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A001 Surgical Removal of Peripheral Nerve Schwannoma with Intraoperative Neurophysiological Monitoring

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Introduction: Schwannomas are the most common peripheral nerve tumors arising from neural sheath. They account for less than 8% of soft tissue neoplasms. Surgical excision is the only option when patient presents with complaints, such as paresis, palsy, paresthesia, and pain. Essential goal of surgery will be complete excision of tumor with preserving nerve function. Intraoperative neurophysiological monitoring gives basic, reliable, and real-time information on functionality of explored nerve, which helps the surgical team in microdissection of tumor and complete removal without damaging normal nerve fasciculi.

Methodology/Description: A 48-year-old male patient came to us with complaints of swelling over left arm for 7 years. MRI showed a well-defined ovoid focal lesion measuring approximately 40 × 28 × 26 mm within the intermuscular plane along the distal portion of the left arm, which was closely related to and/or probably arising from the left radial nerve. Standard general anesthesia was given to patient with LMA supreme without relaxation. Anesthesia maintained on O_2 + N_2O + sevoflurane and controlled ventilation. After induction of anesthesia, electrodes were placed over extensor carpi radialis longus, brevis, and extensor digitorum. The tumor was pedunculated and seen to be arising from one of the fascicles of radial nerve. With a bipolar stimulation (0.5–1 ms, 0.7 mA), nerve was traced to the inferior and medial aspect of tumor. Capsule over the tumor dissected all around and tumor excised in toto with preservation of uninvolved radial nerve fasciculi. After complete excision, bipolar stimulation (0.5–1 ms, 0.5 mA) was given proximally directly on nerve and EMG activity noted and documented. There were no post-op deficits in left upper limb. On follow-up after a week, patient was completely asymptomatic with grade 5/5 power in left upper limb. Histopathology report confirmed it to be a schwannoma.

Conclusion: Intraoperative neurophysiological monitoring and nerve stimulation is important tool in complete surgical excision of peripheral nerve tumors and preserving nerve function.

Keywords: intraoperative neurophysiological monitoring, peripheral nerve, schwannoma

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A002 Utility of Cerebral Oximetry in Diagnosing Delayed Cerebral Ischemia in Aneurysmal Subarachnoid Hemorrhage in the Neuro Intensive Care Unit

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Introduction: Delayed cerebral ischemia (DCI) is the major cause of morbidity and mortality in patients suffering from spontaneous subarachnoid hemorrhage (SAH). An ideal surveillance method would provide early recognition of vasospasm and allow opportunity to initiate proper therapy prior to the development of symptoms. Therefore, we have studied the changes in rSO_2, CBFV, and $SjvO_2$ as surveillance techniques in patients prone to develop vasospasm.

Aims and Objectives: To evaluate the utility of cerebral oximetry, jugular venous oxygen saturation, and cerebral blood flow velocity in predicting vasospasm in poor grade SAH patients in the neuro ICU.

Methodology/Description: Prospective, observational; time period: 6 months.

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Inclusion Criteria: Age between 18and 65 years. Patients undergoing clipping, coiling for anterior circulation aneurysm with WFNS grade III, IV, and V. ICU admission within 48 to 72 hours of surgery.

Exclusion Criteria: Patient not giving consent. Contraindication for application of NIRS sensors (pneumocephalus). Data of rSO_2, $SjvO_2$, and CBFV were collected at the following time points—arrival in the ICU (baseline), second hourly daily during the ICU stay (up to 5 days) prior to and after intervention. The significant changes were recorded.

Results: Injured side NIRS values were less compared with normal side. Injured side TCD values were always higher by > 25 cm/sec. The side-side differences existed for NIRS and TCD. The trend values were similar in all patients and consistent.

Conclusion: Interhemispheric differences in rSO_2 and TCD could be considered as an early sign of VS-induced DCI rather than absolute threshold values. However, large studies are needed to test our observations.

Keywords: rSO_2, TCD, $SjVO_2$, vasospasm

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A003 Anesthetic Consideration in a Case of Von Hippel–Lindau Disease for Cervical Intramedullary Cyst Excision

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Introduction: Von Hippel–Lindau (VHL) disease is an inherited autosomal dominant disorder with predilection to develop characteristic tumors in the cerebellar hemispheres, retina, brain stem, and spinal cord with a prevalence of approximately 1/50,000.

Methodology/Description: A 29-year-old, 55-kg woman presented with tingling and numbness in all four limbs, difficulty in walking, constipation, and urge for micturition. MRI revealed multiple cystic enhancing lesions in cervical and dorsal cord with significant cord edema. Diagnosed with VHL disease, pancreatic cyst, and diabetes mellitus for past 5 years on treatment. Multiple hemangiomas in retina. Operated for right partial nephrectomy 5 years back. Patient had a Glasgow Coma Scale (GCS) of 15/15 preop. Power of 4/5 on right side, 5/5 on left side. Routine hematological, biochemical values, thyroxin, cortisol, chest X-ray, serum electrolytes, calcium and phosphorus levels, 12-lead electrocardiogram, and echocardiogram were normal. Patient was posted for cervical laminectomy and intramedullary cyst excision from C2 to C7 level. Routine monitors were attached, left radial artery was cannulated. Patient induced with inj. midazolam, fentanyl, propofol, and atracurium. Anesthesia maintained with oxygen–air mixture with sevoflurane (<0.5 MAC), dexmedetomidine, and propofol infusion. Intraop neuromonitoring—somatosensory evoked potential (SSEP), motor evoked potential (MEP), bispectral index, neuromuscular monitoring done. MEP—amplitude decreased < 50 intraoperatively with baseline values, while SSEP were maintained. Postoperatively, patient had right upper and lower limb power grade 0/5, which improved significantly by POD-3 to preop level 4/5. Patient was discharged on POD-8.

Conclusion: There is very little literature available for anesthetic management in a VHL disease. Anesthetic management of VHL is by itself a challenge; this case was more challenging due to the presence of cervicodorsal and pancreatic cyst with multiple hemangiomas. The case was successfully managed by vigilant clinical and invasive hemodynamic and neuromonitoring with successful outcome.

Keywords: von Hippel—Lindau, anesthetic consideration, neuromonitoring

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A004 Novel Use of Transcranial MEP and SSEP in a Case of Sciatic Nerve Tumor

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Introduction: Sciatic nerve monitoring is commonly done in pelvic surgeries and total hip replacements to preserve sciatic nerve function and prevent foot drop.

Methodology/Description: We present a case of a 24-year-old woman with severe pain in left posterior thigh extending into the leg and foot. MRI revealed sciatic nerve tumor (neurofibroma) extending into the sciatic foramen. We planned for intraoperative neurophysiological monitoring to preserve her sciatic nerve function. As the tumor was extending into the sciatic foramen, we could not stimulate the proximal nerve or do nerve action potentials. So, we planned for transcranial (motor evoked potentials [MEPs]). MEP monitoring in the muscles supplied by sciatic nerve (biceps femoris, gastrocnemius, tibialis anterior, extensor hallucis longus, and abductor hallucis longus). Posterior tibial somatosensory evoked potentials (SSEPs) were also used to monitor sensory component. TIVA with entropy guidance using propofol and dexmedetomidine was used to maintain anesthesia. For control, opposite limb MEP and SSEP were also monitored. During