Somatosensory evoked potentials (SSEPs) are often used in neurosurgical patients to monitor changes in nerve conduction in the central and peripheral nervous systems. The choice of monitoring is dependent on the type of surgery being performed. Monitoring in the lower extremities is usually used during thoracic and lumbosacral surgery while monitoring of the upper extremities may be used to detect brachial plexus or peripheral nerve injury. Although changes in SSEP signals may reflect actual risk of developing nerve injury, reversal of these changes with repositioning is associated with a very low risk of postoperative peripheral nerve injury.

Our patient was a previously healthy 23 year-old male who sustained a L4 burst fracture after a fall who was scheduled for an L3-L5 posterior fusion in the prone position. SSEPs and motor evoked potentials (MEPs) were monitored, as per routine at our institution. Upon re-positioning to the prone position on the OSI Jackson table, we noted a loss of arterial waveform from the left radial arterial catheter. Within a few minutes of this observation the neuromonitoring physiologist reported a diminution of signal from the left upper extremity. A pulse oximeter probe, applied to the left index finger, revealed a poor waveform. The left arm bolster which was noted to be high in the axilla was repositioned with prompt improvement of the arterial and pulse oximetry waveforms. SSEPs quickly returned to baseline and remained stable throughout the remainder of the case. The patient was transferred to the trauma intensive care unit postoperatively without complication. No upper extremity symptoms consistent with postoperative nerve injury were noted throughout the patient’s hospital course.

The findings in this case illustrate the need for close monitoring during positioning of the patient. As evidenced in this case a poor arterial waveform preceded the change in SSEP monitoring signals by several minutes. Malfunction of a previously well-functioning arterial line after repositioning may be an early indication of neurovascular compromise and should be communicated to the operating room team, so that the limb can be repositioned as quickly and safely as possible.