

Cochlear Implantation with a Combined Approach: A Case Report

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Abstract

Introduction:

Ear symptoms of granulomatosis with polyangiitis can range from ear fullness and otalgia to conductive or sensory neural hearing loss and sudden deafness. Cochlear implantation in these patients faces two challenges: access to the round window and control of mastoid and middle ear inflammation. The combined approach in cochlear implantation is a classic trans-facial recess approach facilitated by a trans-canal view.

Case Report:

In this case report, we present the "combined approach" in a 20-year-old lady with granulomatosis with polyangiitis who underwent cochlear implantation successfully using the combined approach.

Conclusion:

Post-operative results suggest that the "combine approach" seems to be a safe, easy, and fast cochlear implantation technique for chronic otitis media with an atelectatic middle ear and retracted tympanic membrane or narrow facial recess space. It is a single-stage surgery that has no need for the obliteration of the ear and has less morbidity.

Keywords:

Cochlear implants; Otitis media; Sensorineural hearing loss; Cochlear implantation; Otitis media with effusion.

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tube insertion as the first-line conservative therapy. Following confirmation of granulomatosis with polyangiitis and the development of profound sensorineural hearing loss, and with no response to medical therapy and limited benefits from hearing aids, we proceeded with cochlear implantation during remission of the underlying disease, resulting in a satisfactory outcome.

Conclusion

The “Combined approach” seems to be a safe, easy, and fast technique for cochlear implantation in the case of chronic otitis media with an atelectatic middle ear and retracted tympanic membrane or narrow facial recess space. It is a single-stage surgery that has no need for the obliteration of the ear and has less morbidity.

Also, the otologists seem familiar with this approach and do not need additional expertise. Furthermore, if revision surgery is required, it is easier and does not distract the middle ear structure.

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References

1. Srouji IA, Andrews P, Edwards C, Lund VJ. Patterns of presentation and diagnosis of patients with Wegener's granulomatosis: ENT aspects. *J Laryngol Otol.* 2007;121(7):653-8.
2. Abou-Elhmd KA, Hawthorne MR, Flood LM. Cochlear implantation in a case of Wegener's granulomatosis. *J Laryngol Otol.* 1996;110(10):958-61.
3. Kiratzidis T, Arnold W, Iliades T. Veria operation updated. I. The trans-canal wall cochlear implantation. *ORL J Otorhinolaryngol Relat Spec.* 2002;64(6):406-12.
4. Dubey S, Singh J, Bhardwaj B. Bhopal Technique of Cochlear Implantation: A Surgical Review of 50 Cases. *Indian J Otolaryngol Head Neck Surg.* 2020;72(3):375-80.
5. Elmas F, Shrestha BL, Linder TE. Subtotal Petrosectomy and Cochlear Implant Placement in Otologic Presentation of "Wegener's Granulomatosis". *Kathmandu Univ Med J (KUMJ).* 2017;15(57):94-8.
6. Kazemi T, Babaei A, Hashemi SB. Using Combined Approach for Cochlear Implantation in a Deaf Child with Inner Ear Anomaly and Improper Anatomy of Middle Ear: A Case Report. *Journal of Isfahan Medical School.* 2022;39(653):959-63.
7. Illum P, Thorling K. Otological manifestations of Wegener's granulomatosis. *Laryngoscope.* 1982; 92(7 Pt 1):801-4.
8. Komblut AD, Wolff SM, Fauci AS. Ear disease in patients with Wegener's granulomatosis. *Laryngoscope.* 1982;92(7 Pt 1):713-7.
9. McDonald TJ, DeRemee RA. Wegener's granulomatosis. *Laryngoscope.* 1983;93(2):220-31.
10. Bakthavachalam S, Driver MS, Cox C, Spiegel JH, Grundfast KM, Merkel PA. Hearing loss in Wegener's granulomatosis. *Otol Neurotol.* 2004; 25(5):833-7.
11. Lang F, Aschendorff A, Arndt S, Rauch A-K. Sudden hearing improvement under triple immunosuppression in subacute unilateral deafness in granulomatosis with polyangiitis. *Laryngo-Rhino-Otologie.* 2023;102(S02).
12. Hashemi SB, Bozorgi H, Kazemi T, Babaei A. Cerebrospinal fluid gusher in cochlear implant and its associated factors. *Acta Otolaryngol.* 2020; 140(8):621-5.
13. Hashemi SB, Janipour M, Jahangiri R, Babaei A. The effect of cochlear implant insertion technique on post-operative neural response telemetry and impedance in paediatric patients. *J Laryngol Otol.* 2022:1-5.
14. Kurkure R, Rayamajhi P, Castellino A, Dharmarajan S, Dham R, Natarajan K, et al. Subtotal Petrosectomy in Cochlear Implant Surgery: Our Experience. *Indian J Otolaryngol Head Neck Surg.* 2020;72(3):320-5.
15. Häusler R. Cochlear implantation without mastoidectomy: the pericanal electrode insertion technique. *Acta Otolaryngol.* 2002;122(7):715-9.
16. Szymański M, Ataide A, Linder T. The use of subtotal petrosectomy in cochlear implant candidates with chronic otitis media. *Eur Arch Otorhinolaryngol.* 2016;273(2):363-70.
17. Bartov N, Dahan T, Halperin D, Katzenell U. Cochlear Implantation in a Patient with Granulomatosis with Polyangiitis. *Isr Med Assoc J.* 2022; 25(12):834-5.