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## **Intraoperative Monitoring and Diagnostic Services**

*June Issue*

### *Prevention of C-5 Palsies with IOM During Cervical Decompression Surgery*

Palsy of the fifth cervical root has a reported incidence of 7.3% during cervical surgery. The judicious use of intraoperative neurophysiologic monitoring can reduce this adverse outcome significantly. The article cited below addresses this important subject.

Jiminez JC, Sani S, Braverman B, Deutsch H, Ratliff JK. Palsies of the fifth cervical nerve root after cervical decompression: Prevention using continuous intraoperative electromyography monitoring. J Neurosurgery: Spine. 2005 Aug; 3(2): 92-7.

**OBJECT:** A desire to prevent complications resulting from spinal surgery led to the development of intraoperative monitoring. Intraoperative electromyography (EMG) provides useful diagnostic information regarding nerve root function during spinal and peripheral nerve surgeries. The C-5 nerve root is considered particularly vulnerable to injury during cervical surgery. Despite advances in techniques, the incidence of postoperative C-5 palsy has not changed.

**METHODS:** The authors reviewed prospectively collected data obtained in 161 patients who underwent 171 cervical procedures. In 116 procedures, operative monitoring was modified to include continuous C-5 EMG from the deltoid muscle. In cases in which spontaneous C-5 activity occurred, an appropriate change in operative manipulation was made. A historical control group consisted of a retrospective review of 55 procedures that were monitored using conventional techniques. In the retrospective cohort, four (7.3%) of 55 patients presented after undergoing surgery for C-5 nerve root palsy. In each patient conventional monitoring revealed unremarkable findings. In the prospective cohort, intraoperative spontaneous EMG activity necessitated a change in either positioning or operative technique in three cases. Only one patient (0.9%) experienced postoperative C-5 palsy. Postoperative C-5 palsy occurred in no patient in whom there was no intraoperative evidence of root irritation ( $p < 0.03$ , chi-square test).

**CONCLUSIONS:** The incidence of postoperative C-5 palsies was reduced from 7.3% to 0.9% due to intraoperative continuous EMG monitoring. No patient suffered a postoperative C-5 palsy when intraoperative evidence of root irritation was absent.

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