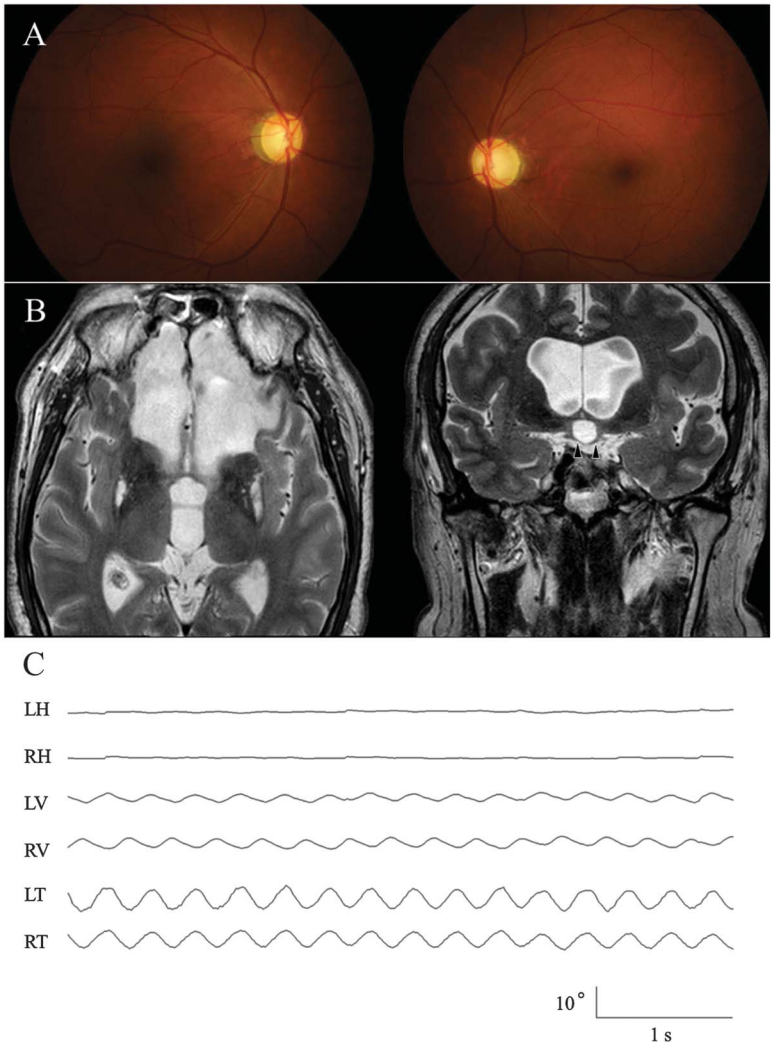
Mystery Case: Pendular see-saw nystagmus as a delayed complication of traumatic brain injury

Farkhod Yunusov, MD
Jae-Han Park, MD
Young Eun Huh, MD
Hyo-Jung Kim, MSc
Ji-Soo Kim, MD, PhD

Correspondence to Dr. Kim: jisookim@snu.ac.kr

Figure Fundus photographs, MRIs, and recording of eye movements



(A) Fundus photography shows atrophy of both optic discs. (B) MRIs exhibit frontal encephalomalacia, hydrocephalus, and atrophy of optic chiasm (arrowheads). (C) Three-dimensional video-oculographic recording shows pendular oscillation of the eyes with conjugate torsional components and the vertical components in the opposite direction. LH = horizontal position of the left eye; LT = torsional position of the left eye; LV = vertical position of the left eye; RH = horizontal position of the right eye; RT = torsional position of the right eye; RV = vertical position of the right eye.

A 54-year-old man presented with oscillopsia for 9 months. He had sustained head trauma due to motor vehicle accident 15 years before. Examination showed see-saw nystagmus, which decreased during convergence (video on the *Neurology*® Web site at Neurology.org), and bilateral optic atrophy (figure, A). Brain MRI disclosed encephalomalacia of both frontal lobes, hydrocephalus, and atrophic optic chiasm (figure, B).

See-saw nystagmus is characterized by alternating elevation and intorsion of one eye and simultaneous

Supplemental data at Neurology.org

From the Department of Neurology (F.Y.), Tashkent Medical Academy, Uzbekistan; and the Department of Neurology, Seoul National University College of Medicine (F.Y., J.-H.P., Y.E.H., J.-S.K.), and Medical Research Institute (H.-J.K.), Seoul National University Bundang Hospital, Seongnam, Korea.
Go to Neurology.org for full disclosures. Funding information and disclosures deemed relevant by the authors, if any, are provided at the end of the article.

depression and extorsion of the other eye (figure, C).[1] See-saw nystagmus generally indicates a lesion involving the optic chiasm/parasellar area or the mesodiencephalic junction.[2] During convergence, increasing diplopia due to the see-saw nystagmus may have led to the suppression of nystagmus as an adaptation. See-saw nystagmus may develop as a delayed complication of traumatic brain injury.

AUTHOR CONTRIBUTIONS

Dr. Yunusov, as the first author, contributed to interpretation of the data and drafting of the manuscript. Dr. J.S. Kim, as the corresponding author, contributed to design of the study, interpretation of the data, and revision of the manuscript. Drs. Park, Huh and H.J. Kim contributed to analysis of the data and revision of the manuscript.

ACKNOWLEDGMENT

The authors thank Drs. David S. Zee and R. John Leigh for comments on the patient.

STUDY FUNDING

Supported by a grant of the Korea Health 21 R&D Project, Ministry of Health & Welfare, Republic of Korea (A080750).

DISCLOSURE

F. Yunusov, J. Park, Y. Huh, and H. Kim report no disclosures relevant to the manuscript. J. Kim serves as an Associate Editor of *Frontiers in Neuro-otology* and on the editorial boards of the *Journal of Neuro-ophthalmology, Journal of Clinical Neurology, Frontiers in Neuro-ophthalmology, and Journal of Vestibular Research*; and received research support from SK Chemicals, Co. Ltd. Go to Neurology.org for full disclosures.

REFERENCES

1. Daroff RB. See-saw nystagmus. Neurology 1965;15:874–877.
2. Dell'Osso LF, Daroff RB. Two additional scenarios for see-saw nystagmus: achiasma and hemichiasma. J Neuroophthalmol 1998;18:112–113.

MYSTERY CASE RESPONSES

The Mystery Case series was initiated by the *Neurology* Resident & Fellow Section to develop the clinical reasoning skills of trainees. Residency programs, medical student preceptors, and individuals were invited to use this Mystery Case as an educational tool. Responses were solicited through a group e-mail sent to the American Academy of Neurology Consortium of Neurology Residents and Fellows and through social media. All the answers that we received came through social media, from individuals rather than groups.

Most of the respondents (83%) correctly indicated see-saw nystagmus as the neurologic finding illustrated in the video. The most complete answer came from 2 neurology residents from Madrid—Dr. Pedro López Ruiz and Dr. Begoña Venegas Pérez. In their response, they pointed out that see-saw nystagmus can occur with various pathologies but can also be seen as a delayed effect after trauma.

This Mystery Case illustrates a classic, but rare, neurologic symptom secondary to an uncommon etiology.

Dragos A. Nita, MD, PhD, FRCPC
Division of Neurology, The Hospital for Sick Children, University of Toronto, Canada

Mystery Case: Pendular see-saw nystagmus as a delayed complication of traumatic brain injury

Farkhod Yunusov, Jae-Han Park, Young Eun Huh, et al.

Neurology 2014;82;e147-e148
DOI 10.1212/WNL.0000000000000358