Audiometric trends among children with congenital aural atresia or external auditory canal stenosis

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ABSTRACT:

OBJECTIVES: In external auditory canal stenosis associated with microtia, it is unknown if the degree of conductive hearing loss changes over time, and how this compares to children with complete aural atresia. The objectives of this study are to 1) compare audiometric patterns between children with external auditory canal stenosis and congenital aural atresia, and 2) describe the natural progression of conductive hearing loss in children with external auditory canal stenosis. We hypothesize that stenosis patients will experience hearing improvement over time and will have unique audiometric patterns on early hearing evaluations compared to aural atresia.

METHODS: Retrospective chart review of 186 children with microtia and congenital aural atresia or external auditory canal stenosis treated at a tertiary children's hospital. Patients were categorized by documented physical exam and/or CT scan. Patients with bilateral involvement, mixed or sensorineural hearing loss were excluded.

RESULTS: Patients with atresia (n=156) had worse initial hearing loss than patients with stenosis (n=30) (60.9% vs. 43.3% with severe conductive hearing loss, respectively; $p<0.05$).

Final conductive hearing loss was also more severe in atresia patients (79.5% vs 63.3% in stenosis patients; $p<0.05$). Hearing patterns did not change significantly from initial to final audiogram ($p>0.05$) after mean follow-up of 5.8 years. Hearing did not improve over time for either group.

CONCLUSION: Hearing did not improve in external auditory canal stenosis patients over time. There was no difference in audiometric patterns between children with external auditory canal stenosis versus congenital aural atresia.