Duplicated internal auditory canals (IAC) have only been reported in the literature in association with profound sensorineural hearing loss (SNHL) and hypoplasia of the vestibulocochlear nerve. This novel case is the first reported of bilateral duplicated IAC in a patient with normal hearing. The case report and a systematized literature review are presented.

**ABSTRACT**

Two explanations are postulated for the genesis of IAC stenosis. One states that vestibulocochlear nerve aplasia or hypoplasia during embryogenesis leads to stenosis of that nerve. The other theory states that the stenosis causes the hypoplasia of the nerve. This theory is less favored because of the normal facial nerve function of almost all patients with duplication of the IAC. This case report brings both these theories into question, as this patient has intact hearing and vestibular function.

**INTRODUCTION**

Duplicated internal auditory canals (IAC) have only been reported in the literature in association with profound sensorineural hearing loss (SNHL) and hypoplasia of the vestibulocochlear nerve. This novel case is the first reported of bilateral duplicated IAC in a patient with normal hearing. The case report and a systematized literature review are presented.

**CASE REPORT**

A 16 year old male with past medical history of left otitis externa. Symptoms included pain and itching. He was prescribed Ciprodex drops which did not alleviate his symptoms. Two weeks after starting tolnaftate, he began to complain of dizziness brought on by loud noises and football collisions, plus continued hearing loss. On exam during his return visit he was found to have periostitis and his Romberg test was negative. The left ear canal was debrided under microscopy and gentian violet applied to external canal only. The perforation was stable and we stopped antifungal drops. We ordered a CT of his temporal bones which showed bony narrowing of bilateral porus acoustics, with partial duplication of the bilateral internal auditory canals, left tympanic membrane perforation, and some fluidization of his mastoid air cells. His superior semicircular canals were intact bilaterally.

**LITERATURE REVIEW METHOD**

A systematic, reproducible method of literature search was employed to identify all English language articles published regarding duplicated IAC. A keyword search of PubMed, Ovid, CINHAL, and Web of Science using “duplication” and “internal auditory canal” was conducted. Forward and backward tracking of references cited in each article was also performed and included if they described case reports of duplicated IAC.

**CONCLUSIONS**

This case report of a patient with bilateral partially duplicated internal auditory canals and intact hearing brings into question the cause of this rare phenomenon. Increasing number of case reports may lead to better understanding of this condition.

**REFERENCES**