

Modified Auriculotemporal Nerve Block Minimized the Incidence of Transient Facial Nerve Palsy in Awake Craniotomy Patients

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Introduction

- Awake craniotomies are an increasingly used method for the resection of tumors in the eloquent cortical area.
- Patient participation allows mapping of motor, sensory, speech, and visual areas, ideally preserving function and allowing more aggressive resection margins.
- Several anesthetic techniques can be used, with intravenous sedation and individual scalp blocks being the most efficient.
- Scalp blocks provide anesthesia of the skin, bone, and dura, which allows surgery in awake, communicating patients.
- Scalp blocks that are performed bilaterally to enable pinning and wide excisions are: supratrochlear, supraorbital, zygomaticotemporal, auriculotemporal (AT), lesser occipital and greater occipital nerves.
- A previously reported complication after auriculotemporal nerve block was transient facial nerve palsy.
- The etiology is likely multifactorial, with the primary concern being anatomical approximation of the block site to the facial nerve.
- We have modified the traditional AT nerve block site to avoid this complication.

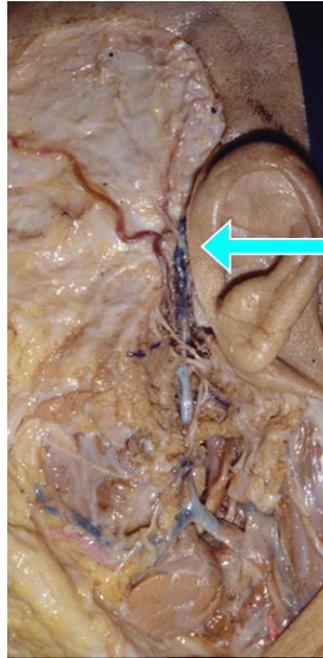


Fig 1. Cadaveric view for AT and facial nerves
(Courtesy of James P. Chandler M.D.)

Methods

Fifty-nine patients received unilateral or bilateral scalp blocks for awake intracranial procedures over 30 months. The traditional AT nerve block consists of 5cc of local anesthetic injected 1.5cm anterior to the ear, at the level of the tragus, being mindful to avoid the superficial temporal artery (STA). The modification we instituted entails 3cc of local anesthetic injected posterior to the STA at a level 1cm cephalad to the tragus (Fig 1).

Results

- Out of a total of 111 individual AT blocks with the injection site modification, 1 patient had unilateral facial nerve palsy.
- This palsy was on the opposite site of surgery, and was apparent soon after the scalp block was placed.
- The patient's facial nerve palsy resolved within a week, but it was likely well before that.
- This is a 0.9% complication rate of transient facial nerve palsy in this case series.

Discussion

- Providing an anesthetic with minimal complications that allows patients to successfully tolerate intraoperative motor, sensory, speech, and visual mapping is of paramount importance.
 - We have demonstrated that a simple modification of the AT nerve block minimizes the complication of transient facial nerve palsy.
 - A previous case series reported a complication rate of 8.6% using the traditional block technique.¹
 - We had a significantly decreased complication rate to 0.9% using the modified block technique.
 - The most likely reason for this decrease is the longer anatomical distance from the injection site to the facial nerve, and less spread of the smaller volume of local anesthetic injected.
1. McNicholas, E, et al. Transient Facial Nerve Palsy After Auriculotemporal Nerve Block in Awake Craniotomy Patients. *A&A Case Reports*. 2014; 2:40–3.

