

**Postoperative Focal Lower Extremity Supplementary Motor Area Syndrome: A Case Report**

Supplementary motor area (SMA) syndrome refers to varying degrees of transient hemiparesis and mutism following insult to the medial posterior frontal lobe. We describe a rare case of an isolated lower limb SMA deficit with associated pre- and post-operative multimodality neurophysiological monitoring data. A 45-year-old male underwent staged resection of a complex parasagittal WHO grade II meningioma involving the posterior superior frontal gyrus bilaterally. Intraoperative neurophysiological monitoring with transcranial motor evoked potentials (TCMEP) and direct cortical motor evoked potentials (DCMEP) were used during both stages of resection. The patient developed an isolated left foot drop despite unchanged DCMEP and TCMEP data obtained during the first stage of the procedure. During the second stage of resection 3 days later, repeat neurophysiological monitoring confirmed intact corticospinal tracts. Deep peroneal somatosensory evoked potentials (SSEPs) revealed good morphology, appropriate latency and amplitudes during the second stage of resection, suggestive of focal SMA dysfunction. Left foot drop persisted 7 days post-operatively and resolved at one month follow up, with full strength in all muscle groups of the left lower extremity. An improved understanding of the somatotopic organization of the SMA with additional neuromonitoring data can allow neurosurgeons to better predict and understand perioperative SMA dysfunctions.