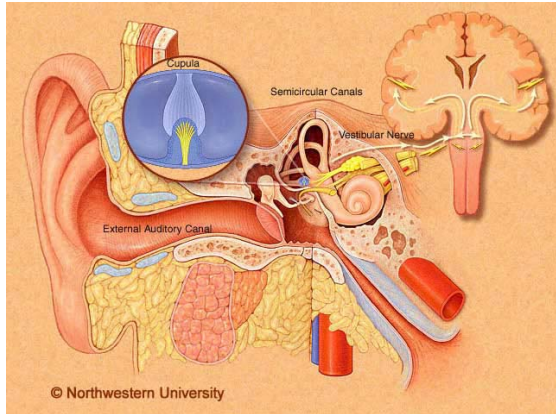


Colorado West Otolaryngologists, P.C.

Benign Paroxysmal Positioning Vertigo (BPPV)

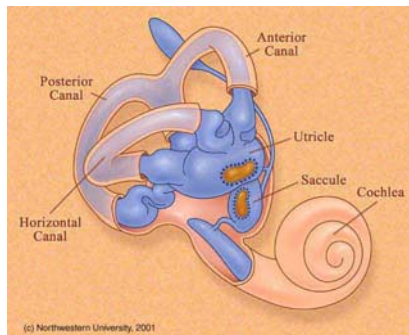
How the Inner Ear Works

The inner ear serves both hearing and balance functions. The snail shaped cochlea collects sounds and transmits this



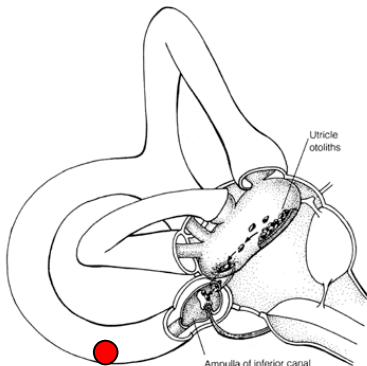
information via the cochlear nerve. The adjacent labyrinth collects balance information via the vestibular nerve. The labyrinth is composed

of three semicircular canals (superior, horizontal and posterior) and two otolithic organs (utricle and saccule). The semicircular canals sense angular acceleration (i.e., head turning) while the otolithic organs sense linear acceleration (i.e., swingset, elevator). While the semicircular canals depend on a gelatinous mass called the cupula to sense motion, the otolithic organs depend on calcium deposits called otoconia. The otoconia are normally tightly adherent to the otolithic organ. Occasionally, the otoconia may become dislodged settling into the semicircular canals. This causes an abnormal balance sense during normal head movements.



Symptoms of BPPV

The symptoms of BPPV are referable to loose otoconia fallen into the posterior semicircular canal. Intense vertigo (room spinning) lasting seconds typically will follow specific head positions. Symptoms are most often noted while rolling over in bed. The floating particle causes an exaggerated response in the plane of the posterior



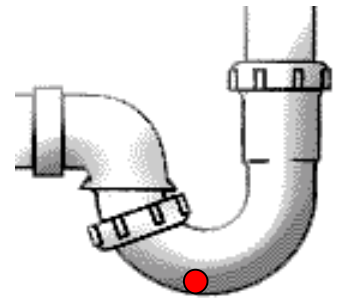
semicircular canal during simple head movements.

What Causes BPPV?

Displaced otoconia are thought to result from the following:

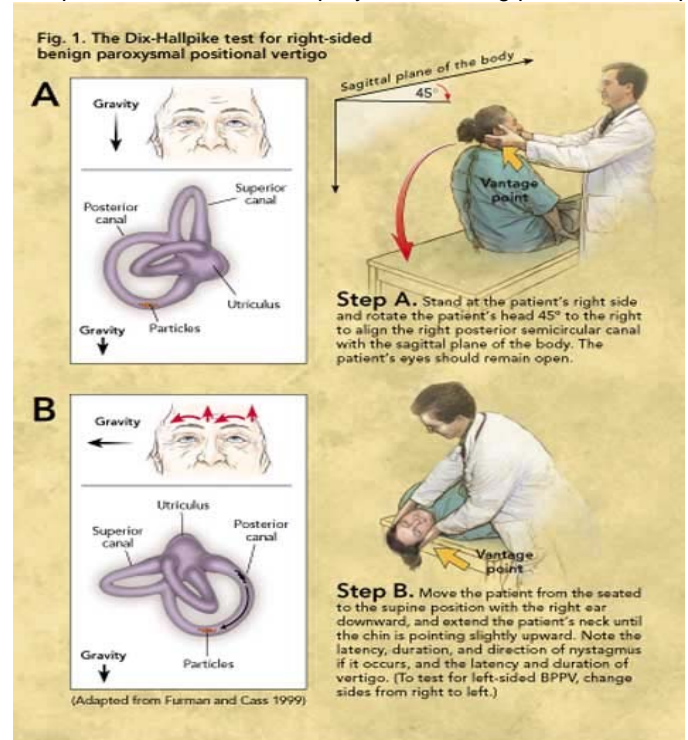
1. Head injury
2. Previous labyrinthitis (inner ear infection)
3. Prolonged bedrest, especially after a general anesthesia

The displaced otoconia (particle) lies dependently within the posterior balance canal causing symptoms each time the head is turned in a certain way. The particle can be likened to a marble dropped down a drainpipe.



How is BPPV Diagnosed?

Evaluating eye movements (i.e., nystagmus) in response to certain head movements is diagnostic. The Dix-Hallpike test is specific for the diagnosis of BPPV. While sitting on an examining table, the patient's head is turned either to the right or to the left by about 45°. The patient is then moved rapidly from a sitting position to a supine



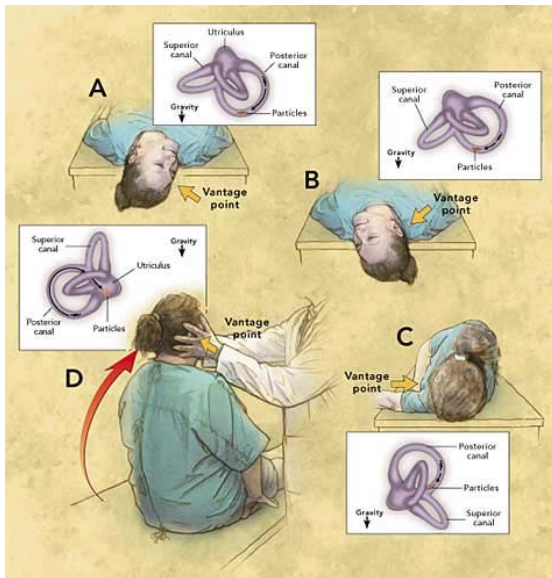
Benign Paroxysmal Positioning Vertigo (BPPV)

position with the head hanging off of the back of the examining table while the head continues to be in the same 45° position. The patient is instructed to keep his/her eyes open so that the examiner can see eye movement during the entire procedure. If BPPV is present, vertigo will begin after a latency of 5 to 10 seconds and usually will last less than a minute. Rotary nystagmus will occur and the patient will complain of dizziness. After the nystagmus and the vertigo subside, the patient is returned to the sitting position. The rotary nystagmus may reverse in direction and the patient may again experience vertigo. If a positive response occurs, the same maneuver is repeated. Usually, the severity of the vertigo and the rotary nystagmus are reduced during the repeat maneuver. This reduction is termed "fatigue". The opposite ear is then tested in a similar fashion. The offending ear is the one that is toward the ground when BPPV occurs during the Hallpike maneuver.

What can be done to treat BPPV?

Fortunately, vertigo associated with BPPV is self-limited, most patients getting relief of symptoms within 6 months. There is effective treatment, however. The Canalith Repositioning Procedure (CRP) is the

treatment of choice for patients with BPPV. Also known as the Epley maneuver, the patient is positioned in a series of steps so as to slowly move the otoconia particle from the posterior semicircular canal back into the utricle where it is no longer symptomatic. The entire CRP maneuver takes approximately 5 minutes.



What if this doesn't work?

The Canalith Repositioning Procedure (CRP) is effective in relieving symptoms of BPPV in over 85% of patients. Some patients with severe symptoms require multiple CRP's to control their symptoms. For those who fail to get symptom relief, multiple surgical procedures may be effective including:

1. *Transtympanic Gentamycin*. This powerful antibiotic is effective in weakening the balance nerve, resulting in less severe symptoms.
2. *Posterior semicircular canal occlusion*. This procedure prevents a loose otolithic particle from moving, thereby preventing symptoms.
3. *Vestibular nerve section*. This procedure involves cutting the nerve of balance either through the ear canal



(i.e., a Singular neurectomy) or behind the ear (i.e., a Posterior fossa neurectomy). Both of these procedures carry a significant risk of hearing loss after surgery.

Frequently Asked Questions (FAQs)

- *How common is this problem?*
BPPV is the most common cause of vertigo in the adult population?
- *What is the most common reason for this problem?*
A prior labyrinthitis (inner ear infection) occurring months to years before the onset of symptoms is noted in about a third of patients.
- *What is the success of the Canalith Repositioning Procedure (CRP)?*
The control rate of the CRP is 85%.
- *Can this problem come back later?*
Yes, but fortunately the CRP is often effective at re-treating the symptoms.