OBJECTIVE: Clinical situations arise in which it would be helpful to determine the depth of penetration of a stapes prosthesis into the vestibule. The accuracy of CT imaging for this purpose has not been defined. This study was aimed to determine the accuracy of CT imaging to predict the depth of intrusion of stapes prostheses into the vestibule.

STUDY DESIGN: The measurement of stapes prosthesis by CT scan was compared to physical measurements in eight cadaveric temporal bones.

RESULTS: The depth of intrusion into the vestibule of the piston was underestimated in specimens with the stainless steel prosthesis when compared to the measurements obtained in the temporal bones. The depth of penetration of the stainless steel implant was overestimated when compared that when in the temporal bones.

CONCLUSIONS: CT imaging can assist the otologist in determining the position of the stapes implant. However, the type of implant must be taken into consideration when estimating the depth of penetration into the vestibule by CT. Measurements exceeding 2.1 mm for metallic implants and 1.4 mm for fluoroplastic implants increase the suspicion of otochlear impingement.

MATERIALS AND METHODS

An IRB exempt cadaveric temporal bone study was performed using eight temporal bones. Each temporal bone was dissected and the middle ear was opened. A CT scan of the temporal bone was performed using an axial and coronal plane. Each temporal bone was then placed in a CT scanner. Each temporal bone was then scanned in the CT scanner. Each temporal bone was then scanned in the CT scanner. Each temporal bone was then scanned in the CT scanner.

DISCUSSION: Patients that have undergone stapes surgery frequently undergo clinical evaluation for recurrent or persistent conductive hearing loss, sensorineural hearing loss, and/or imbalance.

REFERENCES:


