

# Teaching NeuroImages: Leigh-like features expand the picture of *PMPCA*-related disorders

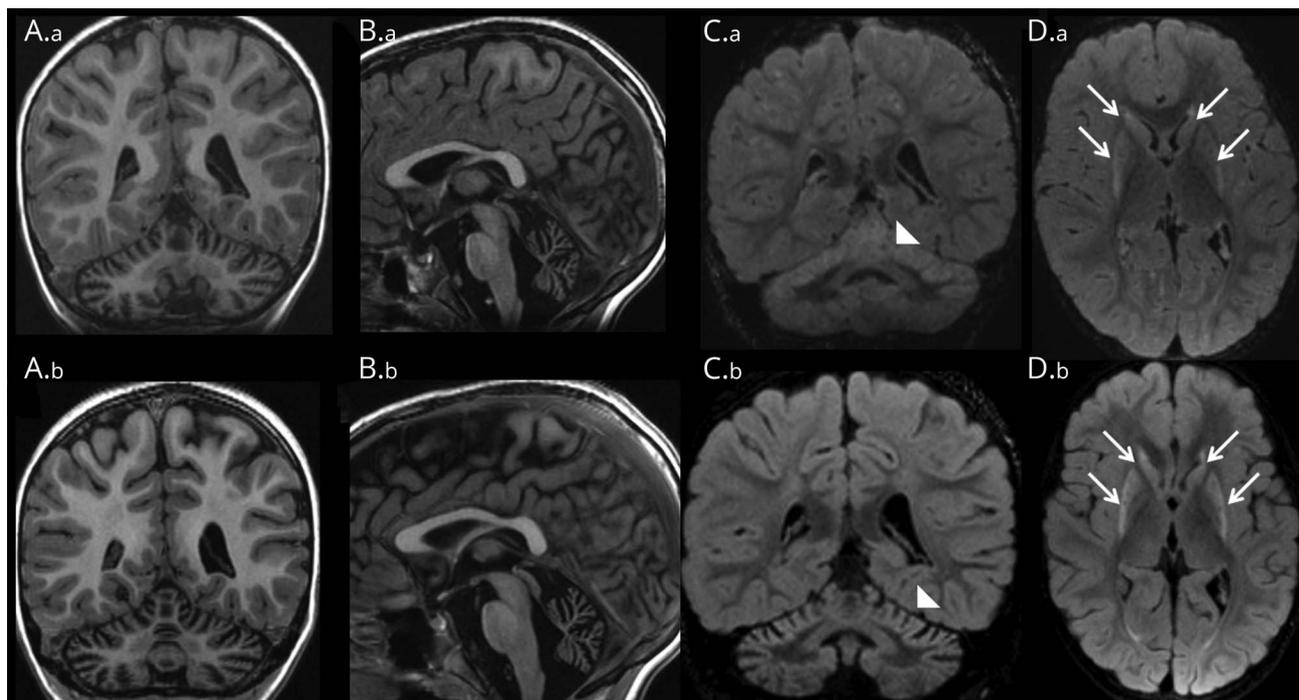
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## Figure Brain MRI



Brain MRI at age 3 (A.a–D.a) and 7 years (A.b–D.b) in a child harboring a new mutation in *PMPCA*. Coronal and sagittal (A.a, B.a) T1-weighted images show a shrunken appearance of the vermis and slight atrophy of the cerebellar hemispheres with widening of the cerebellar sulci. Coronal fluid-attenuated inversion recovery (FLAIR) image (C.a) reveals cortical signal increases in the superior vermis and cerebellar hemisphere (arrowhead). Axial FLAIR image (D.a) shows bilateral symmetric hyperintensity in the caudate and putamen. The main radiologic difference at follow-up at age 7 years is the increase in the striatal signal abnormality (in D.b vs D.a) (arrows).

A 7-year-old boy was referred at age 24 months with failure to thrive, global psychomotor delay, and spastic-ataxic gait with bilateral Babinski sign. Last examination revealed a further psychomotor regression and low IQ. The child could not talk, sit, or walk autonomously and showed upper limb dystonia. His Spastic Paraplegia Rating Scale<sup>1</sup> score was 35/52.

Brain neuroimaging showed cerebellar atrophy and bilateral symmetrical hyperintensity in the striatum (figure). Blood lactate levels were slightly elevated. A muscle biopsy showed multiple defects of oxidative metabolism and signs of mitochondrial proliferation. Exome sequencing revealed the homozygous c.553C > T/p.Arg185Trp in *PMPCA*.

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PMPCA processes multiple mitochondrial proteins, including frataxin and iron–sulfur clusters involved in brain energy and oxidative metabolism.<sup>2</sup> Leigh-like neuroimaging and spastic ataxia expand the spectrum of neurologic presentations linked to *PMPCA*.<sup>2</sup>

### Author contributions

Dr. Rubegni: designed and conceptualized study, analyzed the data, drafted the manuscript for intellectual content. Dr. Pasquariello: major role in the acquisition of data, drafted the manuscript for intellectual content. Dr. Dosi: major role in the acquisition of data. Dr. Astrea: major role in the acquisition of data. Dr. Canapicchi: interpreted the data, drafted the manuscript for intellectual content. Dr. Santorelli: interpreted the data, revised the manuscript for intellectual content, provided

funds for the study. Dr. Nesti: interpreted the data, revised the manuscript for intellectual content.

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### Disclosure

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

### References

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