Mills Syndrome

Clinical and Radiologic Asymmetry

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Figure 1 3T MRI Brain FLAIR

Asymmetric atrophy of the left cerebral peduncle of the midbrain (A) and pons (B).

Figure 2 3T MRI Brain Tractography

Asymmetrically reduced white matter fiber density passing through the left cerebral peduncle.

A 58-year-old man presented with a 3-year history of minimally progressive right-sided weakness. Examination revealed facial asymmetry, mild pyramidal weakness in the upper and lower limbs with spasticity, brisk reflexes, and upgoing plantar on the right only. Sensory

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examination was normal. MRI brain abnormalities are demonstrated (figures 1 and 2 and video). Serial EMG of the limbs and motor unit number estimation were symmetrically normal without evidence of concurrent lower motoneuron (LMN) pathology. Unilateral midbrain atrophy in Mills syndrome is rarely reported.¹ The current case illustrates the associated asymmetric reduction in corticospinal tract fibers and absence of LMN involvement, further supporting a hemiparetic variant of primary lateral sclerosis.²

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Appendix Authors

Name	Location	Contribution
William Huynh, PhD, MBBS	Brain and Mind Centre, University of Sydney; Prince of Wales Clinical School, University of New South Wales; Southern Neurology, Kogarah, Australia	Designed and conceptualized manuscript, drafted manuscript

Appendix (continued)

Name	Location	Contribution
Sicong Tu, PhD	Brain and Mind Centre, University of Sydney, Australia	Data acquisition and interpretation, drafted and final edit of the manuscript
Colin Mahoney, PhD, MBBS	Brain and Mind Centre, University of Sydney, Australia	Data acquisition, final edit of manuscript
Raymond Schwartz, PhD, MBBS, FRACP	Southern Neurology, Kogarah; Sydney University, Australia	Patient management, final edit of manuscript
Matthew Kiernan, DSc, PhD	Brain and Mind Centre, University of Sydney, Australia	Supervision and final edit of the manuscript

References

1. Wang SP, Xu FC, Chen XW. Mills' syndrome: progressive hemiplegia with atrophy of unilateral cerebral peduncle and pontine base. *Neurol Sci* 2015;36:1487–1489.
2. Gastaut JL, Bartolomei F. Mills' syndrome: ascending (or descending) progressive hemiplegia: a hemiplegic form of primary lateral sclerosis? *J Neurol Neurosurg Psychiatry* 1994;57:1280–1281.

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