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Case Report

Case of Crossed Cerebellar Diaschisis of a Child with Epilepsy

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Abstract

A case of a young girl, presenting an epilepsy, with the history of hemiplegia, the MRI found an encephalomalacia of the right cerebral hemisphere associated with atrophy of the contralateral cerebellar hemisphere, leading to the diagnosis of crossed cerebellar diaschisis.

Keywords: *Crossed Cerebellar Diaschisis; Epilepsy; Infarction*

Presentation of the Case

8-year-old girl, with a history of tetralogy of Fallot, operated on twice, and right hemiplegia 3 years ago, without benefiting from imaging initially, the patient presents to the hospital for recurrent epileptic crises. Cerebral MRI demonstrate an hypersignal T2 and FALR and atrophy of the grey and white matter of the left cerebral hemisphere with no restriction on the DWI along with the atrophy of the contralateral cerebellar hemisphere.

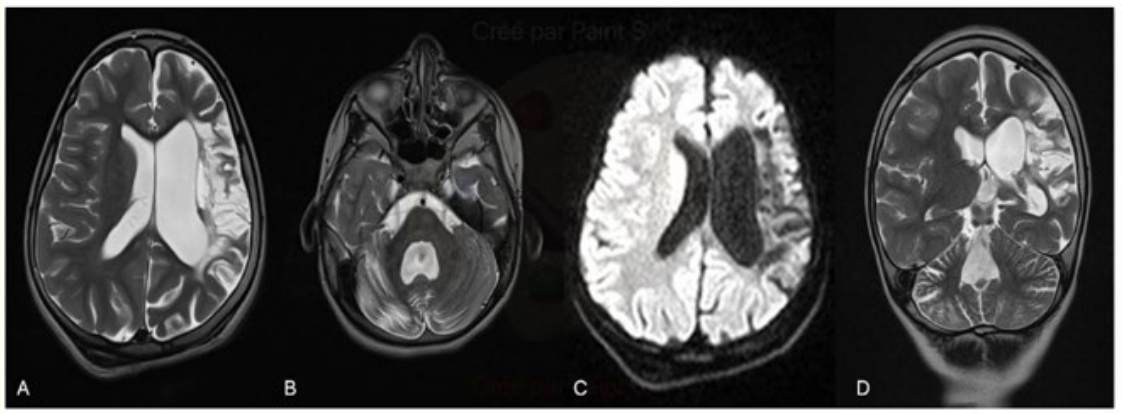

Figure A-D: *Figure A and B: Axial T2 on supra and infra-tentorial. Figure C: Axial DWI B1000. Figure D: Coronal T2.*

MRI of the brain demonstrate the hypotrophy of the left cerebral hemisphere (Figure A) and the contralateral cerebellar hemisphere (Figure B) with no restriction on the DWI (Figure C). The distribution of the lesions is more clear on the coronal T2 image (Figure D).

Discussion

Crossed cerebellar diaschisis (CCD) is a common radiological phenomenon manifested as reduced blood flow and glucose metabolism in the cerebellar hemisphere contralateral to a supratentorial cerebral lesion [1,2].

Although mostly seen in cerebral stroke, CCD has been reported in other clinical conditions such as status epilepticus, glioma, and encephalitis [3,4].

CCD can be long lasting as seen in many ischemic stroke cases or transient and reversible as seen in status epilepticus. It is considered as a continuum between potentially reversible hypoperfusion status and irreversible degeneration depending on the reversal of abnormal supratentorial cerebral lesion. The interruption of the cerebropontine-cerebellar pathway (Figure E) is thought to be the underlying cause of CCD.

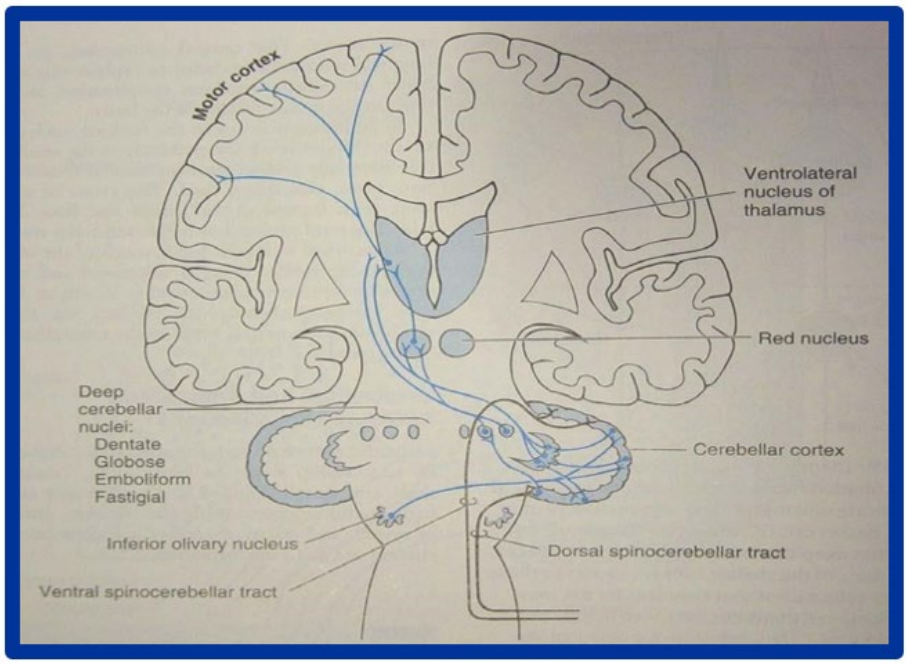

Figure E: *Schematic representation of the crossed cortico-thalamo-rubro-dentato-cerebellar tract.*

Conclusion

Crossed cerebellar diaschisis is a rare diagnosis that should be considered in the presence of focal or diffuse cytotoxic edema on MRI of one cerebral hemisphere associated with damage to the contralateral cerebellar hemisphere.

The underlying cerebral pathological context may be of ischemic vascular, tumoral, inflammatory or infectious origin.

CCD results from an a priori reversible alteration of cerebellar metabolism via the cortico-ponto-cerebellar connectivities.

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