VIRTUAL ENDOSCOPY OF THE MEMBRANOUS LABYRINTH: STANDARDIZED

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INTRODUCTION

Although high-resolution CT imaging and high-resolution T2 weighted MRI sequence enable more accurate[1,2], lack of three-dimensional visualization of the different structures of the membranous labyrinth allowed display of the correct anatomy by high detail in all cases. We could observe cochlear tube, cui-de-sac of cochlear duct, ductus reuinens, saccule, utricle, and ampullae.

METHODS AND MATERIALS

We studied 100 normal subjects. To develop a three-dimensional virtual endoscopy of the membranous labyrinth based on high-resolution images obtained by a axial CT, we chose CT as our study tool. CT was obtained with collimation and pitch values of 1.00mm and 0.50, respectively. We reconstructed the obtained data separately for each temporal bone with 1.00mm section thickness, 0.50mm increments, and a FOV of 9.6cm, with a matrix size of 512 X 512. The axial data were applied to create three-dimensional images on the CT work station for post processing with CT software.

RESULTS: Three-dimensional visualization of the different structures of the membranous labyrinth allowed display of correct anatomy of high detail in all cases. We could observe cochlear tube, cui-de-sac of cochlear duct, ductus reuinens, saccule, utricle, and ampullae. The coronal images showed the apical, second and basal turn of cochlea. In addition, the saccule, utricle, ampulla and semicircular canals were seen. Our delineated images agreed with those of the schematic diagram of the structure of the anatomy book. (Fig. 7)

CONCLUSIONS

Three-dimensional virtual endoscopy of the membranous labyrinth allows for an increasing role in clinical diagnosis. They are also becoming of great significance in radiological diagnoses. They are also becoming of great significance in radiological diagnoses. These images can be applied to radiological diagnosis, surgical planning, and especially, to teaching.

REFERENCES