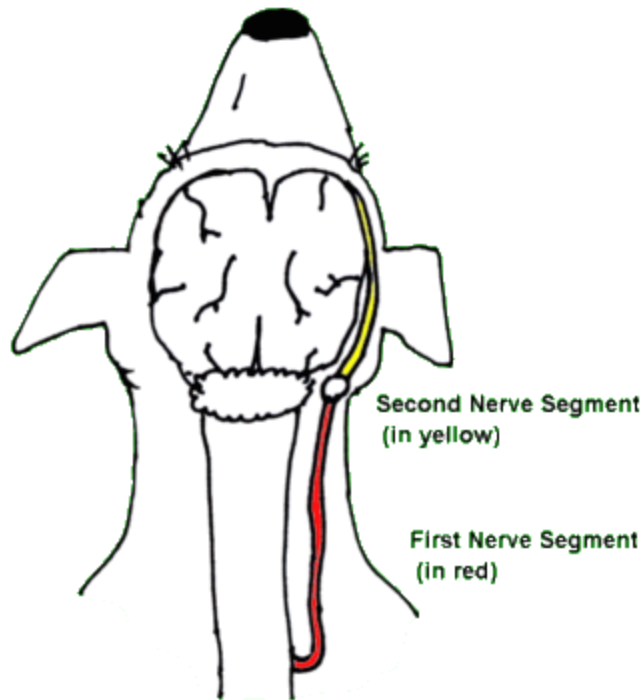
What is the Sympathetic Nervous System?

Our bodies have numerous functions that are controlled by our nervous systems, yet we are completely unaware of them. Our heart and respiratory rates, the amount of sweat and other secretions we produce, circulation to different body areas, pupil dilation and constriction are all regulated by our nervous systems automatically and without our knowledge or control. The part of our nervous system dedicated to these automatic systems is called the autonomic nervous system.

The autonomic nervous system is divided into the sympathetic nervous system and the parasympathetic nervous system. The parasympathetic system maintains a status quo, a normal business as usual state; the sympathetic system prepares the body for a fight or flight situation. Some changes that might be stimulated by the sympathetic system include: increased sweating, dilated pupils, increased heart rate, and increased blood flow to muscles. Both systems coexist in balance in the healthy body.

When the sympathetic system controlling one of the eyes is damaged, only the parasympathetic nerves work and Horner's syndrome is created.

How can the Sympathetic Damage Occur?



The nerve carrying the tiny nerve fibers that provide sympathetic control to the eye have a long path. The damage may have occurred anywhere along this path.

The nerves originate in the brain stem and travel down the spinal cord in the neck area exiting just inside the chest (at the level of the second thoracic vertebra). The nerves then form the cervical sympathetic trunk, a bundle of nerves that travels back up the neck, this time outside the spinal cord, to the middle ear (this area is shown in red).

These nerves then connect to new nerves just below the ear. The new nerves continue their journey to the eye. The damage can occur in the neck area, the ear area or the eye area. Damage can occur in the form of trauma, tumor involvement, infarction (abnormal blood clot), middle ear infection, or diseases of the eye itself.

Sorting it Out

Localizing which area of the sympathetic nervous system is affected goes a long way in determining the nature of the damage as different areas of the system are prone to different types of injury. Certain eye drops can be used to stimulate different areas of the nervous system and determine if the lesion is in the first nerve segment or in the second nerve segment. Most injuries turn out to be in the second nerve segment.

With second nerve segment involvement: If ear infection is not obvious and disease of the eye beyond the Horner's syndrome itself is not obvious, then it is probably prudent to allow the syndrome to resolve on its own. This usually occurs within 6 to 8 weeks. Further diagnostics may be undertaken if new developments occur or if the syndrome persists beyond this time.

With first nerve segment involvement: Involvement of the first nerve segment indicates a problem in the chest or spinal cord and is more significant. Chest radiographs should be taken to rule out cancer spread to the chest (the only sign of this may be the Horner's syndrome). The front leg should be carefully checked for evidence of function loss as a tumor or protruding intervertebral disc could be exerting pressure on the spinal cord. Trauma to the neck as with a strong jerk from a collar or straining against a leash can also produce Horner's syndrome from this section of the nerve. Generally more diagnostic work is needed for cases involving the first nerve segment as there is potential for more serious underlying causes. If the syndrome stemmed from pulling on the leash, it should resolve uneventfully, depending on how badly damaged the nerve is.

Treatment

It is not necessary to treat Horner's syndrome. The syndrome is not painful and does not interfere with vision. The significance of the syndrome is that it indicates nerve damage that must be recognized. If one wishes to treat the syndrome for cosmetic reasons, phenylephrine eye drops can be prescribed to relieve clinical signs.

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