Abstract

Objective: To describe a rare case of a perilymphatic fistula following the use of a cotton tip applicator to clean an ear canal and discuss its surgical repair.

Methods: The patient was a 59-year-old female who presented with vertigo after using a Qtip in her left ear. Workup included CT temporal bone imaging, audiogram, and balance function testing.

Results: The patient admitted to using a Q tip 5 hours prior to developing vertiginous symptoms. She did not have any prior ear surgery. Her audiogram showed a left mild to severe sensorineural hearing loss (35 SRT/76% WRS). CT temporal bone imaging revealed a small perilymphatic fistula at the oval window.

Conclusion: This case report demonstrates not only elimination of the patient's dizziness after surgical repair, but also a significant improvement of her hearing to serviceable levels. The importance of early surgical repair of a suspected traumatic perilymphatic fistula is vital in hopes to improve the patient's symptoms of not only dizziness, but also hearing related issues.

Introduction

A perilymphatic fistula (PLF) is a congenital communication between the middle ear and the subarachnoid space that may develop due to perforation of the round window membrane by a variety of causes. PLFs can be either spontaneous or traumatic. The suspected PLFs can result in symptoms ranging from mild to severe vertigo, tinnitus, and hearing loss.

- Spontaneous PLFs are rare and usually result from congenital defects in the round window membrane or traumatic injury to the facial nerve, resulting in a communication between the perilymphatic and subarachnoid spaces.

- Traumatic PLFs are common and result from iatrogenic or accidental trauma, such as McBride's test, myringotomy, or tympanostomy tube insertion.

Symptoms of PLFs may include vertigo, tinnitus, hearing loss, and, in some cases, sensorineural hearing loss. Depending on the severity of the fistula, symptoms can range from mild to severe and may be exacerbated by changes in air pressure or head trauma.

- The diagnosis of PLF is typically made through a combination of patient history, physical examination, and diagnostic tests such as hearing tests, ENG, and MRI.

- The management of PLFs is often conservative and includes strict bed rest, head elevation, stool softeners, and avoidance of head trauma. Surgical intervention is considered when conservative therapy fails to improve symptoms or when there is a risk of meningitis.

Case Report – Initial Evaluation

The patient was a 59-year-old female who presented with vertigo after using a Qtip in her left ear. Her medical history was unremarkable and she had no prior ear surgery. Physical examination revealed a clear EAC and tympanic membrane. The patient had no prior history of ear infections or trauma.

- Her hearing thresholds were normal bilaterally.

- ENG showed no response to bi-thermal calorics in the left ear. Rotational chair testing showed slight phase leads but no asymmetry.

- A CT of the temporal bones was unremarkable and showed no evidence for ossicular disruption.

- The patient had no history of meningitis or other neurological disorders.

Case Report – Follow up

Three months after surgery, the patient continues to state that her hearing has stabilized and is grateful for the elimination of her dizziness and the unexpected improvement in her hearing.

- She had an elimination or decrease of her dizziness to the extent that the dizziness does not affect her daily activities.

- They showed that 49% of the patients had improved hearing, but only 23% had improvement to a serviceable range.

- The surgical repair has a more favorable prognosis in the resolution of vertigo than of hearing loss.

- Surgical repair of perilymphatic fistulas is important to decrease the incidence of later complications, such as meningitis, and to facilitate the incorporation of the tragal perichondrium used to seal the leak. No frank fluid leak was observed at the round window, however, due to the significant perilymphatic fistula at the oval window, it was suspected that there may be a microleak at the round window.

Case Report – Left Tympanoplasty with Repair of Round and Oval Window Holes

Figure 1: Ideal location for the placement of the perilymphatic fistula dehiscence.

The patient was placed under general anesthesia.  The posterior canal wall of the left ear was then removed and a tragal perichondrium was used to seal the round and oval window holes. The patient had an elimination or decrease of her dizziness to the extent that the dizziness does not affect her daily activities.

References


