Pneumolabyrinth and Perilymphatic Fistula After 27 Years of Head Trauma

Presenting Author: Emel Tahir

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Learning Objectives: To discuss possible problematic situations in cochlear implantation following temporal bone fractures such as pneumolabyrinth. To emphasize the importance of careful evaluation of repeated imaging studies to rule out perilymphatic fistula after temporal bone trauma. To discuss timing of cochlear implantation after temporal bone fracture. To interpret temporal bone CT in case of pneumolabyrinth.

Introduction: Pneumolabyrinth is usually associated with a temporal bone trauma or stapes footplate fracture and a part of perilymphatic fistula. In this presentation, a case with footplate fracture results in pneumolabyrinth which is still perpetual 27 years after the trauma and its management is discussed with his radiological data and intraoperative video.

Case: A 56 year old male patient who had a bilateral profound sensorineural hearing loss (SNHL) admitted to our clinic. He experienced a head trauma results in transverse temporal bone fracture 27 years ago. CT demonstrated a fracture line was passing from cochlea and vestibule and pneumolabyrinth on the left side. MRI revealed labyrinthin ossificans (LO) on semicircular canals which is characterized by diminished fluid intensity on T2 weighted images. Explanatory tinnitus performed and the ossicular chain was mobile. At stapes footplate level there was a fracture line accompanied by perilymph leakage. By the help of a pick a small fenestra was created at the footplate and it was obliterated by packing temporalis fascia. It was so unlikely to encounter a perilymphatic fistula after 27 years from trauma, the patient had no meningitis or encephalitis during that period. Postoperative CT scan verified the resorption of pneumolabyrinth and Weber test was localized to the operation side. He has been discharged the day after the operation without any complication.

Results: On the basis of this case, exploratory tympanotomy should be performed in patients with SNHL in association with radiologically detectable pneumolabyrinth. If cochlear implantation was performed to this ear without notification of the fistula, the patient would suffer from meningitis because of the electrode and the implantation would not be beneficial. When there is a significant time delay between the temporal bone trauma and the cochlear implantation, LO or other structural abnormalities such as fistula should be ruled out prior to surgery.

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