



# North American Neuro-Ophthalmology Society

## NANOS Statement on Imaging for Horner Syndrome

The patient in question has been diagnosed with Horner syndrome (HS), a condition with disrupted transmission along the oculo-sympathetic pathway resulting in ptosis, miosis and sometimes loss of sweating. The pathway consists of 3 separate neurons: first order (central), second order (pre-superior cervical ganglionic) and third order (post-superior cervical ganglionic). The pathway begins in the brain, extends to the cervicothoracic spinal cord, passes over the lung apex, re-enters the brain via the carotid artery and finally reaches the eye. HS has many causes including life-threatening disorders and therefore requires thorough imaging of the entire pathway for evaluation.

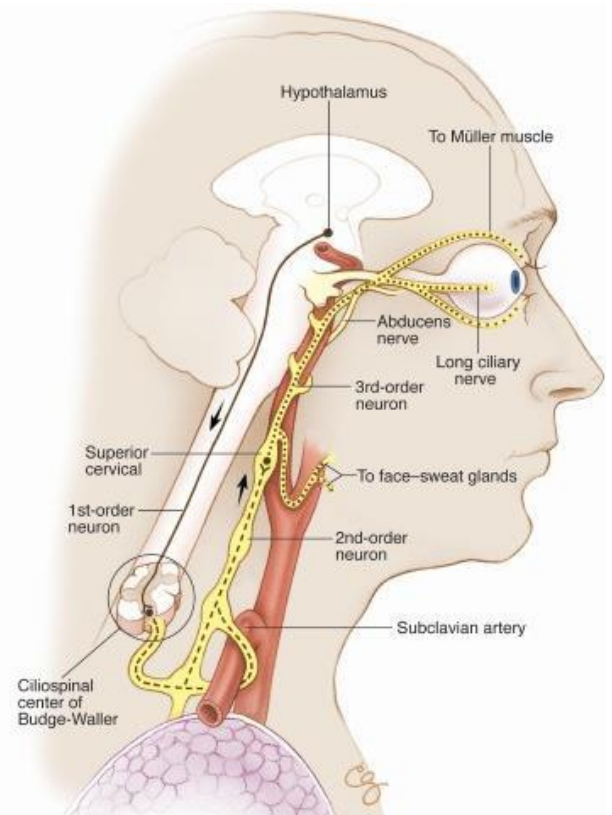
The differential diagnosis of HS includes carotid artery dissection, lung cancer, brainstem stroke, and mass lesions involving the brain, spinal cord, neck, or orbit. Determining the cause of HS is dependent on the history, exam findings, and neuroimaging.

After careful clinical assessment, it is the consensus opinion of neuro-ophthalmologists to order appropriate imaging. This occasionally includes specific anatomic areas but more often requires imaging the entire sympathetic pathway (brain, neck, chest and carotid artery).

Required imaging includes MRI (or less optimally CT) of the brain, pre- and post- contrast, MR angiography (MRA), or CT angiography of the carotid artery, and imaging of the upper chest, neck and lower cervical spinal cord. In children, HS may also signal the presence of neuroblastoma along the sympathetic chain or adrenal gland, and imaging of the abdomen may be required.

### Suggested Further Reading:

1. Mayo Clinic: Horner Syndrome. <http://www.mayoclinic.org/diseases-conditions/horner-syndrome/basics/definition/con-20034650>
2. American Academy of Ophthalmology: Horner Syndrome. <https://www.aao.org/bcscsnippetdetail.aspx?id=0f6d09c9-8bee-4003-8652-0c4e062295a6>
3. American Association for Pediatric Ophthalmology and Strabismus: Anisocoria and Horner's Syndrome. <https://www.aapos.org/terms/conditions/27>
4. Davagnanam I, Fraser CL, [Miszkiel K](#), Daniel CS, Plant GT. Adult Horner's syndrome: a combined clinical, pharmacological, and imaging algorithm. *Eye (Lond)*. 2013 Mar; 27(3):291-8. doi: 10.1038/eye.2012.281. Epub 2013 Feb.



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