ROUTINE IDENTIFICATION OF THE FACIAL NERVE USING ELECTRICAL STIMULATION DURING OTOLOGICAL AND NEUROTOLOGICAL SURGERY

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We routinely identify the facial nerve to avoid facial nerve injury during most otologic surgery. Since 1985 we have used a facial nerve stimulator/monitor as an added safety feature in 383 consecutive otologic and neurotologic cases. In our last 30 middle ear, 8 retrolabyrinthine vestibular neurectomy and 14 acoustic neuroma cases, we used the monopolar stimulator probe tip to determine threshold currents needed to produce facial twitch. Stimulation thresholds varied according to the amount of soft tissue or bone overlying the facial nerve. The stimulator was useful for predicting dehiscences in the bony facial canal during middle ear and mastoid surgery. The exposed facial nerve usually stimulated at a level less than 0.1mA (mean 0.05 mA), and the horizontal facial nerve covered by bone stimulated at 0.25 mA or greater (mean 0.6 mA). The stimulator was also used to predict the amount of bone overlying the vertical facial nerve at the annulus. An approximate relationship of 1.0 mA of threshold current to 1.0 mm of bony covering was found. After acoustic neuroma surgery, the stimulation threshold of the facial nerve at the brain stem helped predict postoperative facial function. Cases with current thresholds of 0.3mA or less resulted in normal facial function. During ear surgery, routine identification of the facial nerve with the aid of facial nerve stimulator will help avoid facial nerve injury.