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Translocator Protein 18 kDa PET Imaging Highlights Asymptomatic Isolated Cerebellar Dysplasia

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Asymptomatic congenital isolated cerebellar malformations diagnosed in adults are very rare.¹

This 62-year-old woman without any cerebellar symptom or sign but with subjective memory complaints and a family history of Alzheimer's disease (AD), participated in an AD-IRB-approved imaging study. Amyloid and tau PET scans were negative. An incidental cerebellar dysplasia, subtle on MRI, was striking on TSPO PET (Figure). Dysplastic tissue displaced normal tissue (white arrow), which allowed for normal function. TSPO is highly expressed by activated microglia and astrocytes. The signal on TSPO PET likely corresponded to the abundant astrocytes present in these malformations, as microglia are not increased.²

Figure: MRI, ^{18}F -FDG and ^{11}C -ER176 PETs from a patient with unilateral cerebellar dysplasia.

MRI showing right hemispheric cerebellar dysplasia with abnormal folia orientation (red arrow) and decreased myelination (asterisk) but no increased FLAIR signal suggestive of inflammation. PET is co-registered to MRI. FDG: fluorodeoxyglucose; SUV: standardized uptake value; VT: total distribution volume, calculated with the Logan plot and a metabolite-corrected arterial input function.

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