

## Posttraumatic Perilymph Fistula

Posttraumatic perilymphatic fistula is a syndrome of hearing loss, tinnitus, and dizziness caused by straining and changes in ear canal pressure. The cause of these symptoms is thought by some to be related to tiny leaks of perilymph (inner ear fluid) out of the inner ear though either the tiny ligament around the stapes footplate (3<sup>rd</sup> hearing bone), the round window membrane, or microfissures in the bone surrounding the posterior canal ampulla (another part of the inner ear).

If a patient presents with hearing loss or dizziness provoked by straining or changes in ear canal or middle ear pressure after a definite history of head trauma, such as an automobile accident or other very significant impact, it has been considered reasonable to explore the ear surgically to look for these tiny leaks and to patch the areas most likely to leak. The surgery is done as an outpatient directly through the ear canal and takes only 30 minutes to perform.

The patient benefit from these surgeries has not been studied scientifically in randomized controlled studies. This and other important issues make the subject of surgery for posttraumatic perilymph fistula controversial: There is little agreement among otologists on why or how tiny leaks should cause dizziness or hearing loss or what will usually happen if nothing is done. If leaks are present, they are so difficult to see that it is rare for two observers at the same operation to agree that they have seen the tiny leak of clear fluid at the same time. The amount of fluid leaking is so small that it cannot be easily sampled for chemical assay to prove that it is truly inner ear fluid. Finally, there are other more common conditions, such as posttraumatic migraine, endolymphatic hydrops and superior semicircular canal dehiscence syndrome that can explain these symptoms. All of these conditions can be consequences of head trauma.

Despite these points of disagreement, there can be no doubt that some patients suffer such severe head injuries that their stapes bone is, at the moment of impact, traumatically separated from its seat at the inner ear, then may exhibit these symptoms and benefit from repair. Fortunately, these patients are rare. In a busy otologic practice, the number of perilymph fistula surgeries performed per year varies from 2 to 50. Surgeons who perform 50 explorations a year tend to believe that leaks can be caused by everyday pressure changes, like sneezing and lifting, and may re-patch patients whose symptoms return. Surgeons performing 2 repairs per year tend to explore only those obvious cases, and operate only once after other possible diagnoses have been considered. The reasonable assumption here is if symptoms persist or return after a patch procedure, they are not likely caused by the fistula, and perhaps never were.