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Teaching NeurolImages: Abducens Nerve Palsy With Ipsilateral Excessive Eye Tearing Attributed to an Internal Carotid Artery Sympathetic Plexus Schwannoma

Lina Palaodimou, MD¹, Stefanos Lachanis, MD², Eleni Bakola, MD¹, Panagiotis Zis, MD³, Evangelia Kararizou, MD⁴, Marianna Papadopoulou, MD^{1,5}, Georgios Tsivgoulis, MD^{1,6}

1. Second Department of Neurology, National and Kapodistrian University of Athens, School of Medicine, "Attikon" University Hospital, Athens, Greece
2. Iatropolis Magnetic Resonance Diagnostic Centre, Athens, Greece.
3. Medical School, University of Cyprus, Nicosia, Cyprus.
4. First Department of Neurology, National and Kapodistrian University of Athens, Aeginition Hospital, Athens, Greece
5. Department of Physiotherapy, University of West Attica, Athens, Greece.
6. Department of Neurology, The University of Tennessee Health Science Center, Memphis, Tennessee, United States of America

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Corresponding author:
Georgios Tsivgoulis, MD
E-mail: tsivgoulisgiorg@yahoo.gr

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Manuscript

A 65-year-old man developed subacute horizontal diplopia due to left-abducens nerve (AN) palsy and excessive left-eye tearing. Brain-MRI revealed a hyperintense T2-lesion with an elongated course within the left-carotid canal, presenting homogenous contrast-enhancement (Figure-1). The imaging findings were characteristic for an internal-carotid-artery sympathetic plexus (ICSP) schwannoma compressing the left-AN. Subsequent irritation of the deep petrosal nerve originating directly from ICSP and continuing as the vidian nerve may have led to the lacrimal gland edema and excessive left-eye tearing (Figure-2). The thorough case presentation and a cartoon-figure demonstrating the relevant anatomy are available from Dryad: <https://doi.org/10.5061/dryad.pzgmsbck6>.

ICSP schwannoma represents an uncommon cause of AN palsy^{1,2} that may also manifest with excessive ipsilateral-eye tearing due to vidian nerve involvement.

Appendix 1. Authors

Name	Location	Contribution
Lina Palaiodimou, MD	National and Kapodistrian University of Athens, Athens, Greece	Data Collection, Analysis and interpretation, Drafting and Revising the manuscript
Stefanos Lachanis, MD	Iatropolis Magnetic Resonance Diagnostic Centre, Athens, Greece	Data Collection, Analysis and interpretation, Critical Comments during manuscript revision
Eleni Bakola, MD	National and Kapodistrian University of Athens, Athens, Greece	Critical Comments during manuscript revision
Panagiotis Zis, MD, PhD	University of Cyprus, Nicosia, Cyprus.	Critical Comments during manuscript revision
Evangelia Kararizou, MD, PhD	National and Kapodistrian University of Athens, Athens, Greece	Critical Comments during manuscript revision
Marianna Papadopoulou, MD, PhD	National and Kapodistrian University of Athens, Athens, Greece; University of West Attica, Athens, Greece.	Critical Comments during manuscript revision
Georgios Tsivgoulis, MD, PhD	National and Kapodistrian University of Athens, Athens, Greece; The University of Tennessee Health Science Center, Memphis, Tennessee, United States of America	Data Collection, Analysis and interpretation, Drafting and Revising the manuscript

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Figure 1

Title

Neuroimaging findings of a patient with an internal carotid sympathetic plexus schwannoma.

Figure legend

Axial brain MRI with T2-weighted sequence showing a hyperintense lesion along the anterior wall of the left internal carotid artery at the transition of the petrous to cavernous segment (Panel A, arrow). Coronal (Panel B) and sagittal (Panel C) brain MRI with T2-weighted 3D turbo spin-echo (SPACE) sequence with multi-planar reconstruction demonstrating the elongated course of the lesion (arrows) within the left carotid canal, juxta-positionally to the internal carotid artery from the lower part of the cavernous segment until the mid part of the petrous segment. Axial (Panel D), coronal (Panel E) and sagittal (Panel F) brain MRI with T1-weighted 3D SPACE black blood sequence showing the homogeneously enhancing lesion (arrows) in the left carotid canal, surrounding the petrous and cavernous segments of the internal carotid artery.

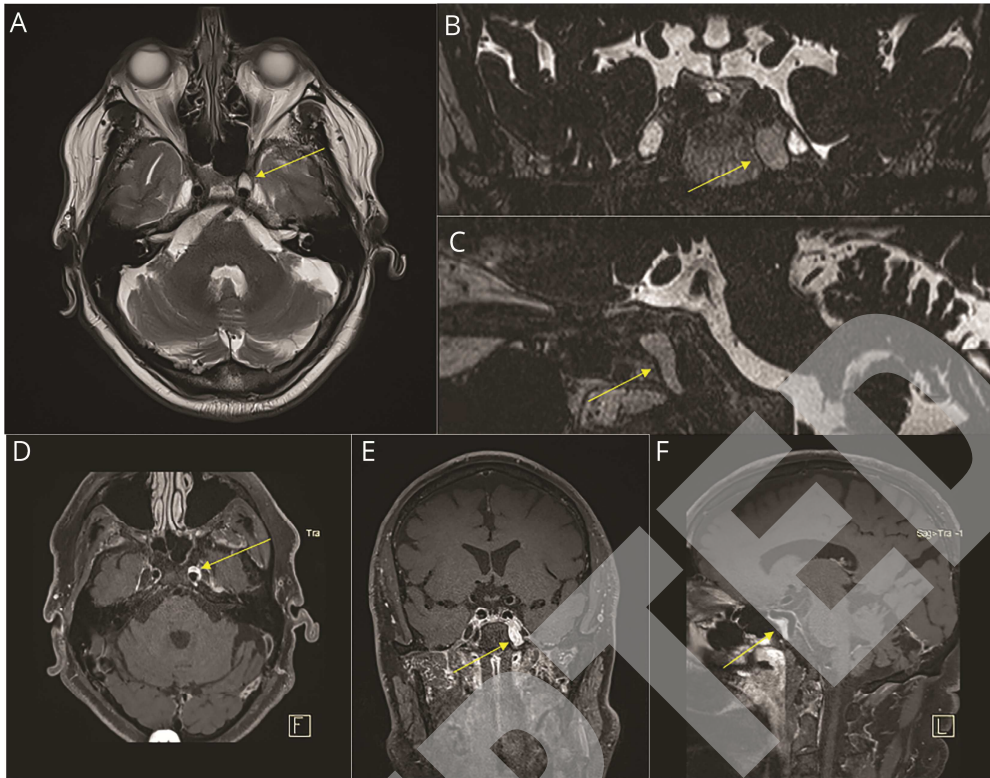


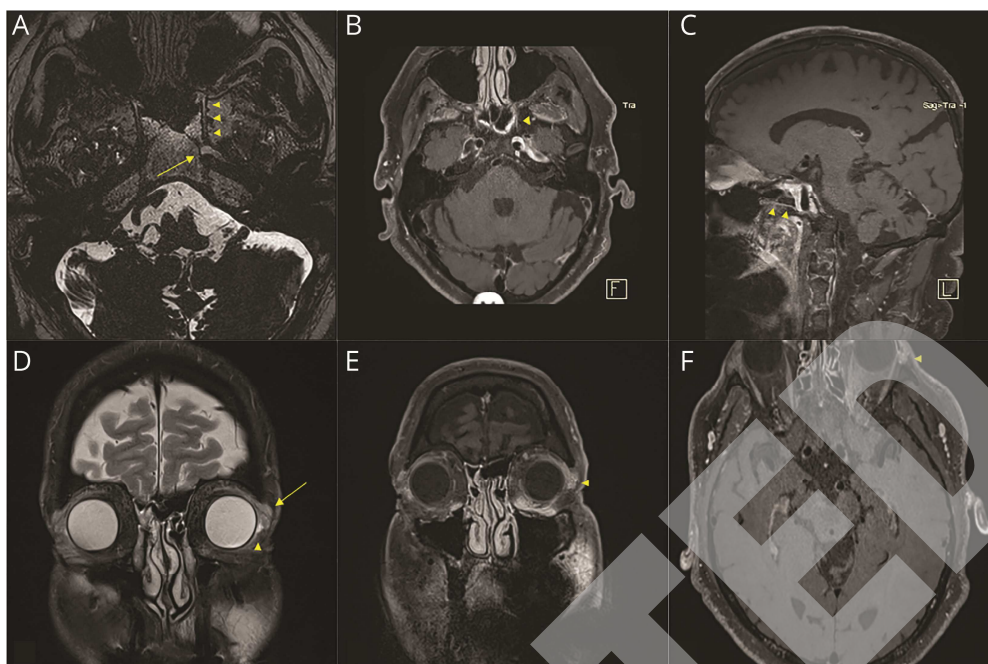
Figure 2

Title

Neuroimaging findings of a patient with excessive tearing attributed to an internal carotid sympathetic plexus schwannoma.

Figure legend

Axial brain MRI with T2-weighted 3D turbo spin-echo (SPACE) sequence with multi-planar reconstruction showing the vidian nerve (Panel A, arrowheads) within the pterygoid canal in close proximity to the internal carotid sympathetic plexus schwannoma (Panel A, arrow). Axial (Panel B) and sagittal (Panel C) brain MRI with T1-weighted 3D SPACE black blood sequence demonstrating the left vidian canal as an enhancing linear structure (arrowheads) at the level of the petrous segment of the internal carotid artery. Coronal brain MRI with T2-weighted sequence with fat saturation showing an edematous, enlarged left lacrimal gland (Panel D, arrow) compared to the healthy side and fluid accumulation in the left excretory lacrimal ducts (Panel D, arrowhead). Coronal (Panel E) and axial (Panel F) brain MRI with T1-weighted 3D SPACE black blood sequence confirming the enlargement of the left lacrimal gland with more intense contrast enhancement (arrowheads) compared to the healthy side.



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