Teaching NeuroImage: Glioblastoma Multiforme Presenting as Optic Neuropathy

Author(s): Jose Maria Cabrera-Maqueda, MD; Elianet Fonseca, MD; Maria Sepulveda, MD, PhD; Anna Camós-Carreras, MD; Yolanda Blanco, MD, PhD

Corresponding Author: Maria Sepulveda, msepulve@clinic.cat

Affiliation Information for All Authors: 1. Center of Neuroimmunology, Service of Neurology, Laboratory of Advanced Imaging in Neuroimmunological Diseases, Hospital Clinic of Barcelona, Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), and Universitat de Barcelona, Barcelona, Spain; 2. Department of Neurology, School of Medicine, Pontificia Universidad Católica de Chile, Santiago de Chile, Chile; 3. Department of Ophthalmology, Hospital Clinic of Barcelona, Barcelona, Spain.

Equal Author Contribution:

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.
Contributions:
Jose Maria Cabrera-Maqueda: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Study concept or design; Analysis or interpretation of data
Elianet Fonseca: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Study concept or design; Analysis or interpretation of data
Maria Sepulveda: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Study concept or design; Analysis or interpretation of data
Anna Camós-Carreras: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data
Yolanda Blanco: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data

Figure Count:
2

Table Count:
0

Search Terms:

Acknowledgment:

Study Funding:
The authors report no targeted funding

Disclosures:
Dr. J.M. Cabrera received speaking honoraria from Sanofi; Dr. E. Fonseca received funding from ECTRIMS Clinical Training Fellowship Programme; Dr. M. Sepulveda received speaking honoraria from Roche, Biogen, and UCB Pharma, and travel reimbursement from Biogen, Sanofi and Zambon for national and international meetings; Dr. A. Camós-Carreras has nothing to disclosure; Dr. Y. Blanco received speaking honoraria from Biogen, Merck, Novartis and Genzyme.
A 63-year-old-man presented with sudden vision loss in the right eye. Funduscopic examination revealed right severe disc edema with peripapillary hemorrhages with no abnormality on the left (Figure 1, A and B). Orbit and brain MRI’s showed an extensive enhancing lesion with restricted diffusion involving the right optic nerve (Figure 1, C–F), and FLAIR hyperintense lesions in the right hippocampus (Figure 2A) and parietal lobe (Figure 2, C and D). Patient received oral corticosteroids followed by plasma exchange. Due to lack of clinical improvement a new brain MRI was obtained, showing an enlargement of the lesions (Figure 2, E–H). The biopsy of the parietal lesion confirmed the diagnosis of glioblastoma multiforme (GBM). Visual deficit as initial presentation of GBM is rare (13%)¹. A neoplastic origin of an optic neuropathy should be considered in enlarged optic nerve with persistent enhancement and marked MRI diffusion restriction².

**Key words:** optic neuropathy, glioblastoma multiforme,
References


Figure legends

Figure 1. **Initial fundus exam**: (A) right eye: severe optic disc edema with peripapillary hemorrhages; (B) left eye: normal optic disc. (C) Post-contrast axial T1-weighted fat-suppressed orbital MRI shows thickening and perineural enhancement of the right optic nerve at onset (arrowhead); (D) FLAIR brain MRI shows an increased enlargement of the right optic nerve after 2 months of follow-up (arrowhead), and persistent enhancement on post-contrast T1-weighted image (not shown). (E) Diffusion-weighted and (F) apparent diffusion coefficient images at onset demonstrate marked diffusion restriction along the right optic nerve (arrows).
Figure 2. Axial FLAIR (A,C,E,G) and gadolinium-enhanced T1-weighted (B,D,F,H) brain MRI at onset (A-D) and 2 months later (E-H). Initial MRI shows increased FLAIR signal in the hippocampus (A, asterisk), with no apparent infiltration of the chiasm (B, arrowhead), and in the right parietal lobe (C, arrow) with contrast enhancement (D, arrow). Follow-up MRI shows thickening (E, arrowhead), and enhancement of the chiasm (F, arrowhead) and hippocampal lesion (F, asterisk), and enlargement of the parietal lesions (G, arrows) with contrast enhancement (H, arrow).
Teaching NeuroImage: Glioblastoma Multiforme Presenting as Optic Neuropathy
Jose Maria Cabrera-Maqueda, Elianet Fonseca, Maria Sepulveda, et al.
Neurology published online October 18, 2022
DOI 10.1212/WNL.0000000000201480

This information is current as of October 18, 2022

Updated Information & Services
including high resolution figures, can be found at:
http://n.neurology.org/content/early/2022/10/18/WNL.0000000000201480.citation.full

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
All Neuro-ophthalmology
http://n.neurology.org/cgi/collection/all_neuroophthalmology
Optic nerve
http://n.neurology.org/cgi/collection/optic_nerve
Optic neuritis; see Neuro-ophthalmology/Optic Nerve
http://n.neurology.org/cgi/collection/optic_neuritis
Primary brain tumor
http://n.neurology.org/cgi/collection/primary_brain_tumor

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
http://www.neurology.org/about/about_the_journal#permissions

Reprints
Information about ordering reprints can be found online:
http://n.neurology.org/subscribers/advertise