Holmes Tremor with Peri-Rolandic Demyelinating Lesions: A Distinct Clinico-Radiographic Syndrome

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A. Budhram reports no disclosures relevant to the manuscript.
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Patients A (38-year-old female) and B (30-year-old male) developed unilateral, slowly progressive 4-6 Hz tremor over months-to-years with rest, postural and intentional components (Video 1 and 2), indicating Holmes tremor(1). Both had contralateral peri-rolandic lesions (Figure). Patient A had a midbrain lesion (Figure) and CSF-specific oligoclonal bands; Patient B had enhancement, MRI suggesting Wallerian degeneration (Figure) and transient low-titer MOG-IgG-positivity of doubtful clinical significance(1). Both lacked spine lesions. Neither responded to symptomatic/immunosuppressive treatments. We hypothesize the peri-rolandic lesions caused Holmes tremor by disrupting nigrostriatal/cerebello-thalamo-cortical projections, although this requires confirmation(2). We suspect progressive multiple sclerosis (MS) as the etiology, given the striking similarity to prior reports of this presentation in MS(3).

Figure 1. Brain MRI in two patients with Holmes tremor and peri-rolandic demyelinating lesions

Both patients had persistent unilateral peri-rolandic T2-FLAIR-hyperintense (A.a,B.a), T1-hypointense(A.b,B.b) lesions with transient gadolinium enhancement in patient B(B.b, arrows). Patient A also had a left posterolateral mesencephalic T2-FLAIR-hyperintense lesion (A.c,arrow). Patient B developed linear right cerebral peduncle T2-FLAIR-hyperintensity that was not observed on initial MRI three months after tremor onset, suggesting Wallerian degeneration (B.c,arrow).
## Appendix 1

<table>
<thead>
<tr>
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References


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