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Teaching Neuro*Images*: Holmes tremor after midbrain stroke

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Figure 1 T2-weighted image showing circumscribed ischemia of the left ventromedial midbrain

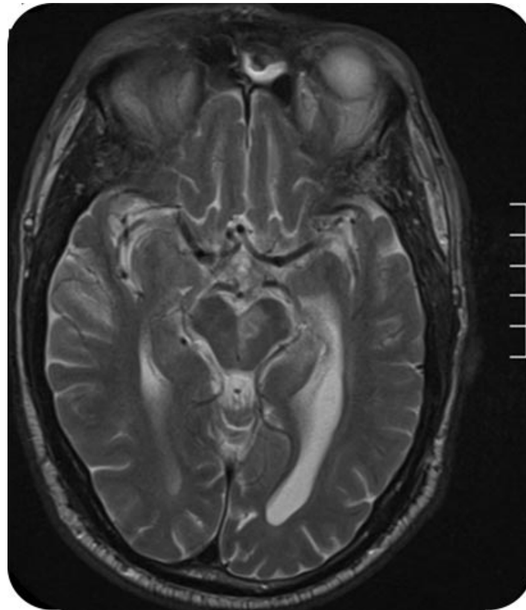
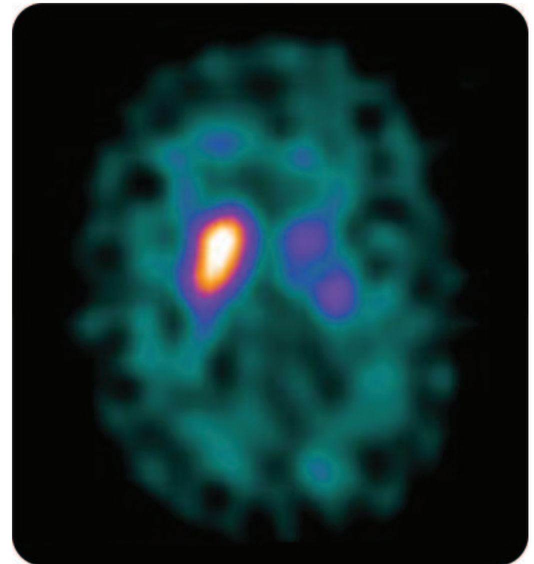


Figure 2 [^{123}I]FP-CIT SPECT showing reduced uptake within the left putamen and caudate



[^{123}I]FP-CIT = [^{123}I]-2β-carbomethoxy-3β-(4-iodophenyl)-*N*-(3-fluoropropyl)-nortropane.

A 69-year-old man presented with a continuous right upper extremity resting tremor with a 3-Hz frequency (video on the *Neurology*® Web site at www.neurology.org). The tremor developed gradually, 4 months after a left midbrain stroke. MRI showed an infarct in the left medioventral midbrain (figure 1). [^{123}I]-2β-carbomethoxy-3β-(4-iodophenyl)-*N*-(3-fluoropropyl)-nortropane ([^{123}I]FP-CIT) SPECT revealed marked left dopaminergic denervation (figure 2). At follow-up, the drug-resistant tremor had progressed to a predominantly postural and kinetic tremor.

Holmes tremor is an irregular rest, kinetic, or postural tremor with a frequency below 4.5 Hz. It is caused by a combined disruption of dopaminergic nigrostriatal, and cerebellorubrothalamic tracts.[1] A delay of up to 2 years between the lesion and tremor onset is typical. Case reports suggest that pharmacologic or neurosurgical intervention may help.[1,2]

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Supplemental data at www.neurology.org

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