

## Evaluation of Balance Function in Patients with Radiologically (CT Scan) Confirmed Otosclerosis

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### ABSTRACT

**Objective:** To assess balance function in patients with radiologically confirmed otosclerosis.

**Methods:** Sixteen patients (female 14, male 2) who attended the Neuro-Otology Clinic/ENT clinics at the Royal National Throat Nose and Ear Hospital participated in this study. After general medical, audiological and neuro-otological examination, patients underwent the caloric and rotational testing.

**Results:** Thirteen of the 16 patients had radiologically confirmed otosclerosis (12 females, 1 male). A total of 3 patients (female 2, male 1) did not have CT confirmation of otosclerosis and therefore were excluded from the study. Therefore, the remaining 13 patients' data were analyzed. Nine patients had a mixed hearing impairment at least on one side, while eight patients had a bilateral mixed hearing loss and one patient had a sensorineural hearing loss on the opposite side. Four patients had a bilateral sensorineural hearing loss. Only one patient had a Canal Paresis (CP) at 35%. None of the patients had any significant Directional Preponderance (DP). The patient with significant CP (35%) did not show any rotational asymmetry on impulsive rotation. Eleven patients had a rotational chair test. Only one patient had a significant asymmetry to the right at 25.30% (Normal range is <20%). Overall, 18% (n=2) of the radiologically confirmed otosclerosis patients showed an abnormal balance test including both caloric and rotational tests. More than 80% (n=9) of the patients with radiological otosclerosis showed balance symptoms.

**Conclusion:** The current study indicates a high prevalence of balance symptoms (n=9, 82%) in patients with radiological otosclerosis, although only a small proportion (n=2, 18%) showed an abnormal vestibular function on caloric and impulse rotation testing. However, due to a small number of samples, further validation of this result is warranted.

**Keywords:** Balance, Otosclerosis, Canal paresis, vestibular function, Hearing impairment

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