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Transient Somatosensory Evoked Potential Attenuation as a Warning Sign of Delayed Vertebrobasilar Infarction After Anterior Cervical Discectomy and Fusion

Introduction:

Anterior cervical discectomy and fusion (ACDF) is a widely performed spinal procedure with a strong safety profile. While direct vertebral artery injury is rare and typically recognized intraoperatively, delayed posterior circulation stroke has not previously been reported after ACDF. In patients with vascular risk factors, surgical manipulation may impose arterial stress and predispose to thromboembolic events. Transient intraoperative neuromonitoring (IONM) changes—including somatosensory evoked potential (SSEP) attenuation—may serve as an early but underrecognized warning sign of vascular compromise.

Case:

A 61-year-old male underwent elective three-level ACDF for degenerative cervical myelopathy. During interbody cage placement, transient attenuation of right-sided SSEPs was observed, while other IONM modalities remained stable. On postoperative day 1, the patient developed dysarthria, hemiparesis, and hoarseness (NIHSS 7). MRI revealed bilateral cerebellar and pontine infarcts, and CT angiography demonstrated right-sided vertebral artery occlusion. He was stabilized with antiplatelet and anticoagulation therapy, followed by intensive rehabilitation, and achieved full motor recovery within one year.

Discussion/Conclusion:

This case represents the first reported instance of delayed vertebrobasilar stroke following ACDF. It highlights the importance of vascular risk stratification and consideration of preoperative vascular imaging in high-risk patients. Moreover, lateralized SSEP attenuation, even if reversible, may reflect early vascular stress and should be recognized as a potential warning sign. Heightened postoperative vigilance is warranted when such intraoperative findings occur, as they may indicate a potential for delayed cerebrovascular complications.