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CHILDREN'S AUDITORY IMPLANTS

Cochlear implantation in children with congenital malformations of the mastoid process

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Abstract

The use of cochlear implants with access through the round window preserves residual hearing in children and adults. Occasionally, abnormal anatomy prevents typical access through the facial nerve's recess. In such cases, the active implant electrode should be inserted in an alternative way, without performing posterior tympanotomy. These methods also allow the implant to be placed through the round window while preserving the cochlear structure.

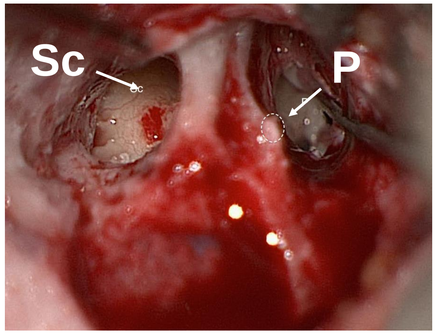

Fig. 1 Condition after opening the mastoid process in the upper part, right ear. Sc – lateral semicircular canal, P – promontory. The lower and middle parts of the mastoid process are filled by a violet-translucent sigmoid sinus (circular marking

Résultats

Case I : No complications were observed in the post-operative period and wound healing was normal. A postoperative CT scan was performed to evaluate the position of the electrode. The electrode correctly filled the basal and mid-curve (Fig. 2.). Early pure- tone audiometric evaluation showed preservation of residual hearing in this patient, indicating atraumatic management.

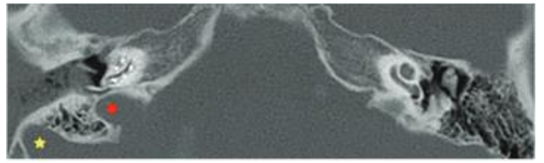

Figure 2. HRCT of the temporal bones performed after surgery to verify the position of the implant electrode.. Also visible is significant protruding of the sigmoid sinus (yellow asterisk), a small hypoplastic mastoid process, and an extensive jugular vein bulb (red asterisk).

Case II: The active electrode of the implant was inserted through thehole made, directing it into the circular window and controlling the insertion from a dual access (Figure 3).In the peri- and postoperative course, no complications, wound healing was normal.

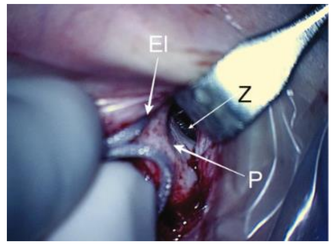

Figure 3. Right ear, combined approach. Insertion of the active electrode of the implant through upper part of the mastoid (EI). The distal part of the electrode (Z) visiblethrough the ear canal is inserted into the round window. Posteriorwall of the ear canal (P).

Objectifs

The aim of the study was to present a surgical procedure used in patients with congenital defects involving the mastoid process, where access via a posterior tympanotomy was not possible.

Conclusion

In malformations of the mastoid process in the form of aplasia, hypoplasia or significant protrusion of the sigmoid sinus, a modified access that bypasses the facial nerve recess should be considered. The method is safe and allows the insertion of the implant active electrode through the round window.

Rapport de cas

Case I: A 7-year-old child with partial deafness and residual low-frequency hearing was scheduled for cochlear implant surgery in view of the lack of benefit from the device and deteriorating hearing. A temporal bone computed tomography (HRCT) scan revealed a frontal sigmoid sinus.

Case II: A 22-month-old child with congenital profound hearing loss was qualified for cochlear implantation in the face of bilateral auditory nerve unresponsiveness on ABR testing. Imaging studies performed revealed congenital malformation of both middle and inner ears with suspected auditory nerve hypoplasia, dysplastic cochlea, and the presence of a narrow round window niche. An undeveloped mastoid process was also described.

Références

1.Porowski M, Skarżyński H, Skarżyński PH. Technika operacyjna w implantacji ślimakowej u dzieci z wadami wrodzonymi wyrostka sutkowego. Nowa Audiofonologia. 16 listopad 2023;12(2):57–61.

2.Skarzynski H, Lorens A, Piotrowska A, Anderson I. Partial deafness cochlear implantation in children. Int J Pediatr Otorhinolaryngol. wrzesień 2007;71(9):1407–13.

3.Häusler R. Cochlear implantation without mastoidectomy: the pericanal electrode insertion technique. Acta Otolaryngol (Stockh). październik 2002;122(7):715–9.

4.Skarzynski H, Lorens A, Piotrowska A, Anderson I. Preservation of low frequency hearing in partial deafness cochlear implantation (PDCI) using the round window surgical approach. Acta Otolaryngol (Stockh). styczeń 2007;127(1):41–8.

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