

Postoperative pneumolabyrinth

A study investigates [risk factors](#) and clinical outcomes of postoperative [pneumolabyrinth](#) following the [middle cranial fossa approach](#) for [superior semicircular canal dehiscence](#) repair, a complication that has not been documented previously.

Study design: Retrospective cohort study.

Setting: Tertiary/quaternary care referral center.

Yang et al. conducted a retrospective review of 332 [middle cranial fossa procedures](#) from 2014 to 2020 at a tertiary/quaternary care institution. Upon identifying [pneumolabyrinth](#) cases from postoperative computed tomography temporal bone scans, we conducted a multivariable logistic regression analysis to explore demographic and clinical factors that were independently linked to this complication. We also compared the rates of postoperative symptoms among patients with different grades of pneumolabyrinth.

They identified 41 (12.3%) pneumolabyrinth cases. Patients with older age, higher preoperative pure tone average, and frank dehiscence were at higher risk for pneumolabyrinth. Furthermore, patients with pneumolabyrinth reported significantly higher rates of postoperative dizziness and exhibited significantly greater pure tone average and air-bone gap postoperatively as compared with patients without pneumolabyrinth. Finally, higher-grade pneumolabyrinth was associated with increased rates of postoperative hearing loss, and grade III pneumolabyrinth was associated with higher rates of postoperative tinnitus vs grade I and II cases.

Pneumolabyrinth following the middle cranial fossa approach was associated with poor clinical outcomes, including [dizziness](#) and auditory impairment. Old age, high preoperative pure tone average, and frank dehiscence were risk factors for this complication. The highlighted parameters may be important to note when considering this approach as a treatment option and while monitoring postoperative recovery ¹⁾.

A 38-year-old male who presented with progressive [hearing loss](#), resulting in profound bilateral hearing loss. He had a past history of childhood [medulloblastoma](#), which was treated with [posterior fossa craniotomy](#) and [radiotherapy](#). A [ventriculoperitoneal shunt](#) was put in place to manage the [hydrocephalus](#). Cochlear implantation (CI) was carried out on his right ear by a standard procedure. At CI activation, the electric [impedance](#) of the [electrode](#) was very high, and [computed tomography](#) revealed that there was no area of liquid density, suggesting depletion of the [perilymph](#) in the [cochlea](#) and [vestibule](#). Eight months later, the impedance improved gradually, and the cochlea was filled with [perilymph](#). Consequently, one of the causes of the [pneumolabyrinth](#) in the present case was that a scarred stenotic cochlear canaliculus secondary to surgery or radiation therapy might have prevented the CSF from filling the scala. In addition, it is also possible that the VP shunt might have altered the CSF pressure, leading to depletion of the perilymph ²⁾.

¹⁾

Yang HH, Lum M, Kaur T, Yang I, Gopen QS. Postoperative Pneumolabyrinth Following the Middle Cranial Fossa Approach for Superior Semicircular Canal Dehiscence Repair, 2014-2020. Otolaryngol Head Neck Surg. 2022 Jun 21:1945998221106688. doi: 10.1177/01945998221106688. Epub ahead of print. PMID: 35727631.

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Moteki H, Fujinaga Y, Goto T, Usami SI. Pneumolabyrinth, intracochlear and vestibular fluid loss after cochlear implantation. *Auris Nasus Larynx*. 2018 Oct;45(5):1116-1120. doi: 10.1016/j.anl.2018.03.004. Epub 2018 Apr 19. PubMed PMID: 29680680.

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