RESIDENT & FELLOW SECTION

Teaching NeuroImage: Glioblastoma Multiforme Presenting as Optic Neuropathy

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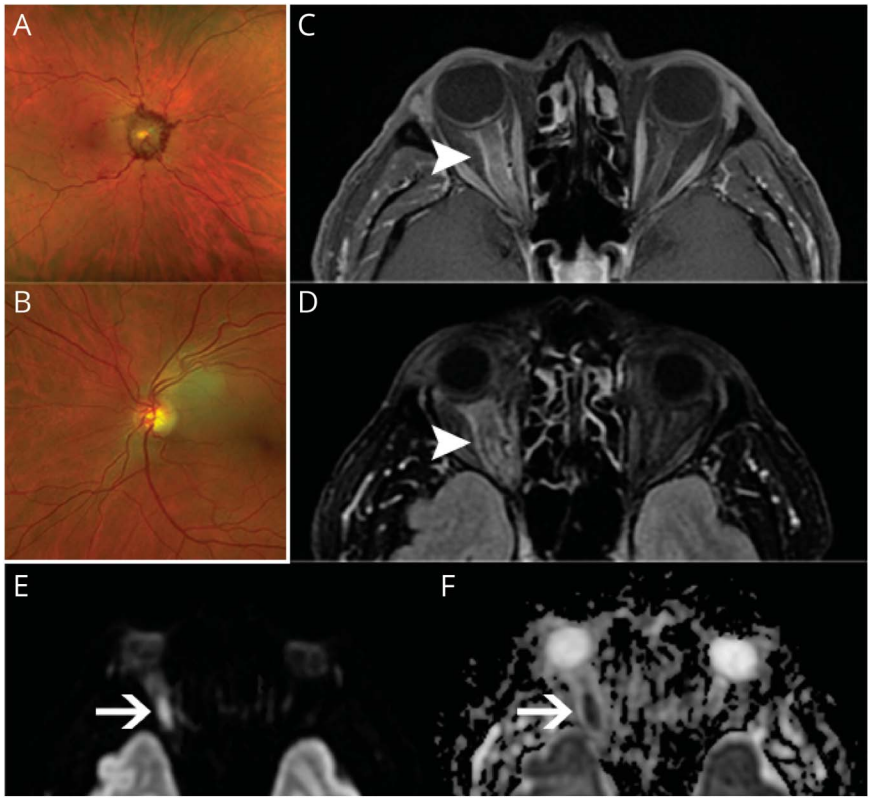
Figure 1 Initial Fundus Examination



(A) Right eye: severe optic disc edema with peripapillary hemorrhages and (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 postcontrast 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).

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). The patient received oral corticosteroids followed by plasma exchange. Owing 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

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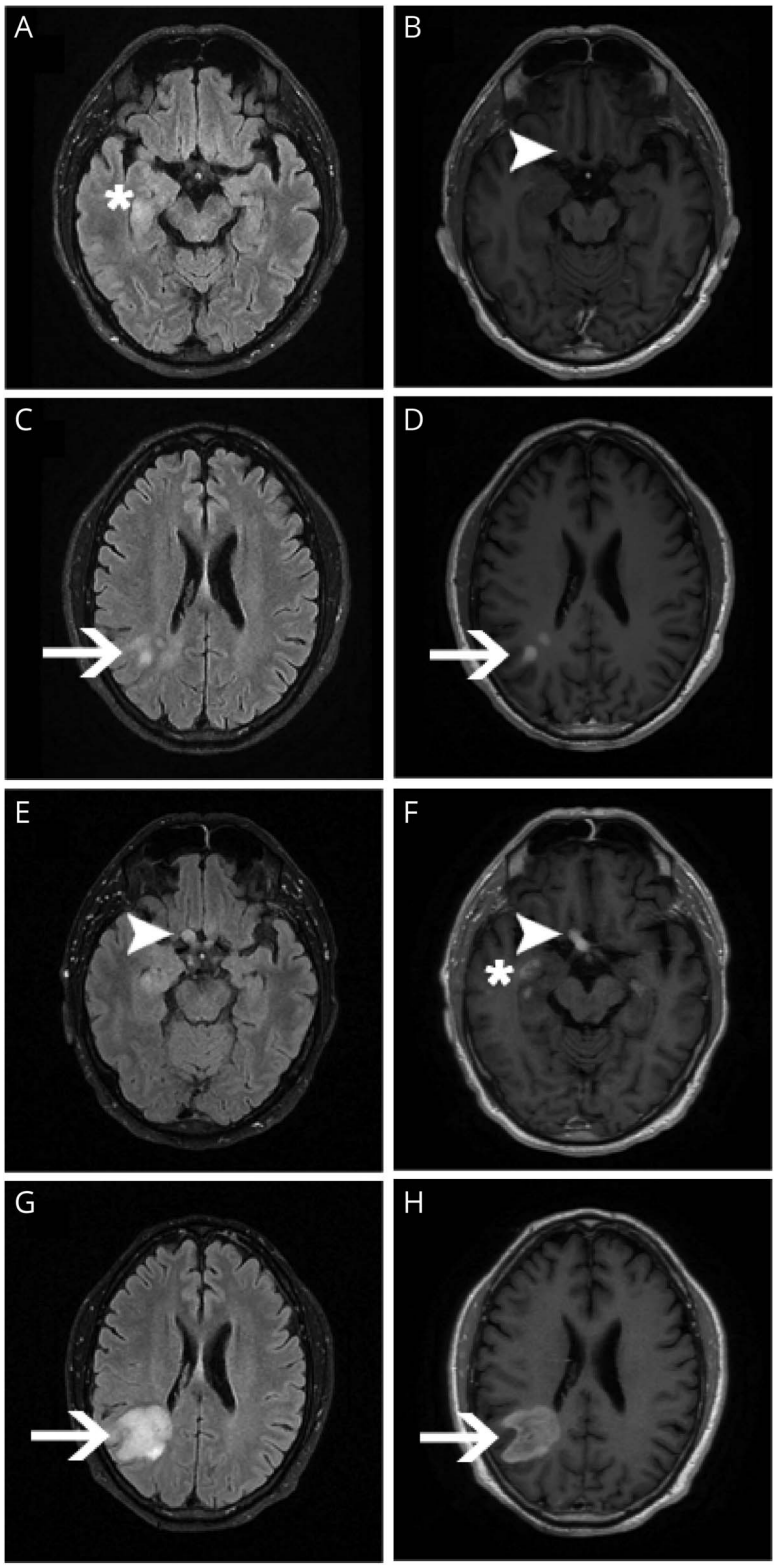
Figure 2 Axial FLAIR (A, C, E, G) and Gadolinium-Enhanced T1-Weighted (B, D, F, H) Brain MRI at Onset (A–D) and 2 Months Later (E–H)



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).

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 restriction.[2]

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References

1. Gilard V, Tebani A, Dabaj I, et al. Diagnosis and management of glioblastoma: a comprehensive perspective. *J Pers Med.* 2021;11(4):258. DOI: 10.3390/jpm11040258
2. Ramakrishnan MS, Vora RA, Gilbert AL. Glioblastoma multiforme mimicking optic neuritis. *Am J Ophthalmol.* 2020;17:100594. DOI: 10.1016/j.ajoc.2020.100594