

정상 와우를 가진 외측반규관 이형성증 1예 : 나선형 고해상도 측두골 전산화단층촬영 영상을 이용한 3차원 컴퓨터 영상재건을 통한 진단

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A Case of Lateral Semicircular Canal Dysplasia with Normal Cochlea : Diagnosis by Three-Dimensional Reconstruction Based on Images from Spiral High-Resolution Temporal Bone Computed Tomography

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—ABSTRACT—

When compared with anomalies of the external and middle ear, congenital anomalies of the inner ear present a clinical problem for diagnosis because the inner ear structures can not be observed directly. Since the structures, such as cochlea, semicircular canals, facial nerve, and ossicles, have a complex relationship in the temporal bone, it is difficult to describe their exact spatial relationships by conventional computed tomography. In recent years, three-dimensional reconstruction technique based on images from high-resolution computed tomographs (HRCT) permits more reliable and definitive description of these structures. We experienced one rare case of lateral semicircular canal dysplasia with normal cochlea development. Three-dimensional reconstructed images based on HRCT represented an isolated lateral semicircular canal dysplasia in detail. Thus, we report this case with a review of the literature. (J Clinical Otolaryngol 2004;15:150-153)

KEY WORDS : Semicircular canal · Congenital · Abnormality · Three dimensional imaging.

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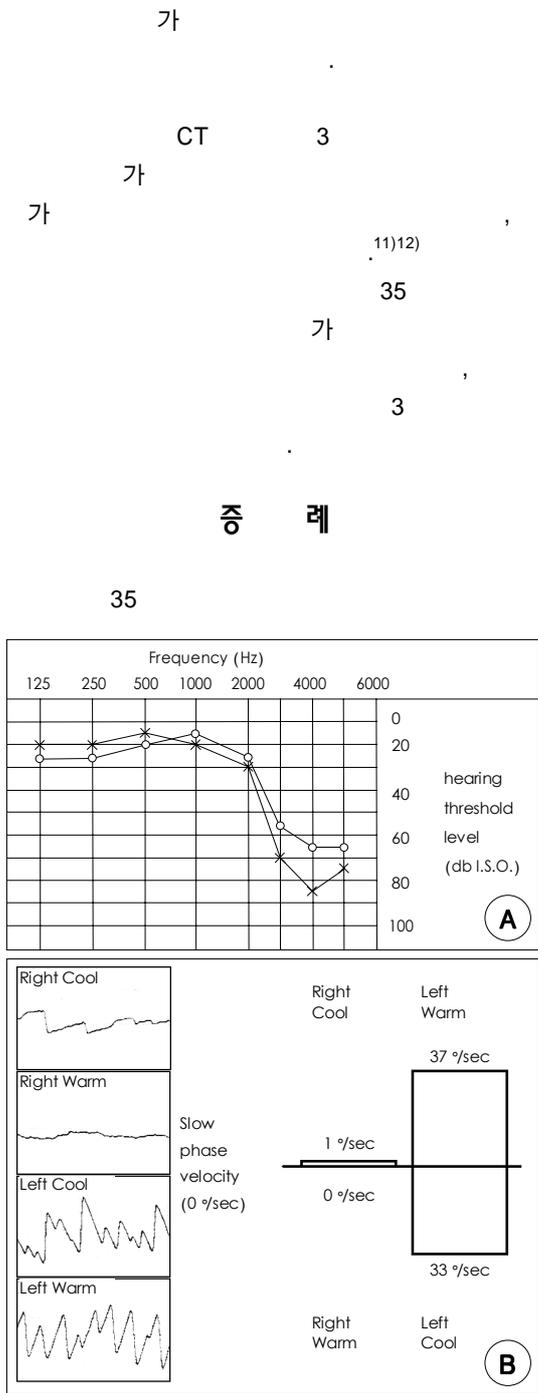


Fig. 1. A : The pure tone audiogram shows high frequency sensorineural hearing impairment of both ears. **B :** The result of bithermal caloric test shows total vestibular loss in right ear.

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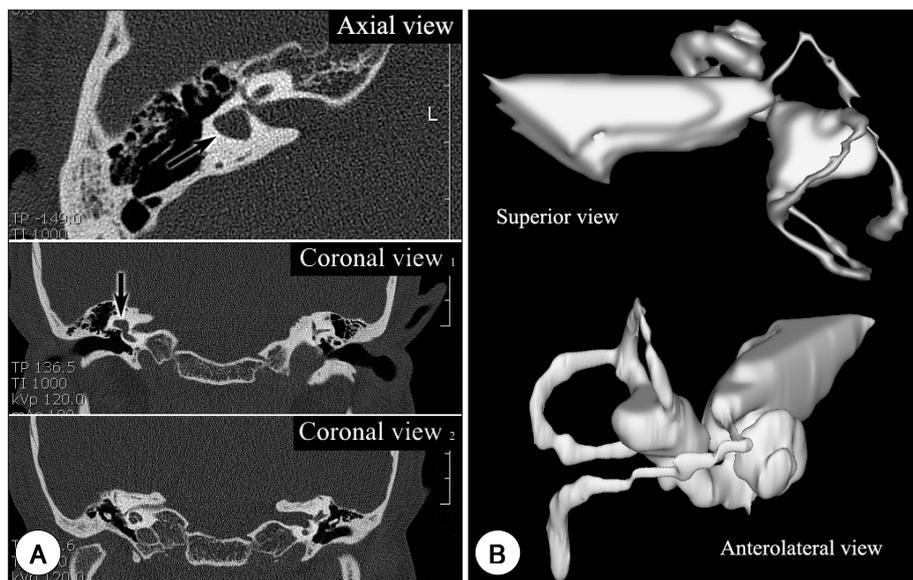


Fig. 2. A : Axial and coronal computed tomogram of the temporal bone. The right vestibule is shown as a large cavity like dilatation and the lateral semicircular canal appears as a short, thick outpouching of the vestibule (arrow). The cochlea and other semicircular canals appear normal. B : This feature is seen more clearly in three-dimensional reconstructed images of right inner ear.

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REFERENCES

- 1) Jackler RK, Luxford WM, House WF. *Congenital malformations of the inner ear: A classification based on embryogenesis. Laryngoscope* 1987;97:2-14.
- 2) Lee SW, Lee HK, Kim CJ, Kim YJ, Shin JE, Chung JW, et al. *Analysis of inner ear abnormalities using temporal bone computed tomography in profound hearing loss patients. Korean J Otolaryngol* 2002;45:1141-5.
- 3) Parnes LS, Chernoff WG. *Bilateral semicircular canal aplasia with nearnormal cochlear development. Two case reports. Ann Otol Rhinol Laryngol* 1990;99:957-9.
- 4) Suehiro S, Sando I. *Congenital anomalies of the inner ear: Introducing a new classification of labyrinthine anomalies. Ann Otol Rhinol Laryngol Suppl* 1979;88:1-24.
- 5) Sando I, Takahara T, Ogawa A. *Congenital anomalies of the inner ear. Ann Otol Rhinol Laryngol Suppl* 1984;112:110-8.
- 6) Valvassori GE, Naunton RF, Lindsay JR. *Inner ear anomalies: Clinical and histopathological considerations. Ann Otol Rhinol Laryngol* 1969;78:929-38.
- 7) Mafée MF, Selis JE, Yannias DA, Valvassori GE, Pruzansky S, Applebaum EL, et al. *Congenital sensorineural hearing loss. Radiology* 1984;150:427-34.
- 8) Phelps PD. *Congenital lesions of the inner ear, demonstrated by tomography. Arch Otolaryngol* 1974;100:11-8.
- 9) Jung TG, Seong JJ, Hwang EG, Jeon SY. *Three cases of bilateral semicircular canal aplasia with normal cochlear development in the same family member. Korean J Otolaryngol* 1997;40:1863-70.
- 10) Lee DH, Park SN, Lee JH, Seo BD. *A case of lateral semicircular canal dysplasia with normal cochlea. Korean J Otolaryngol* 1999;42:1179-82.
- 9) 11) Lee SW, Lee HK, Kim CJ, Kim YJ, Shin JE, Chung JW, et al. *Analysis of inner ear anomalies using temporal bone computed tomography in profound hearing loss patients. Korean J Otolaryngol* 2002;45:1141-5.
- 12) Jun BC, Song SW, Lee DH, Cho JE, Chun BJ, Cho KJ, et al. *Three-dimensional reconstruction based on images from spiral high-resolution computed tomography of temporal bone: Anatomy and clinical application. Korean J Otolaryngol* 2004;47:403-8.
- 13) Satar B, Mukherji SK, Telian SA. *Congenital aplasia of semicircular canal. Otol Neurotol* 2003;24:437-46.