

**The American Academy of Otolaryngology—
Head and Neck Surgery Foundation
(AAO-HNSF) Presents. . .**



Chapter 7: Dizziness

Daiichi Pharmaceutical Corporation, marketers and distributors of FLOXIN® Otic (ofloxacin otic) solution 0.3%, provided an educational grant for this book to be updated and distributed. The authors and editor had sole responsibility for the subject matter and editorial content.

Copyright Notice - All materials in this eBook are copyrighted by The American Academy of Otolaryngology—Head and Neck Surgery Foundation, One Prince Street, Alexandria, VA 22314-3357, and are strictly prohibited to be used for any purpose without prior express written authorization from The American Academy of Otolaryngology—Head and Neck Surgery Foundation. All Rights Reserved.

Print: First Edition 2001, Second Edition 2004

eBook Format: Second Edition, 2005

ISBN 978-1-56772-093-8



American Academy of Otolaryngology—Head and Neck Surgery Foundation
Working for the Best Ear, Nose, and Throat Care
One Prince Street | Alexandria, VA 22314-3357 | 1-703-836-4444 | Fax: 1-703-684-4288

© 2005 AAO-HNS

Chapter 7: Dizziness

Editor: Mark K. Wax, MD. Authors: J. Gregory Staffel, MD; James C. Denneny III, MD; David E. Eibling, MD; Jonas T. Johnson, MD; Margaret A. Kenna, MD; Karen T. Pitman, MD; Clark A. Rosen, MD; Scott W. Thompson, MD; and Members of the Core Otolaryngology Education Faculty of the American Academy of Otolaryngology—Head and Neck Surgery Foundation

Dr. Gregory Staffel first authored this short introduction to otolaryngology for medical students at the University of Texas School for the Health Sciences in San Antonio in 1996. Written in conversational style, peppered with hints for learning (such as "read an hour a day"), and short enough to digest in one or two evenings, the book was a "hit" with medical students.

Dr. Staffel graciously donated his book to the American Academy of Otolaryngology—Head and Neck Surgery Foundation to be used as a basis for this primer. It has been revised, edited and is now in the second printing. This edition has undergone an extensive review, revision and updating. We believe that you, the reader, will find this book enjoyable and informative. We anticipate that it will whet your appetite for further learning in the discipline that we love and have found most intriguing. It should start your journey into otolaryngology, the field of Head and Neck Surgery.

Enjoy!

Mark K. Wax, MD

Editor: Primary Care Otolaryngology and Chair: AAO-HNSF Core Otolaryngology Education Faculty



Chapter 7: Dizziness

People often come to the ENT doctor with a complaint of dizziness. Many symptoms, such as dysequilibrium, **syncope**, lightheadedness, **ataxia**, and vertigo, are commonly described as "dizziness." As otolaryngologists, we focus on disease processes that produce true vertigo (an illusion of motion), which is primarily associated with the balance organs of the inner ear. If your patient doesn't complain of true illusion of motion, redirect your questioning to evaluation of syncope or **episodic hypotension**.

Vestibular Neuronitis:

One of the most common causes of vertigo is **vestibular neuronitis**. It is thought to be caused by inflammation of the **vestibular portion of the 8th cranial nerve** or of the inner ear balance organs (**vestibular labyrinth**). Another term for this entity is **labyrinthitis**. It is thought that the condition is secondary to a viral infection, and it is frequently associated with recent flu symptoms (upper respiratory infection). The patient will usually awaken with room-spinning vertigo that will gradually become less intense over 24-48 hours. During this period, the patient's hearing is generally unchanged, and it may take weeks for the symptoms to completely resolve. Nausea with or without emesis is not unusual. Treatment is symptomatic including **vestibular suppressant medication**, antiemetic medication, and a short, tapering course of oral steroids. **Residual vestibulopathy** that persists for months or years isn't uncommon, and is best



Chapter 7: Dizziness

managed with vestibular exercises.

Benign Paroxysmal Positional Vertigo (BPPV):

Another common cause of vertigo seen by otolaryngologists is **BPPV**. This disorder is caused by **otoconia (calcium carbonate crystals)** or other sediment that have become free floating and enter one of the balance canals. When the patient turns his or her head quickly or into a certain position, this free-floating material moves the balance canal fluid (**endolymph**) and stimulates the vestibular division of the 8th cranial nerve. This motion creates an intense feeling of vertigo that lasts less than 30 seconds and passes when the material settles in place. Patients are usually able to describe the precise motion that precipitates this intense, brief episode of vertigo. Rolling over in bed is a movement that frequently initiates an episode. The name of the syndrome is related to the intense, episodic (paroxysmal) vertigo initiated by certain head positions (positional) that isn't related to a **central nervous system (CNS)** tumor (benign).

This disorder can occur without any specific inciting event, but is often seen after significant head trauma or an episode of vestibular neuronitis. BPPV can be successfully treated with a particle repositioning maneuver in the office setting. Dislodged, free-floating sediment that has entered the balance organs can be repositioned into the vestibule (portion of the inner ear) by rolling the patient 270 degrees

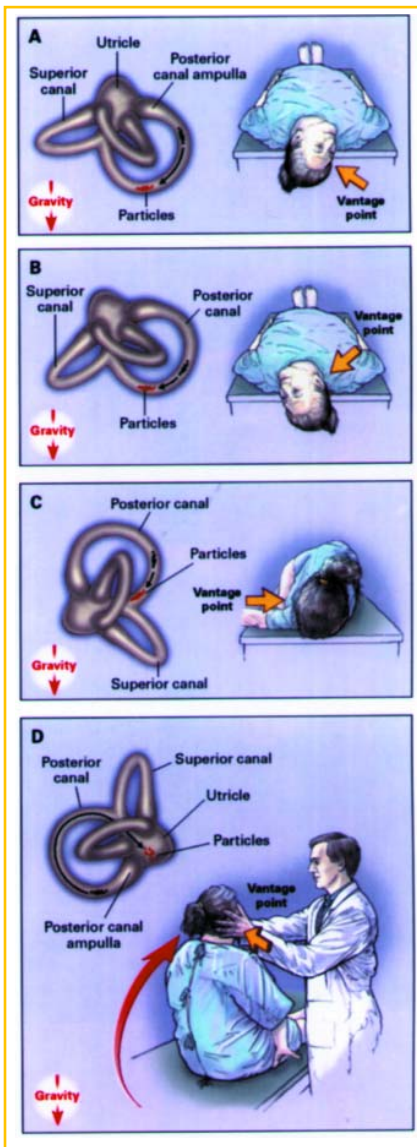


Chapter 7: Dizziness

Figure 7.1.

Bedside maneuver for the treatment of a patient with benign paroxysmal positional vertigo (BPPV) affecting the right ear. The presumed position of the debris within the labyrinth during the maneuver is shown in panels A-D. The maneuver is a 3-step procedure. The Dix-Hallpike test is performed with the patient's head rotated 45° toward the right ear, and the neck slightly extended with the chin pointed slightly upward. This position results in the patient's head hanging to the right (panel A). Once the vertigo and the nystagmus provoked by the Dix-Hallpike test cease, the patient's head is rotated about the rostral-caudal body axis until the left ear is down (panel B). Then the head and body are further rotated until the head is face down (panel C). The vertex of the head is kept tilted downward throughout the rotation. The maneuver usually provokes brief vertigo. The patient should be kept in the final, face-down position for about 10-15 seconds. With the head kept turned toward the left shoulder, the patient is brought into the seated position (panel D). Once the patient is upright, the head is tilted so that the chin is pointed slightly downward.

Used with permission, Furman et al., NEJM, 341(21):1590-156, 1999. Copyright ©1999, Massachusetts Medical Society, All Rights Reserved.



Chapter 7: Dizziness

from the supine position. Medical therapy with vestibular suppressants is ineffective (because the episodes of vertigo are so fleeting) and should be discouraged.

Ménière's Disease:

Ménière's disease is classically diagnosed by history because patients have a particular symptom complex. Patients develop intense, episodic vertigo, usually lasting from 30 minutes to 2-4 hours and associated with fluctuating hearing loss, roaring tinnitus, and the sensation of aural fullness. (Remember that in BPPV, the vertigo lasts less than 1 minute, and in vestibular neuronitis, the vertigo lasts 24-48 hours.) Although the precise cause of Ménière's disease hasn't been unequivocally determined, the symptoms are believed to be secondary to a distention of the **endolymphatic** space within the balance organs of the inner ear. The disease can be very difficult to treat because its course is very unpredictable. Patients can suffer from frequent attacks and then abruptly stop having symptoms, only to resume attacks years later. Treatment strategies have been focused on decreasing the endolymphatic fluid pressure within the vestibular portion of the inner ear. Salt restriction and thiazide diuretics are frequently used as first-line agents. If this doesn't adequately control the patient's symptoms, additional intervention can be used. **Vestibular ablation by instillation of ototoxic medication** (i.e., gentamicin) into the middle ear for inner ear absorption through the round window



Chapter 7: Dizziness

membrane has also been used with success, and has a low incidence of hearing loss. Surgical options for incapacitated patients include **endolymphatic sac decompression into the mastoid cavity**, vestibular nerve section, and **labyrinthectomy**. Vestibular nerve section involves transecting the vestibular portion of the 8th cranial nerve near the brainstem and requires an intracranial procedure. This procedure disrupts the aberrant vestibular signals from the affected ear while preserving the patient's current hearing thresholds. If the patient has had Ménière's disease for an extended length of time, the hearing has usually declined to the point of not being useful. Labyrinthectomy is then considered because this procedure also disrupts the aberrant vestibular signals but destroys any hearing in the operated ear. It avoids the risks associated with an intracranial surgical procedure. Treatment of patients with Ménière's disease must be managed in a step-wise fashion with careful consideration given to the patient's intensity of symptoms and frequency of attacks, as well as how the disease is affecting his or her life and overall general health. Medical and surgical treatments are effective and are preferable to disability.



Chapter 7: Dizziness

Questions, Section #7

1. Dizziness associated with an illusion of motion is termed _____
2. Sudden vertigo that develops without ear symptoms and lasts for 24-48 hours is most likely _____
3. BPPV or _____ is vertigo characteristically precipitated by positional changes, lasts 10-30 seconds, and isn't associated with serious illness.

Answers

1. Vertigo
2. Vestibular neuronitis or labyrinthitis
3. Benign paroxysmal positional vertigo



More educational opportunities from the AAO-HNSF

The American Academy of Otolaryngology—Head and Neck Surgery Foundation offers many programs designed to keep you up-to-date without leaving your practice. Most activities offer Category 1 AMA/PRA credits. The Academy/Foundation also serves as a primary resource for otolaryngology/head and neck surgery activities and events, and serves as an online clearinghouse for patient education and specialty information.

Visit the Academy's website, <http://www.entnet.org> to learn more about these programs.

