

SCALA TYMPANI DRILL-OUT TECHNIQUE FOR OVAL WINDOW ATRESIA WITH MALFORMED FACIAL NERVE: A REPORT OF FOUR CASES

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Objective: In some rare cases of congenital aplasia of the oval window (OW), malformed stapes and abnormal facial nerve locations covering the OW present a challenge to reconstruction of the ossicular chain. In this paper, A new scala tympani drill-out technique for managing malformed facial nerve covering the entire OW was reported.

Methods: Data from four cases with OW atresia, malformed stapes and abnormal facial nerve courses were reported, in which a scala tympani drill-out technique was employed with a TORP between the tympanic membrane and scala tympani fenestration for hearing reconstruction. The technique includes four key points:

Diagnosis: Pre-operative coronal HRCT showed the OW niche tapering to a V shaped central depression, a footplate showing bone but no cartilage densities and the facial nerve located at the inferior border of OW atresia. Location of fenestration: The optimal location is the initial part of scala tympani, corresponding

to the promontory wall anterior-inferior to the round window membrane. Scala tympani drill-out technique: The bone at the fenestration site is removed to the level of endosteum using a 1.0 mm diamond burr at low-speed until the blue shadow is seen. A thin piece of fascia should be placed over the fenestration to protect and support the endosteum. The titanium TORP is placed between the tympanic membrane and the fenestration.

Results: Air conduction hearing improved in three of the four cases following surgery. But one of the four cases had no improvement in air conduction hearing following a canal wall up mastoidectomy and tympanoplasty. There were no vertigo, tinnitus or sensorineural hearing loss in the four cases.

Conclusion: The scala tympani drill-out technique, which is basically fenestration at the initial part of the basal turn, provides a choice in hearing reconstruction when the OW is completely covered by abarrently coursed facial nerve.

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