Horner’s Syndrome: How to Tailor the Radiographic Evaluation Based on Clinical Findings

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Purpose
1. To review the anatomy of the oculosympathetic pathway. 2. Predict lesion location based on clinical findings as First (FON) Second (SON) or Third (TON) order neuron Horner’s syndrome (HS). 3. Understand what is meant by Preganglionic vs Postganglionic HS. 4. Understand the imaging implications of the three different clinical symptom complexes associated with HS. 5. Review the gamut of pathologies producing FON, SON, and TON HS.

Materials & Methods
Thirty-nine patients with HS were identified from extensive neuroradiology and neuroophthalmology data bases at our institutions. The clinical histories and cross-sectional imaging studies were reviewed on 31 of these patients (imaging studies not available for eight patients) to obtain illustrative cases.

Results
Six patients with FON HS were identified: 3 PICA strokes, 1 syringohydromyelic cavity, 1 MS plaque, and 1 intramedullary breast metastasis. Nineteen patients had SON HS and, of these, 13 patients had Pancoast tumors. Other SON pathologies identified included sympathetic chain neoplasms (2 schwannomas and 1 neuroblastoma), large goiter (1), lymphoma (1) and posttraumatic brachial plexus nerve root avulsion (1). The remaining six patients had TON HS produced by cervical ICA dissections (4), cervical fibromuscular dysplasia (1), and nasopharyngeal carcinoma (1).

Conclusion
The gamut of pathologies producing HS is extensive. Knowledge of the oculosympathetic pathway allows one to appropriately tailor the imaging evaluation of HS patients based upon clinical determination into FON, SON, or TON lesions.