Autoimmune Septin-5 Disease Presenting as Spinocerebellar Ataxia and Nystagmus

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Neurology® Published Ahead of Print articles have been peer reviewed and accepted for publication. This manuscript will be published in its final form after copyediting, page composition, and review of proofs. Errors that could affect the content may be corrected during these processes.
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Laura Naranjo: Analysis or interpretation of data
Lidia Sabater: Analysis or interpretation of data
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Number of characters in title: 70

Abstract Word count: 0

Word count of main text: 101

References: 2

Figures: 1

Tables: 0

Supplemental: Patient consent form Image 1Video 1 Video 2Image 1 Legend Video 1 LegendVideo 2 Legend Appendix 1


Study Funding: The authors report no targeted funding

Disclosures: Alejandro Herrero San Martín reports no disclosures relevant to the manuscript; Carla Amarante Cuadrado reports no disclosures relevant to the manuscript; Maialen González Arbizu reports no disclosures relevant to the manuscript; Pablo Rábano Suárez reports no disclosures relevant to the manuscript; Fernando Ostos Moliz reports no disclosures relevant to the manuscript; Laura Naranjo reports no disclosures relevant to the manuscript; Lidia Sabater reports no disclosures relevant to the manuscript; Eugenia Martínez-Hernández reports no disclosures relevant to the manuscript; Raquel Ruiz-García reports no disclosures relevant to the manuscript;
Case summary:
A 58-year-old man presented with 1-month subacute onset of instability, oscillopsia, vertigo, nausea and vomiting. Neurological examination revealed gaze-evoked and prominently down-beat nystagmus, left eyelid ptosis and gait cerebellar ataxia (videos 1,2). Interestingly there was no dysarthria or dysmetria. Head MRI was unremarkable and LP showed mild lymphocyte predominant pleocytosis with normal proteins. EMG showed no abnormalities. Cancer was not identified. Serum and CSF septin-5-specific IgG was identified by rat cerebellar immunohistochemistry and confirmed with in-house cell-based assay (HEK293 cells transfected with human Sep5) and Western Blot. Immunotherapy using corticosteroids, IV immune globulin, cyclophosphamide and rituximab showed minimal improvement.

Abbreviations: MRI: magnetic resonance imaging; LP: lumbar puncture; EMG: electromyogram; CSF: cerebrospinal fluid; IgG: immunoglobulin G; IV: intravenous.

Video 1 legend: gaze-evoked and down-beat nystagmus with fragmented eye tracking. Note left ptosis with preserved levator palpebrae without fatigue or Horner’s syndrome.

Video 2 legend: gait ataxia. Note no limb dysmetria or tremor.
**Figure 1 legend: Anti-Septin5 antibodies from patient’s CSF.**

A) Indirect immunohistochemistry on rat cerebellum showing intense staining of granular and molecular layer (scale bar=200µm); B) western blot with recombinant human Septin5: strip 1 shows a band that corresponds to a commercial a-Septin5 antibody (#MA5-17618, Thermo-Fisher, Waltham, Massachusetts, USA), strip 2 shows patient’s CSF reactivity against Septin5 and strip 3 shows no reactivity of a healthy control serum. Anti-Septin5 antibodies were also confirmed by cell based assay on transfected HEK293 cells with human Septin5 clone (#RC206831,Origene, Rockville, Maryland, USA): C) red fluorescence shows patient’s CSF staining, D) green fluorescence indicates commercial a-Septin5 staining and panel E) merged reactivity of patient’s and commercial antibodies (yellow) and cell nuclei stained with DAPI (blue) (Scale bar=20um).
### Appendix 1: Authors

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Video 1 - http://links.lww.com/WNL/B429
Video 2 - http://links.lww.com/WNL/B430

References:
Autoimmune Septin-5 Disease Presenting as Spinocerebellar Ataxia and Nystagmus
Alejandro Herrero San Martin, Carla Amarante Cuadrado, Maialen Gonzalez Arbizu, et al.
Neurology published online May 24, 2021
DOI 10.1212/WNL.00000000000012240

This information is current as of May 24, 2021

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