Teaching NeuroImages: Optic and third cranial nerves infiltration as initial relapse of acute lymphoblastic leukemia

Natalia Shor, MD, Christine Fardeau, MD, and Sophie Bonnin, MD

Neurology® 2019;93:e829-e830. doi:10.1212/WNL.0000000000007979

Correspondence

Dr. Shor
natalia.shor@aphp.fr

A 34-year-old man with a history of acute lymphoblastic leukemia (ALL) under consolidation treatment presented right-side blurred vision and headache associated with complete third right cranial nerve palsy. Brain MRI (figure, A–E) revealed thickening of the right optic and third nerves. Fundus examination (figure, F) found Roth spots, which are

MORE ONLINE

→Teaching slides

links.lww.com/WNL/A944

Figure Brain MRI and right eye fundus examination

T2 sequence (A) reveals enlargement and papillary edema (A, arrow) of the right optic nerve. Gadolinium-enhanced fat-saturated T1-weighted imaging (B and E) shows thickening and abnormal enhancement of right optic and third cranial nerves (E, arrow). The optic nerve displays diffusion hyperintensity (C) and a very low signal on apparent diffusion coefficient map (D). Roth spots are seen on fundus examination (F, arrow).

From the Service de Neuroradiologie Diagnostique et Fonctionnelle (N.S.) and Service d'Ophtalmologie (C.F., S.B.), Hôpital de la Pitié-Salpêtrière, Paris, France.
Go to [Neurology.org/N](https://www.neurology.org/N) for full disclosures. Funding information and disclosures deemed relevant by the authors, if any, are provided at the end of the article.

highly suggestive of retinal leukemic infiltration.¹ Lumbar puncture revealed blast cells. Other possible differentials were excluded. The right-side headache was probably due to ischemic changes of the nerves secondary to the leukemic infiltration.

Awareness of cranial nerves involvement in ALL is important as it may be a sign of leukemia recurrence.²

Disclosure

The authors report no disclosures relevant to the manuscript. Go to [Neurology.org/N](https://www.neurology.org/N) for full disclosures.

Study funding

No targeted funding reported.

Appendix Authors

Name	Location	Role	Contribution
Natalia Shor, MD	Hôpital de la Pitié-Salpêtrière, Paris, France	Author	Acquisition and interpretation of data, drafted the manuscript for intellectual content
Christine Fardeau, MD	Hôpital de la Pitié-Salpêtrière, Paris, France	Author	Revised the manuscript for intellectual content
Sophie Bonnin, MD	Hôpital de la Pitié-Salpêtrière, Paris, France	Author	Acquisition and interpretation of data, revised the manuscript for intellectual content

References

1. Varga Z, Pavlu J. Images in clinical medicine: Roth's spots. *N Engl J Med* 2005;353:1041.
2. Sharma T, Grewal J, Gupta S, Murray PI. Ophthalmic manifestations of acute leukaemias: the ophthalmologist's role. *Eye* 2004;18:663–672.

Neurology®

Teaching NeuroImages: Optic and third cranial nerves infiltration as initial relapse of acute lymphoblastic leukemia

Natalia Shor, Christine Fardeau and Sophie Bonnin

Neurology 2019;93:e829-e830

DOI 10.1212/WNL.0000000000007979

This information is current as of August 19, 2019

Updated Information & Services	including high resolution figures, can be found at: http://n.neurology.org/content/93/8/e829.full
References	This article cites 2 articles, 0 of which you can access for free at: http://n.neurology.org/content/93/8/e829.full#ref-list-1
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Cranial neuropathy http://n.neurology.org/cgi/collection/cranial_neuropathy MRI http://n.neurology.org/cgi/collection/mri Optic nerve http://n.neurology.org/cgi/collection/optic_nerve
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

Neurology® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright © 2019 American Academy of Neurology. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.