

Perilymph Fistula

This is a rare condition where there is a tear or hole in one or both of the small, thin membranes (the oval and the round windows) between the middle and inner ear resulting in a leak of perilymph into the middle ear.

There are many causes for this and include: -

- i) External trauma such as skull fractures & boxing.
- ii) Implosive traumatic events where there is a rapid increase in middle ear pressure which ruptures the round window. This is seen in descent in an aircraft (round window fistula), a slap injury to the ear, scuba diving (the round window ruptures at 1.12 atm i.e. 1.2m under water), acoustic trauma (oval window fistulae), car airbag injury and suppression of a violent sneeze.
- iii) Explosive traumatic events where a rapid increase in brain fluid (cerebrospinal fluid pressure) is transmitted to the round window: this is seen in childbirth, weightlifting and vomiting.

Diagnosis is based on a possible precipitating event, symptoms, signs and investigations.

The typical story is a “traumatic” sudden event such as scuba diving, a slap, weight lifting, childbirth, descent from flight, severe vomiting followed by a vertigo, unilateral “popping” sensation, hearing loss and fullness in the ear which recurs and progresses.

The dizziness may be induced by loud noises (the Tullio Symptom/Phenomenon) or by raised intracranial pressure induced by sneezing, blowing nose, heavy lifting or coughing (Henneberts Symptom/Phenomenon).

The duration of the dizziness can be minutes to hours to days and may increase with activity (round window fistulae), coughing, sneezing, or blowing ones noses and may be relieved by rest. There may also be a complaint of sudden or fluctuating hearing loss, oversensitivity to sound (oval window fistulae), a feeling of ear fullness or buzzing (oval window fistulae) in the affected ear. The patient may complain of chronic non-vertiginous dizziness.

Some patients complain that their ear “popped” and report difficulty in thinking, anxiety, neck stiffness, headaches and meningitis.

Physical signs are a positive Henneberts sign “fistula test”, where pressing on the tragus of the affected ear induced upwards and intortion of the eye, and a positive Singleton’s “Eyes closed turning” test.

Investigations include pure tone audiogram (low-frequency hearing loss), tympanogram, CT temporal bone/MRI, ECOG’s and surgical exploration.

It is a difficult diagnosis as its symptoms and signs are similar to Meniere’s disease and superior canal dehiscence hence the use of investigations.

Spontaneous healing occurs in 90% of cases (with advice to avoid such activities as airplane travelling, scuba diving and heavy lifting), there may be a role for insertion of ventilation tubes ‘grommets’.

Surgical exploration and repair is considered in cases which do not settle after 6 months and that the hearing is stable or improving: exploration and repair usually improves the dizziness but not the hearing loss.

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