The progression of hearing loss in EVA patients: a retrospective analysis

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Enlargement of the vestibular aqueduct (EVA) is the most found cochlear abnormality on computed tomography (CT) in patients diagnosed with hearing loss.

'Can we predict hearing outcome in patients with an EVA ?'

Objective
To describe the progression of hearing loss in patients with an EVA by a retrospective chart-review

Methods
Audiograms of 23 patients (21 children, 2 adults; 43 affected ears) with a radiologically identified EVA were analyzed. Baseline, final pure-tone averages (0.5-4kHz) were calculated and pattern of hearing loss over time was assessed with growth models.

Results
• 64% of patients showed high frequency hearing loss at initial presentation
• 58.4% of ears showed hearing loss progression, 22.2% stability and 16.6% improvement at simple analysis.
• 50.0% of ears showed fluctuation
• Growth analyses:
  – Better ear: PTA hearing loss per year of 2.92dB (√estimate = 1.54dB, p=.004)
  – Worse ear: PTA hearing loss per year of 7.62dB (√estimate = 10.35dB, p=.010)

Conclusion
1. Patients with an EVA have a wide variety of hearing loss at presentation and progression over time
2. Hearing loss in a large number of ears remains stable or even improves
3. There is a likely slower progression of hearing loss for the initial better hearing ear compared to the initial worse hearing ear

Future directions
To be able to predict the hearing outcome in EVA patients these results will be compared to radiological characteristics of the inner ear. This outcome will help in counselling of patients initially presenting with this entity.

Fig. 1. Computed tomography of left temporal bone with enlarged vestibular aqueduct. 1. Outline of vestibular aqueduct; 2a. Opacification of aqueduct; 2b. Opacification of lateral semicircular canal; 3. Baseline vestibular aqueduct at both lateral semicircular canals

Valvassori et al. Laryngoscope 1978;88:723

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