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# FDG-PET and MRI features in multiple system atrophy

Hung Youl Seok, Mi-Yeon Eun, Kun-Woo Park and Sung-Wook Yu
Department of Neurology, Korea University College of Medicine, Republic of Korea

A 68-year-old man developed progressive slowness and stiffness in the right extremities, dysarthria, and urinary frequency over 10 months. He had bradykinesia and rigidity more pronounced on the right, mild right limb ataxia, increased deep tendon reflexes on the right side, and poor response to levodopa, which were compatible with diagnostic criteria of possible multiple system atrophy with predominant parkinsonism (MSA-P).[1] MRI showed no cerebral cortical abnormalities, left putaminal hypointensity, hyperintense right middle cerebellar peduncle, and cerebellar atrophy (Fig. A, B and C).

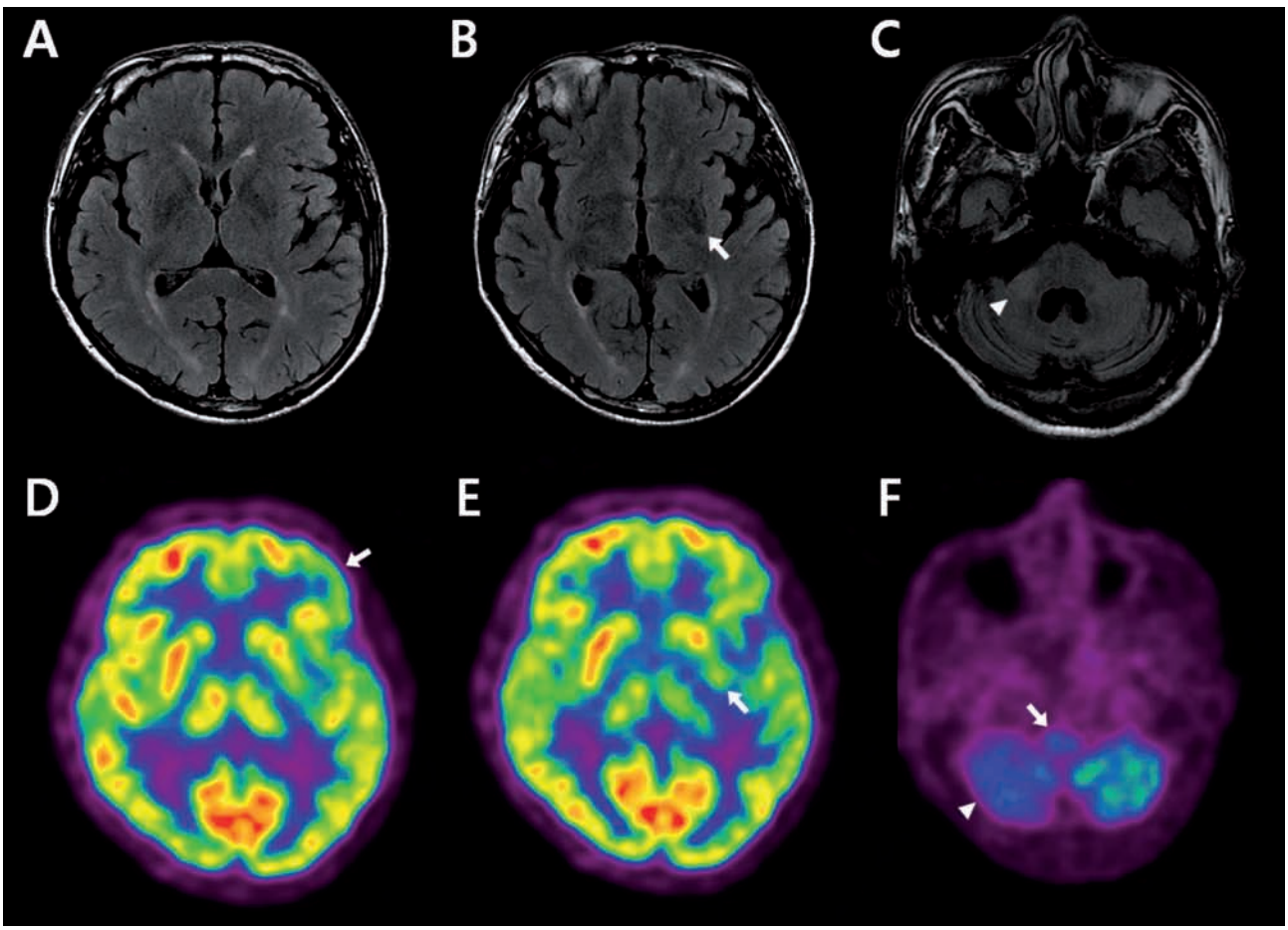


Fig. 1. — MRI and $^{18}$FDG-PET images of a patient with multiple system atrophy.
Axial FLAIR images show no cerebral cortical abnormalities (A), posterolateral putaminal hypointensity (B, arrow), hyperintense middle cerebellar peduncle (C, arrowhead), and cerebellar atrophy. Axial $^{18}$FDG-PET images demonstrate hypometabolism in the left dorsolateral prefrontal cortex (D, arrow), the left putamen (E, arrow), especially posterolateral portion, left thalamus, right cerebellum (F, arrowhead), and brainstem (F, arrow).

$^{18}$Fluorodeoxyglucose (FDG)-PET revealed glucose hypometabolism in the left putamen, left thalamus, right cerebellum, and brainstem as well as the left dorsolateral prefrontal cortex (Fig. D, E, and F). These neuroimaging findings are consistent with those previously described in MSA.[2] However, asymmetric cerebellar glucose hypometabolism is unusual and may be due to the early stage of the disease and asymmetry of clinical symptoms. The clinical distinction between MSA-P and Parkinson disease can be difficult and misdiagnosis is common. Using both $^{18}$FDG-PET and MR images may help establish a clinical diagnosis of MSA.[2]

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REFERENCES

1. Gilman S, Wenning GK, Low PA, Brooks DJ, Mathias CJ. *et al*. Second consensus statement on the diagnosis of multiple system atrophy. Neurology. 2008;71:670-676.
2. Brooks DJ, Seppi K. Proposed neuroimaging criteria for the diagnosis of multiple system atrophy. Mov Disord. 2009;24:949-964.

Sung-Wook Yu, M.D., Ph.D.,
Department of Neurology,
Korea University Medical Center,
Korea University College of Medicine,
#126-1, 5-Ga Anam-Dong, Seongbuk-Gu,
Seoul 136-705 (Republic of Korea).
E-mail: song4yu@korea.ac.kr