PubMed

Format: Abstract

Acta Otolaryngol. 2018 Jan 23:1-6. doi: 10.1080/00016489.2018.1424998. [Epub ahead of print]

Awake craniotomy for assisting placement of auditory brainstem implant in NF2 patients.

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OBJECTIVES: Auditory brainstem implants (ABIs) may be the only opportunity for patients with NF2 to regain some sense of hearing sensation. However, only a very small number of individuals achieved open-set speech understanding and high sentence scores. Suboptimal placement of the ABI electrode array over the cochlear nucleus may be one of main factors for poor auditory performance. In the current study, we present a method of awake craniotomy to assist with ABI placement.

METHODS: Awake surgery and hearing test via the retrosigmoid approach were performed for vestibular schwannoma resections and auditory brainstem implantations in four patients with NF2. Auditory outcomes and complications were assessed postoperatively.

RESULTS: Three of 4 patients who underwent awake craniotomy during ABI surgery received reproducible auditory sensations intraoperatively. Satisfactory numbers of effective electrodes, threshold levels and distinct pitches were achieved in the wake-up hearing test. In addition, relatively few electrodes produced non-auditory percepts. There was no serious complication attributable to the ABI or awake craniotomy.

CONCLUSIONS: It is safe and well tolerated for neurofibromatosis type 2 (NF2) patients using awake craniotomy during auditory brainstem implantation. This method can potentially improve the localization accuracy of the cochlear nucleus during surgery.

KEYWORDS: Neurofibromatosis type 2; auditory brainstem implant; awake craniotomy

PMID: 29361882 DOI: 10.1080/00016489.2018.1424998