Case Report

Journal of Emergency Medicine Case Reports

Beyond the Obvious: Horner Syndrome Unmasking a Spinal Cavernous Hemangioma in the Emergency Department

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Abstract

Horner syndrome (HS) in the emergency department (ED) is never a trivial finding. While it often signals catastrophic vascular or neoplastic disease such as carotid dissection or apical lung cancer, spinal cavernous hemangioma (SCH) is an extraordinarily rare etiology. Its recognition is critical, as missing this subtle sign may delay life-saving intervention. We describe a 21-year-old previously healthy male who presented with acute neck pain, progressive right upper limb weakness, and contralateral lower limb paresthesia. Careful examination revealed right-sided ptosis and miosis, unveiling HS. Urgent cervical MRI demonstrated a 47 × 11 mm intradural lesion at C6–C7, consistent with a cavernous hemangioma. The patient underwent emergent microsurgical resection, resulting in rapid neurological recovery. By two months, all deficits—including HS—had completely resolved. This case underscores that even the most subtle ocular sign can reveal life-threatening spinal pathology in the ED. HS should be approached as a clinical alarm bell which that necessitates immediate imaging and multidisciplinary coordination. Recognizing SCH as a potential—though rare—culprit expands the emergency physician's diagnostic horizon and illustrates how prompt diagnosis and timely surgery can transform an impending catastrophe into full recovery.

Keywords: Emergency department, horner syndrome, neurosurgery, spinal cavernous hemangioma

Introduction

HS is characterized by the clinical triad of ptosis, miosis, and anhidrosis, resulting from disruption along the oculosympathetic pathway (1,2). In the ED, its identification is vital, as it may be the initial sign of life-threatening pathology such as carotid artery dissection, apical lung malignancy, or central nervous system lesions (3,4). Although vascular and neoplastic causes are well recognized, spinal etiologies are exceedingly rare and often overlooked (5).

Spinal cavernous hemangiomas (SCHs) are vascular malformations accounting for only 5–15% of spinal vascular anomalies, frequently remaining asymptomatic until hemorrhage or mass effect causes acute neurological decline (6,7). Presentation with HS is extraordinarily rare, with only isolated cases described in recent literature (8,9).

Timely recognition of HS in the ED—particularly when coupled with neurological deficits—can provide the first crucial clue prompting urgent spinal imaging and early intervention (10). Our case underscores this principle, broadening the spectrum of HS etiologies and emphasizing the importance of multidisciplinary collaboration for favorable patient outcomes (11,12).

Case Report

A previously healthy 21-year-old male presented to the emergency department with acute onset neck pain, progressive right upper limb weakness and numbness, as well as left lower limb paresthesia that had been evolving over one week. He denied trauma, infection, or prior medical illness.

On arrival, he was hemodynamically stable (blood pressure 115/75 mmHg, heart rate 73 bpm, oxygen saturation 98%). Neurological examination revealed right-sided ptosis and miosis, consistent with Horner syndrome, without facial anhidrosis. Motor strength was 3/5 in the right upper limb with sensory loss, and decreased sensation was noted in the left lower limb. Cranial nerve and cerebellar examinations were unremarkable.

Laboratory investigations, including complete blood count, electrolytes, and coagulation profile, were within normal limits. Non-contrast cranial CT revealed no intracranial abnormality. Given persistent deficits, an urgent contrast-enhanced cervical MRI was obtained, which demonstrated a 47 × 11 mm intradural lesion with intramedullary extension at the C6–C7 level with mixed signal intensity and peripheral enhancement, suggestive of a cavernous hemangioma.

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Received: 04.09.2025 • **Revision:** 22.11.2025 • **Accepted:** 22.11.2025
DOI: 10.33706/jemcr.1778275

Cite this article as: Yorgun M, Tas O. Beyond the Obvious: Horner Syndrome Unmasking a Spinal Cavernous Hemangioma in the Emergency Department. Journal of Emergency Medicine Case Reports. 2026;17(1): 1-3

DOI: 10.33706/jemcr.1778275
Journal of Emergency Medicine Case Reports. 2026;17(1): 1-3

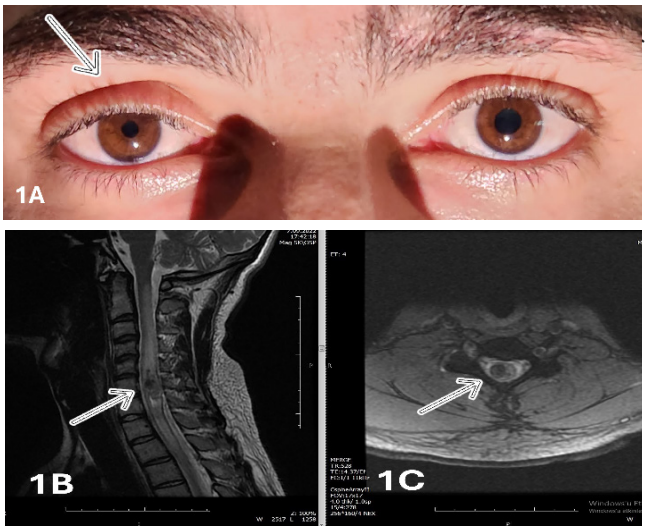

Figure-1A. Clinical photograph of the patient demonstrating right-sided ptosis and miosis consistent with Horner syndrome (arrow)
Figure-1B. Sagittal contrast-enhanced cervical MRI demonstrating a 47 × 11 mm intradural lesion at the C6–C7 level with mixed signal intensity and peripheral enhancement, consistent with a cavernous hemangioma (arrow)
Figure-1C. Axial T2-weighted MRI revealing intramedullary extension and compression of the spinal cord by the lesion (arrow)

Discussion

HS in the ED is more than a subtle ophthalmologic sign; it may represent the first clinical manifestation of serious vascular or neoplastic processes such as carotid artery dissection, apical lung tumors, or brainstem stroke (1,2). In contrast, spinal cavernous hemangiomas (SCHs) are a distinctly uncommon etiology, with only isolated cases described in the literature (3,4). This rarity underscores the significance of our report in broadening the recognized spectrum of HS causes (5).

From an emergency medicine perspective, the diagnostic challenge is considerable. In the fast-paced environment of the ED, subtle findings such as unilateral ptosis or miosis can easily be overlooked. Clinicians must maintain a high index of suspicion, especially when ocular findings occur alongside neurological deficits. In such cases, the differential diagnosis should extend beyond carotid dissection, apical lung lesions, and brainstem pathology to also include spinal lesions (6,7). Decision-making is further complicated by the fact that confirmatory imaging such as MRI may not be readily available in all ED settings, underscoring the need for early recognition and prompt multidisciplinary coordination (8,9).

MRI remains the gold standard for diagnosing spinal vascular malformations, offering greater sensitivity than CT for detecting intradural and intramedullary lesions (10). Early surgical resection, ideally within the first three months of symptom onset, is consistently associated with better neurological outcomes (11). The complete recovery of our patient following urgent microsurgical intervention supports these findings and illustrates the potential for meaningful reversal of neurological deficits when treatment is not delayed (12).

At a broader level, this case conveys three important lessons for emergency practice. First, HS—even when subtle—should be approached as a potential red flag for underlying, potentially life-threatening pathology (1,6). Second, spinal lesions, although rare, must be considered in the differential diagnosis when HS is accompanied by neurological deficits (3,7). Finally, the case underscores the critical importance of collaboration among emergency physicians, radiologists, and neurosurgeons in achieving timely diagnosis and favorable patient outcomes (9,11).

Conclusion

This rare coexistence of Horner syndrome and spinal cavernous hemangioma emphasizes that even subtle ocular findings in the emergency department may conceal life-threatening pathology. Rapid recognition, urgent imaging, and timely intervention can transform outcomes—turning a potential catastrophe into full recovery.

Declarations

Ethics approval and consent to participate: Not applicable. This study describes a single patient case report and does not require institutional ethics approval according to local and international regulations.

Consent for publication: Written informed consent was obtained from the patient for publication of this case report and any accompanying clinical images. A copy of the written consent is available for review by the Editor of this journal.

Availability of data and materials: All data generated or analyzed during this study are included in this published article.

Competing interests: The authors declare that they have no competing interests.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions: O.Taş and M.Yorgun conceived the study and drafted the manuscript. M.Yorgun contributed to the literature review, manuscript editing, and provided critical revisions. Both authors read and approved the final manuscript.

Acknowledgements: The authors would like to thank the emergency medicine and neurosurgery teams of Van Training and Research Hospital for their contribution to patient care.

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