

Evidence Discussion – Pupillary Abnormalities Including Horner’s Syndrome (HD-32.2)

Horner Syndrome

- In the evaluation of Horner Syndrome, if a detailed clinical evaluation is unable to localize the site of the lesion, imaging of the entire course of the relevant oculosympathetic pathway is required, as symptoms may result from pathology affecting the nerve fibers at any point along the course of the pathway, requiring multiple imaging modalities.¹ MRI brain, MRI Orbits/Face/Neck, MRI cervical spine and/or MRI Brachial plexus studies may be necessary, depending on the clinical presentation.^{1,2,3,5}
- CT Neck is useful to exclude neck masses.^{1,3} CT may be complementary to MRI in characterizing skull base erosions, calcifications, and skull base foramina.¹
- For suspected lung masses associated with Horner syndrome, such as for evaluation of Pancoast tumors, chest imaging is recommended. A mass may be diagnosed on a CT chest or an MRI chest.^{3,5,9} CT scans provide 60% sensitivity, 65% specificity, and 63% accuracy in defining the local extent of tumor, in contrast to MRI with a sensitivity of 88%, a specificity of 100%, and an accuracy of 94%.⁶ MRI of the chest is a more accurate preoperative examination in identifying the local extent of a Pancoast tumor.⁶
- For suspected carotid injury or dissection, vascular imaging with either CT Angiography (CTA) neck or MR Angiography (MRA) neck is indicated, depending on the individual’s risk and benefit profile.^{3,4,5}

References

1. Expert Panel on Neurological Imaging, Rath TJ, Policeni B, et al. ACR Appropriateness Criteria® Cranial Neuropathy: 2022 Update. *J Am Coll Radiol*. 2022;19(11S):S266-S303. doi:10.1016/j.jacr.2022.09.021
2. Expert Panel on Neurologic Imaging:, Kennedy TA, Corey AS, et al. ACR Appropriateness Criteria® Orbits Vision and Visual Loss. *J Am Coll Radiol*. 2018;15(5S):S116-S131. doi:10.1016/j.jacr.2018.03.023
3. Lee JH, Lee HK, Lee DH, Choi CG, Kim SJ, Suh DC. Neuroimaging Strategies for Three Types of Horner Syndrome with Emphasis on Anatomic Location. *American Journal of Roentgenology*. 2007;188(1):W74- W81. doi:10.2214/ajr.05.1588
4. ACR-ASNR-SPR Practice Parameter for the Performance of Computed Tomography (CT) of the Extracranial Head and Neck Revised 2021. (Resolution 5). <https://www.acr.org/-/media/ACR/Files/PracticeParameters/CT-Head-Neck>
5. Kawasaki AK. Diagnostic Approach to Pupillary Abnormalities. *CONTINUUM: Lifelong Learning in Neurology*. 2014;20:1008-1022. doi:10.1212/01.con.0000453306.42981.94
6. Panagopoulos N, Leivaditis V, Koletsis E, et al. Pancoast tumors: characteristics and preoperative assessment. *J Thorac Dis*. 2014;6 Suppl 1(Suppl 1):S108-S115. doi:10.3978/j.issn.2072-1439.2013.12.29