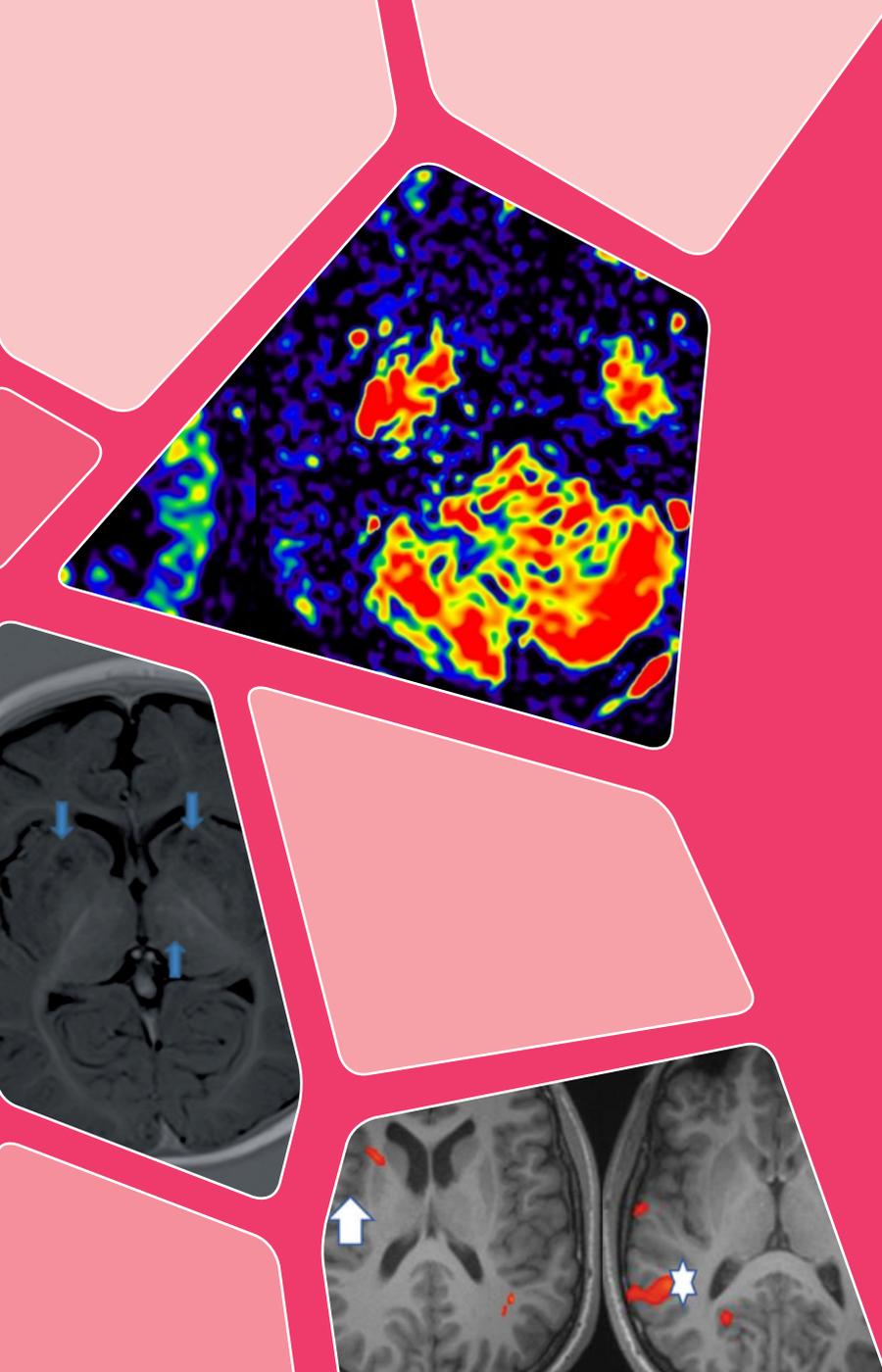


# Atlas of MRI in Epilepsy



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# Atlas of MRI in Epilepsy

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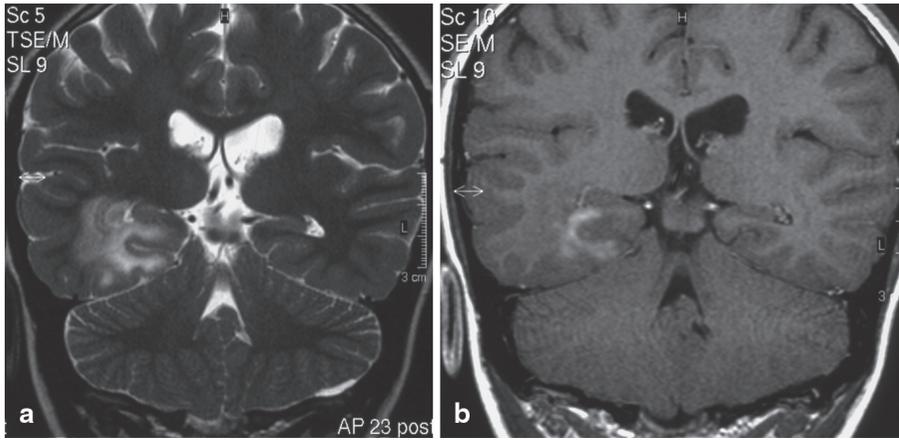
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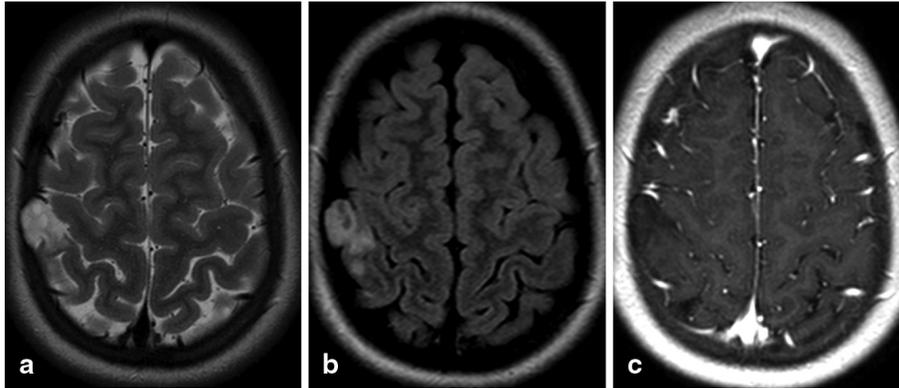
## Ganglioglioma in a 10-year-old boy



**a.** Coronal T2-weighted image. **b.** gadolinium (coronal Gd)-enhanced T1-weighted image. Lesion involving the right mesial temporal structures, with mild swelling of the parahippocampal region, hyperintense on T2-weighted image (a). Following Gd injection the lesion enhances. No cystic components are present.

Authors: Alessandro Consales, Paolo Nozza, Maria Luisa Zoli, Giovanni Morana, Armando Cama  
Title: Glioneuronal tumors and epilepsy: clinico-diagnostic features and surgical strategies  
Book: Epilepsy Towards the Next Decade  
DOI: 10.1007/978-3-319-12283-0\_4  
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## Dysembryoplastic neuroepithelial tumor in a 9-year-old girl

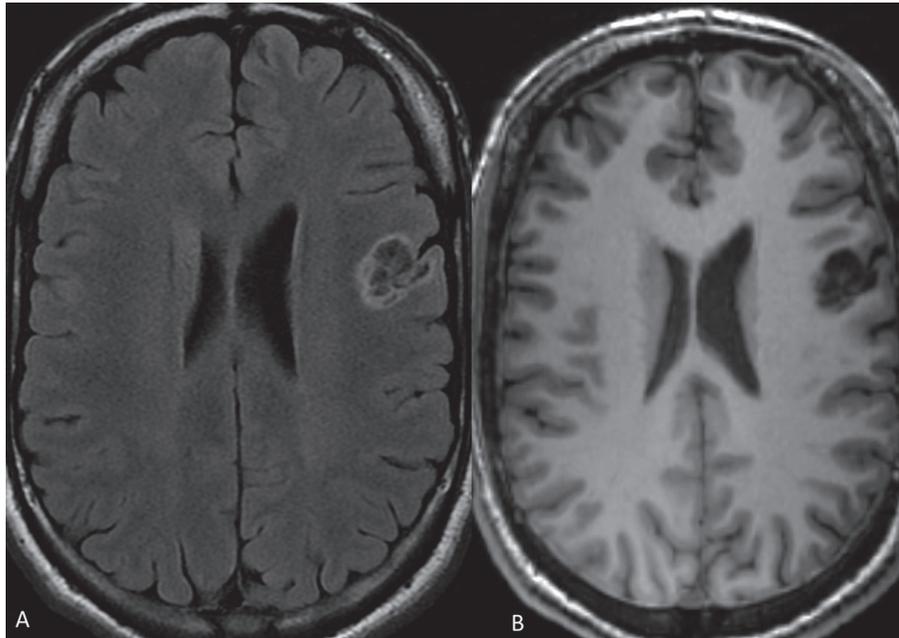


a. Axial T2-weighted image. b. Axial FLAIR image. c. Axial Gd-enhanced T1-weighted image. Superficially located tumor involving the right postcentral gyrus with remodeling of the adjacent calvarium (a). Two small internal pseudocysts are visible on FLAIR image (b). There is no enhancement on post contrast T1-weighted image (c).

Authors: Alessandro Consales, Paolo Nozza, Maria Luisa Zoli, Giovanni Morana, Armando Cama  
Title: Glioneuronal tumors and epilepsy: clinico-diagnostic features and surgical strategies  
Book: Epilepsy Towards the Next Decade  
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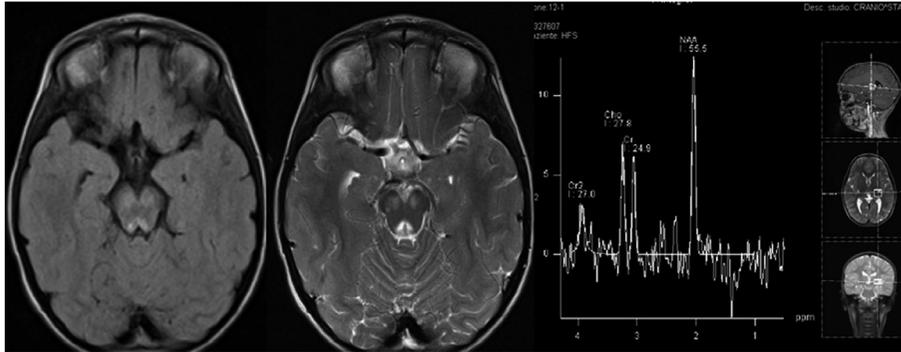
## Type 1 dysembryoplastic neuroepithelial tumor



Pseudo-polycystic “bubbly” appearance of a left frontal type 1 dysembryoplastic neuroepithelial tumor in axial FLAIR (A) and T1 (B).

Authors: Charles Mellerio, Francine Chassoux, Laurence Legrand, *et al.*  
Title: Epilepsy imaging  
Book: The Neuroimaging of Brain Diseases  
DOI: 10.1007/978-3-319-78926-2\_6  
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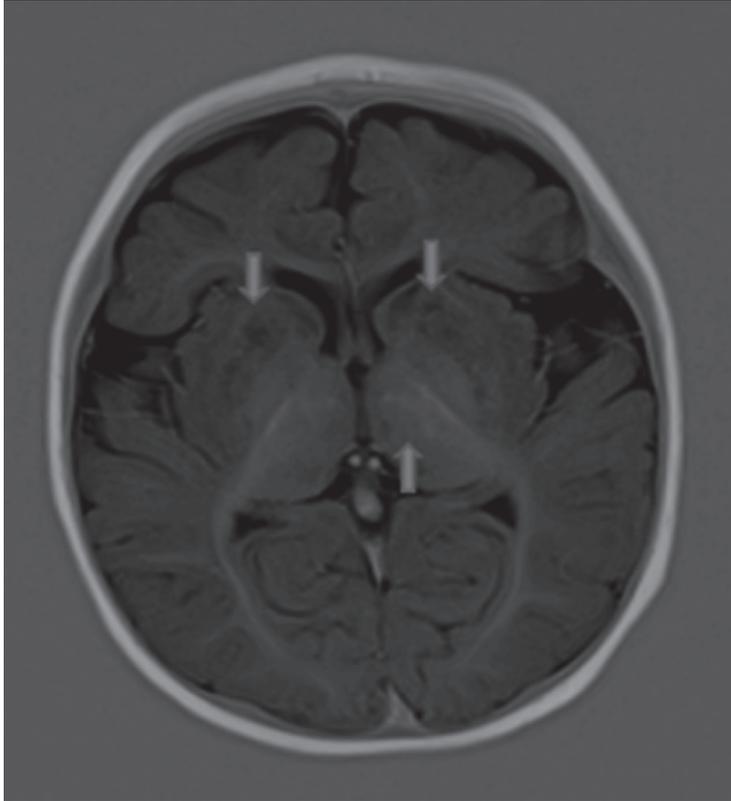
## MRI of a boy with Leigh phenotype with complex I deficiency



Axial T2-weighted images show focal bilateral lesions in the brainstem. The MR-spectroscopy shows a lactate peak in deep gray matter.

Authors: Laura Papetti, Francesco Nicita, Stella Maiolo, Vincenzo Leuzzi, Alberto Spalice  
Title: Metabolic causes of epilepsy  
Book: Epilepsy Towards the Next Decade  
DOI: 10.1007/978-3-319-12283-0\_5  
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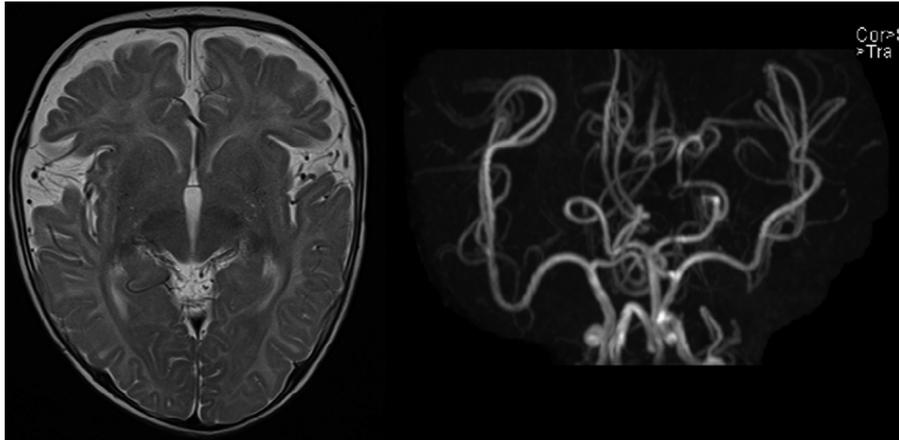
## MRI of 4 months-girl with ethylmalonic aciduria



Axial flair-sequence image shows bilateral hypointense lesions of basal nuclei (n. caudati; n. lentiformi).

Authors: Laura Papetti, Francesco Nicita, Stella Maiolo, Vincenzo Leuzzi, Alberto Spalice  
Title: Metabolic causes of epilepsy  
Book: Epilepsy Towards the Next Decade  
DOI: 10.1007/978-3-319-12283-0\_5  
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## MRI of 6 months-boy with Menkes disease

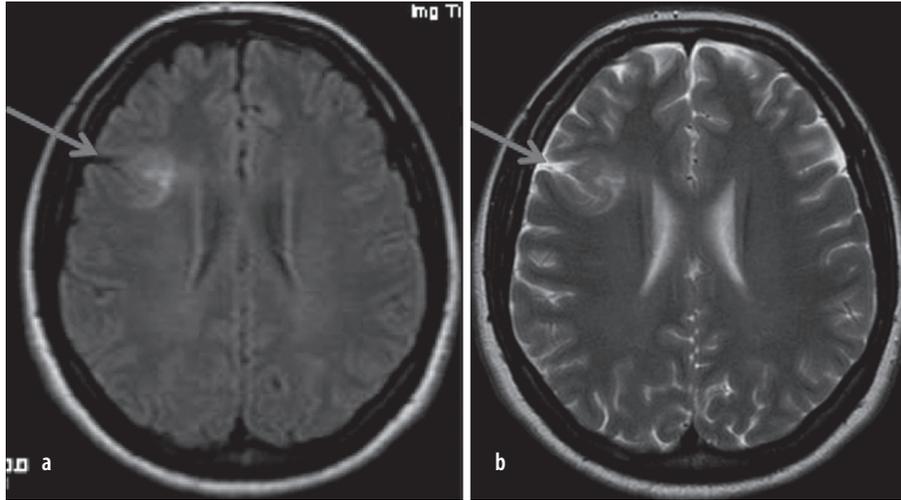


Axial T2-weighted image show dilatation of fronto-insular subarachnoid spaces and enlargement of anterior interhemispheric fissure. Axial MR angiography shows tortuous intracranial vessels.

Authors: Laura Papetti, Francesco Nicita, Stella Maiolo, Vincenzo Leuzzi, Alberto Spalice  
Title: Metabolic causes of epilepsy  
Book: Epilepsy Towards the Next Decade  
DOI: 10.1007/978-3-319-12283-0\_5  
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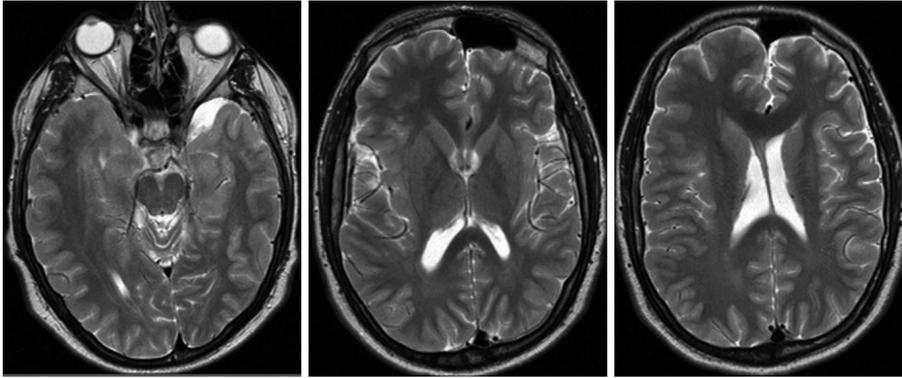
## Focal cortical dysplasia



Axial FLAIR **a** and T2 **b** images show thickening of the cortex at the bottom of a frontal sulcus with subcortical white matter hyperintensity (*arrows*).

Authors: F. Caranci, F. D'Arco, A. D'Amico, *et al.*  
Title: Current status and future prospective of neuroimaging for epilepsy  
Book: Epilepsy Towards the Next Decade  
DOI: 10.1007/978-3-319-12283-0\_7  
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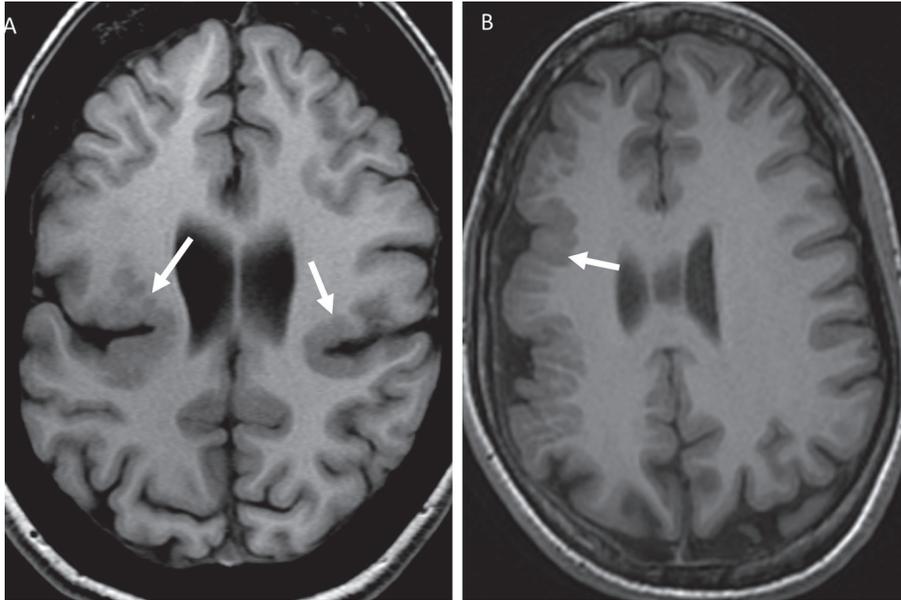
## Hemimegalencephaly



Axial T2 weighted images showing right hemimegalencephaly.

Authors: F. Caranci, F. D'Arco, A. D'Amico, *et al.*  
Title: Current status and future prospective of neuroimaging for epilepsy  
Book: Epilepsy Towards the Next Decade  
DOI: 10.1007/978-3-319-12283-0\_7  
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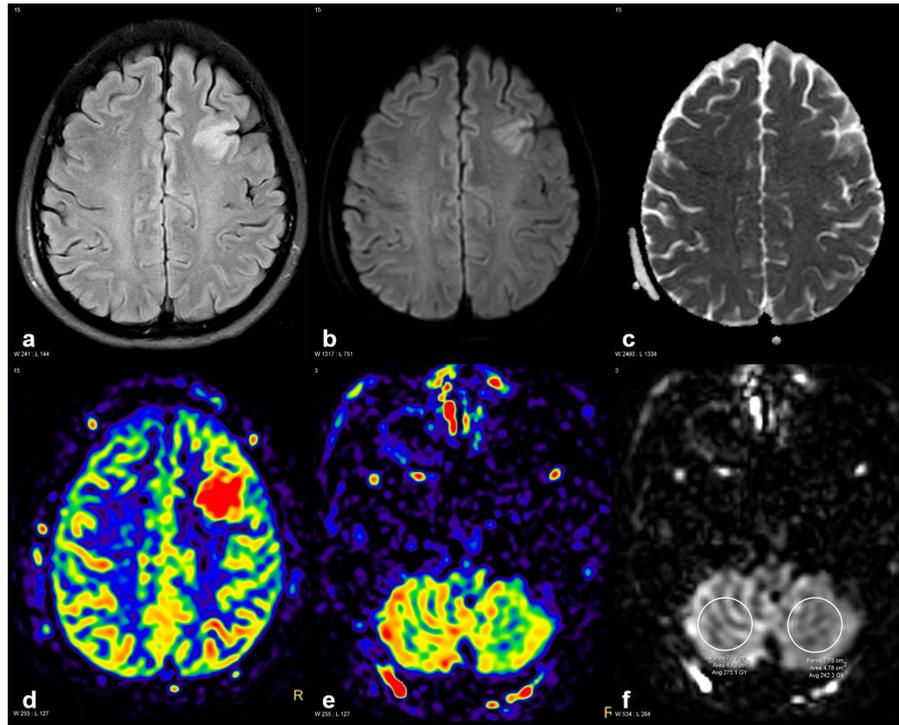
## Bilateral perisylvian polymicrogyria and frontoparietal polymicrogyria



Bilateral perisylvian polymicrogyria (A) and frontoparietal polymicrogyria in another patient (B) with a scalloped aspect of the cortex composed by numerous excessive small convolutions.

Authors: Charles Mellerio, Francine Chassoux, Laurence Legrand, *et al.*  
Title: Epilepsy imaging  
Book: The Neuroimaging of Brain Diseases  
DOI: 10.1007/978-3-319-78926-2\_6  
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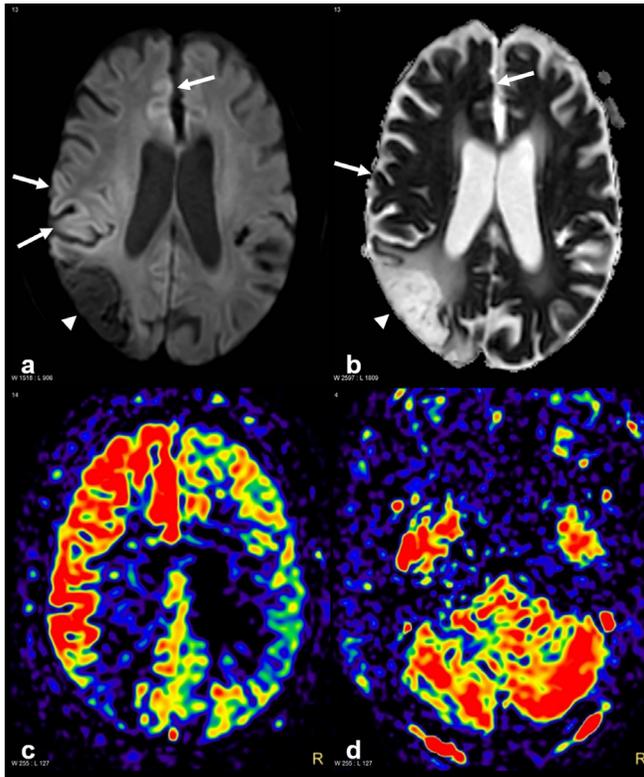
## A 47-year-old woman with a generalized tonic–clonic seizure



**a** The axial FLAIR and **b** diffusion-weighted imaging (DWI) show a focal hyperintense lesion in the left frontal lobe, which is presumed to be cortical dysplasia. **c** The signal intensity of the lesion is isointense on the apparent diffusion coefficient (ADC) map image. **d** The arterial spin labelling (ASL) perfusion image reveals increased perfusion in the corresponding area. **e** The colour and **f** greyscale ASL images show increased perfusion in the right cerebellum compared to the left. Region of interest (ROI) circles are located in both cerebella (**f**). The calculated asymmetry index was a positive value.

Authors: Jungho Won, Dae Seob Choi, Seok Jin Hong, *et al.*  
Title: Crossed cerebellar hyperperfusion in patients with seizure-related cerebral cortical lesions: an evaluation with arterial spin labelling perfusion MR imaging  
Journal: *Radiol med.*  
DOI: 10.1007/s11547-018-0921-4  
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## A 73-year-old man with a complex partial seizure



a The diffusion-weighted imaging (DWI) shows subtle hyperintense lesions in the right frontoparietal lobes (*arrows*). There is also parenchymal tissue loss due to a previous infarction in the right parietal lobe (*arrow head*). b On the apparent diffusion coefficient (ADC) map image, the lesions of the frontoparietal lobes reveal restricted diffusion (*arrows*) and the parietal lobe lesion reveals increased water diffusion (*arrow head*), respectively. c The arterial spin labelling (ASL) perfusion image shows markedly increased perfusion in the corresponding areas of DWI hyperintensity. d The left cerebellum reveals hyperperfusion on the ASL image regardless of the tissue loss in the right parietal lobe.

Authors: Jungho Won, Dae Seob Choi, Seok Jin Hong, *et al.*

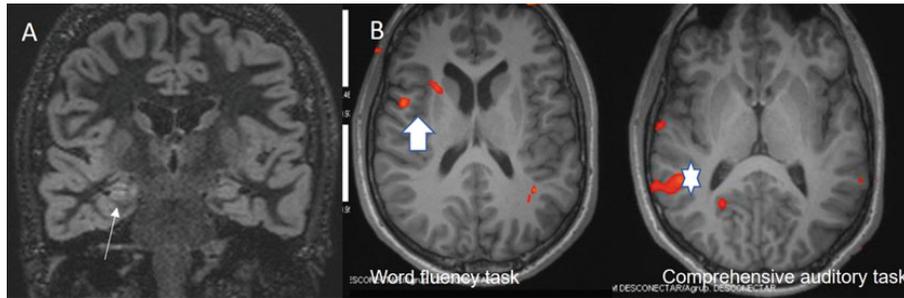
Title: Crossed cerebellar hyperperfusion in patients with seizure-related cerebral cortical lesions: an evaluation with arterial spin labelling perfusion MR imaging

Journal: *Radiol med.*

DOI: 10.1007/s11547-018-0921-4

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## Left-handed patient with mesial temporal lobe epilepsy presenting with dysphasia during the seizures



The neurophysiological tests show temporal lobe dysfunction of the dominant hemisphere for language. MR demonstrated right hippocampal sclerosis (HS). (A): Double inversion recovery (DIR) coronal demonstrating the increase of signal in the right hippocampus (*thin arrow*). (B) fMRI for language lateralization showed the right inferior frontal gyrus (*wide arrow*) and the right superior temporal gyrus (*star*) activated during the word fluency task and comprehensive auditory task, respectively.

Authors: Nuria Bargalló, Xavier Setoain, Mar Carreño  
Title: Neuroradiological evaluation of patients with seizures  
Journal: *Clin Radiol.*  
DOI: 10.1007/978-3-319-61423-6\_49-1  
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