



## Striking neurologic $^{18}\text{F}$ -FDG PET/CT pattern in Devic's disease (neuromyelitis optica spectrum disorder)

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A 59-year-old woman presented conscious, behavioral, and cognitive function disturbance, preceded by 10 days history of fever, vomiting, and tremors. Seizures were ruled out by electroencephalogram. Cerebrospinal fluid (CSF) showed marked inflammatory component, predominantly lymphocytic with some eosinophils, and scarce polymorphonuclear leukocytes. Because of inconclusive clinical features and CSF, an auto-antibodies testing was conducted, which detected auto-antibodies against Aquaporin 4 (AQP4-IgG), a disease-specific serum IgG antibody in patients with Neuromyelitis Optica Spectrum Disorder (NMOSD) [1]. After 2 weeks of progressive neurological deterioration that produced unconsciousness, the patient underwent a whole body  $^{18}\text{F}$ -FDG PET/CT. The scan showed expansive and diffuse marked hypermetabolism in the spinal cord [2] (MIP (a)

and sagittal slice (b)), as well as intense bilaterally hypermetabolism in optic nerves (axial slice (c); arrow). In contrast, brain MRI was reported as suggestive of meningoencephalitis, with no significant morphological changes in the optic nerves (d).  $^{18}\text{F}$ -FDG PET/CT scan highlights the intense central nervous system hypermetabolic pattern in the acute stages of NMOSD [3], as the core neuropathological process takes place in the spinal cord (myelitis affecting  $\geq 3$  vertebral segments) and optic nerves (optic neuritis) [4], with alterations of glucose metabolism at such level, even before structural changes become clearly apparent.  $^{18}\text{F}$ -FDG PET/CT can be a surrogate marker of the cellular inflammation in NMOSD, as the pathogenesis in the acute stage of the disease is primarily manifested with astrocyte injury and secondary demyelination [5].

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This article is part of the Topical Collection on Image of the Month

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### Compliance with ethical standards

**Conflicts of interest** The authors declare that they have no conflict of interest.

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