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Neurology Publish Ahead of Print
DOI: 10.1212/WNL.0000000000013015

Migratory Rolandic Encephalopathy Caused by the Mitochondrial ND3 Mutation

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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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Contributions:

Kunqian Ji: Drafting/revision of the manuscript for content, including medical writing for content

Hong Ren: Analysis or interpretation of data

Xiuhe Zhao: Major role in the acquisition of data

Chuanzhu Yan: Study concept or design

Number of characters in title: 74

Abstract Word count:

Word count of main text: 100

References: 1

Figures: 1

Tables: 0

Neuroimage Legend Count: 46

Search Terms: [60] All Epilepsy/Seizures, [96] Mitochondrial disorders, [120] MRI

Study Funding: This study was supported by the the National Natural Science Foundation of China (No.82171394), the policy supported projects of collaborative innovation and achievement transformation in universities and research institutes of Jinan (2019GXRC050), the Taishan Scholars Program of Shandong Province and the Qingdao Key Health Discipline Development Fund.

Disclosures: The authors report no disclosures relevant to the manuscript.

An 18-year-old woman was admitted to the hospital for focal seizures. Serial MRI studies showed migratory Rolandic lesions (**figure A-D**), and the EEG showed sharp waves when the lesion appeared. The initial differential diagnosis included cerebral venous thrombosis, MOGAD and metabolic disorders. MRV, serum and CSF analyses were unrevealing. An analysis of the entire mtDNA of urine sediment by NGS showed a pathogenic m.10191T>C mutation in the *mt-ND3* gene (mutation load, 87%). Further analysis revealed the m.10191T>C variant was heteroplasmic in blood (24%) and oral mucosal (86%) cells. This case illustrates that m.10191T>C mutation may

present with migratory Rolandic encephalopathy¹.

Appendix Authors

Name	Location	Contribution
Kunqian Ji	Department of Neurology, Qilu Hospital, Shandong University	Designed and conceptualized study, drafted the manuscript
Hong Ren	Department of Neurology, Qilu Hospital, Shandong University	Major role in acquisition of genetic data
Xiuhe Zhao	Department of Neurology, Qilu Hospital, Shandong University	Revised the manuscript for intellectual content
Chuanzhu Yan	Department of Neurology, Qilu Hospital, Shandong University	Revised the manuscript for intellectual content

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Figure. MRI findings of Migratory Rolandic Encephalopathy

FLAIR image of the patient at the initial neurologic examination 1 year ago (A) and the tiny lesion at the left Rolandic cortex disappeared 2 months later (B) and reappeared 9 months later (C). Then additional similar tiny lesions developed in the right Rolandic cortex later (D).

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Neurology published online October 29, 2021

DOI 10.1212/WNL.00000000000013015

This information is current as of October 29, 2021

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