Facial Electromyography (fEMG)

Refers to an electromyography (EMG) technique that measures muscle activity by detecting and amplifying the tiny electrical impulses that are generated by muscle fibers when they contract.

It primarily focuses on two major muscle groups in the face, the corrugator supercilii group which is associated with frowning and the zygomaticus major muscle group which is associated with smiling.

Introduced by Delgado in 1979, intraoperative monitoring with continuous electromyography (EMG) is now routine and has been shown to improve facial nerve FN functional outcome.

Continuous EMG identifies neurotonic discharges generated by mechanical or metabolic stimuli and can alert the surgeon to possible facial nerve injury from surgical manipulation. One particular pattern of discharge, the “A train,” is prolonged, surgery-related activity that has been shown to correlate highly with postoperative facial nerve dysfunction.

Abnormal lateral spread response (LSR) is a typical finding in facial electromyography (EMG) in patients with hemifacial spasm (HFS). Although intraoperative monitoring of LSR has been widely used during microvascular decompression (MVD), the prognostic value of this monitoring is still debated.