

Acupuncture Treatment for Supplementary Motor Area Syndrome: A Case Report

Olga Komargodski, MD; Jun Zhang, MD

Patient

A 71-year-old female with Supplementary Motor Area (SMA) Syndrome

Case

71-year-old female with multiple comorbidities presented with left arm tremors and cognitive deficits for about 2 years, MRI showed large falcine based meningioma with a mass effect on the frontal lobe. She underwent bilateral craniotomy and resection of meningioma, confirmed by pathology. On admission to an acute inpatient rehabilitation hospital, the patient lacked verbal output. She, was diagnosed with a supplementary motor area (SMA) syndrome due to the meningioma within the interhemispheric fissure abutting the SMA bilaterally.

Assessment/Results

Patient received acupuncture treatment of the following points: Shenmeng, RN 23, bilateral ST 4 to 6, Left LI 15, LI 11, LI 4, ST 36, SP 6, Right LI 4, SP 6, 30 min/session, 5 days a week for 2 weeks. The patient cooperated with the therapy and had a significant improvement. On admission she ambulated 50 feet with moderates assistance of two therapists, on discharge, she ambulated 150 feet with supervision.



Figure 1: Brain MRI T1 flair demonstrating a large falcine meningioma causing vasogenic edema in the right frontal lobe



Figure 2: Brain CT scan post resection demonstrating bilateral frontal lobe encephalomalacia and vasogenic edema right greater than left. Bifrontal hygromas.

References

- [1] Penfield W, Welch K. The supplementary motor area of the cerebral cortex; a clinical and experimental study. *AMA Arch Neurol Psychiatry* 1951;66:289–317.
- [2] Tanji J. The supplementary motor area in the cerebral cortex. *Neurosci Res* 1994;19:251–68.
- [3] Kim YH, Kim CH, Kim JS, *et al*. Risk factor analysis of the development of new neurological deficits following supplementary motor area resection. *J Neurosurg* 2013;119:7–14.

Conclusion

Acupuncture can be a good treatment option for SMA syndrome, but further studies are needed to establish the efficacy.

Discussion

The supplementary motor area (SMA) syndrome is a characteristic neurosurgical syndrome that may occur after unilateral resection of the SMA. The supplementary motor area is located in the superior frontal gyrus [1]. It has a role in the initiation, execution, and control of motor function and speech [2]. The classical SMA syndrome, following unilateral resection of the SMA, is characterized by global akinesia with normo- or hyporeflexia and normal tonus, more profound on the contralesional side, while muscle strength can be preserved. The prevalence of SMA following resection varies from 25%-100% [3] Treatment is currently not very well defined. Multiple treatment options have been tried, such as dopamine receptor agonists, Zyprexa, Strattera, and Sinemet, etc. In this case, acupuncture has been tried with good effect.

