

# Widening the spectrum of LAMA 2 congenital muscular dystrophy (MDC1A): cobblestone malformation

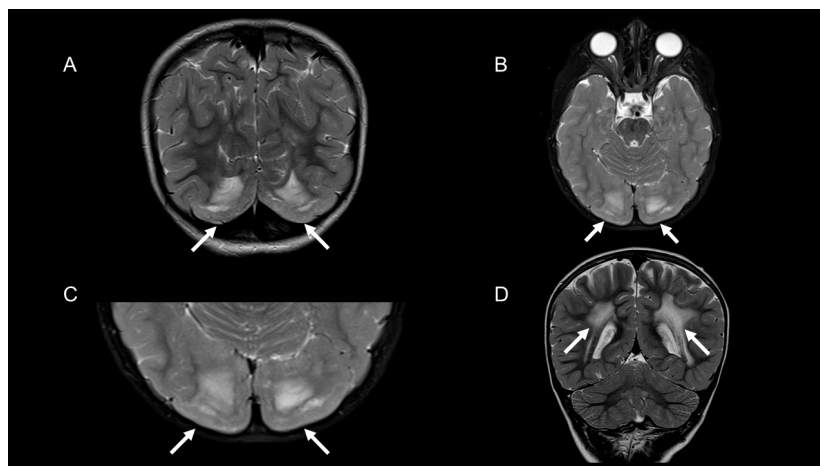
Ampliação do espectro da distrofia muscular congênita associada ao LAMA 2 (MDC1A): malformação do tipo “cobblestone”

Luiz Fernando Monte BORELLA<sup>1</sup>, Fernanda Veloso PEREIRA<sup>1</sup>, Paula Maria Preto MIMURA<sup>2</sup>, Juliana Ávila DUARTE<sup>3</sup>, Luciano de Lima VILLARINHO<sup>4</sup>, Thiago REZENDE<sup>5</sup>, Marcondes Cavalcante de FRANÇA JUNIOR<sup>5</sup>, Fabiano REIS<sup>1</sup>

A 4-year-old boy with *LAMA2*-related congenital muscular dystrophy had two pathogenic variants (NM\_000426): c.1255delA and c.2461A>C. Magnetic resonance imaging (MRI) of the brain showed signal abnormalities in supratentorial white matter (WM), which are conspicuous findings in this disease<sup>1</sup>. Interestingly, MRI also depicted malformations of

cortical development - symmetric bilateral parieto-occipital bumpy or pebbly cortical surface (cobblestone malformation)<sup>2</sup> (Figure 1).

This report expands *LAMA2*-related radiological phenotype to include not only WM abnormalities, but also predominantly posterior cerebral cortex changes.



**Figure 1.** (A) Coronal T2-weighted image (T2WI) showing bilateral and symmetric type II lissencephaly or “cobblestone” lissencephaly (arrows). (B) Axial T2-weighted image (T2WI) showing bilateral and symmetric type II lissencephaly or “cobblestone” lissencephaly (arrows). (C) Axial T2-weighted image (T2WI) with a closer view of the symmetric type II lissencephaly or “cobblestone” lissencephaly (arrows), in contrast with normal cortical development. (D) Coronal T2-weighted image (T2WI) showing signal abnormalities in the periventricular white matter (arrows).

<sup>1</sup>Universidade Estadual de Campinas, Faculdade de Ciências Médicas, Departamento de Radiologia, Campinas SP, Brazil.

<sup>2</sup>Pontifícia Universidade Católica de São Paulo, Faculdade de Ciências Médicas e da Saúde, Departamento de Neuropediatria, Sorocaba SP, Brazil.

<sup>3</sup>Universidade Federal do Rio Grande do Sul, Faculdade de Ciências Médicas, Departamento de Radiologia, Porto Alegre RS, Brazil.

<sup>4</sup>The University of Mississippi Medical Center, School of Medicine, Department of Radiology, Jackson, MS, USA.

<sup>5</sup>Universidade Estadual de Campinas, Faculdade de Ciências Médicas, Departamento de Neurologia, Campinas SP, Brazil.

LFMB <https://orcid.org/0000-0003-2661-4791>; FVP <https://orcid.org/0000-0002-0828-7806>; PMPM <https://orcid.org/0000-0001-9041-5047>;

JAD <https://orcid.org/0000-0003-4973-2889>; LLV <https://orcid.org/0000-0002-9532-1178>; TR <https://orcid.org/0000-0001-8453-0313>;

MCFJ <https://orcid.org/0000-0003-0898-2419>; FR <https://orcid.org/0000-0003-2256-4379>

**Correspondence:** Luiz Fernando Monte Borella; Email: borella.luz@gmail.com.

**Conflict of interest:** There is no conflict of interest to declare.

**Authors' contributions:** LFMB: conceptualization (supporting), data curation (supporting), investigation (supporting), writing-original draft (lead); FVP, PMPM, JAD, LLV, TR, MCFJ: conceptualization (equal), visualization (equal), writing-review & editing (equal); FR: conceptualization (lead), formal analysis (lead), project administration (lead), visualization (lead), writing-review & editing (lead).

Received on July 27, 2021; Received in its final form August 11, 2021; Accepted on 19 August 2021.

## References

---

1. Lamer S, Carlier RY, Pinard JM, Mompoin D, Bagard C, Burdairon E, et al. Congenital muscular dystrophy: use of brain MR imaging findings to predict merosin deficiency. *Radiology*. 1998 Mar 1;206(3):811-6. <https://doi.org/10.1148/radiology.206.3.9494506>
2. Jayakody H, Zarei S, Nguyen H, Dalton J, Chen K, Hudgins L, et al. Cobblestone Malformation in LAMA2 Congenital Muscular Dystrophy (MDC1A). *J Neuropathol Exp Neurol*. 2020 Sep 1;79(9):998-1010. <https://doi.org/10.1093/jnen/nlaa062>