



The Epley manoeuvre: vertigo

Intervention

The Epley (canalith repositioning) manoeuvre

Indication

Vertigo: a sensation of instability in which the person feels that they or their surroundings are moving or rotating.

Posterior canal benign paroxysmal vertigo (BPPV).

What is BPPV?

BPPV is a syndrome characterised by episodes of vertigo, which last for approximately 1–60 seconds; are related to rapid changes in head position, particularly movements related to gravity and those involving neck extension (eg. lying down in bed, reaching up for high objects, bending over); and may be associated with nausea and vomiting for up to several hours.

BPPV is believed to be due to debris (canaliths) in the semicircular canals of the ear. Canaliths may continue to move after the head stops moving, with stimulation of the vestibular nerve leading to vertigo.

BPPV symptoms usually resolve spontaneously within 12 weeks, but may persist for up to several months. Attacks tend to occur in clusters and symptoms may recur, following periods of apparent remission.

What causes BPPV?

Although most cases are unexplained, BPPV is associated with head trauma, vestibular neuritis, vertebrobasilar ischaemia, labyrinthitis, middle ear surgery and periods of prolonged bed rest.

How is BPPV confirmed?

Posterior canal BPPV is confirmed by a positive Dix-Hallpike positional test (Hallpike manoeuvre), with unequivocal features of positional nystagmus. The test is not positive in patients with anterior and horizontal semicircular canal BPPV, both of which are much less common.

A positive Dix-Hallpike positional test provokes vertigo and nystagmus when a patient is moved from a sitting position to lying, with the head tipped 45 degrees below the horizontal, 45 degrees to the side and with the side of the affected ear (and semicircular canal) downwards. The nystagmus typically has a latency of a few seconds before onset and fatigues after approximately 30 to 40 seconds. The nystagmus is rotatory with the fast phase beating towards the lower ear (geotropic) and adapts with repeated testing. Optic fixation (when the eyes are fixed on a specific object) may reduce the severity of the nystagmus.

See the video in **Training** below.

Precautions

Special care should be taken with both the Dix–Hallpike test and the Epley manoeuvre in patients with neck pain, stiffness or discomfort and in those with:

- neck injury
- severe cervical spondylosis
- severe positional dizziness or vertigo.



Precautions

BPPV needs to be distinguished from central positional vertigo, which may occur with:

- multiple sclerosis
- cerebellar disease
- brainstem ischaemia
- migraine

BPPV is typically associated with intense vertigo, which is usually less marked in central positional vertigo. Furthermore, nystagmus often persists in central positional vertigo, when the head is maintained in the same position.

Adverse Effects

No serious adverse effects have been reported.

Common

- vertigo
- nausea (and sometimes vomiting) during the manoeuvre.

Infrequent

Inability to tolerate the manoeuvre because of cervical pain, stiffness or discomfort.

Availability

Patients and practitioners can learn to administer the Epley manoeuvre themselves (see **Training** below). Some physiotherapists, neurologists and consultant general physicians have developed special expertise in administering and teaching the Epley manoeuvre.

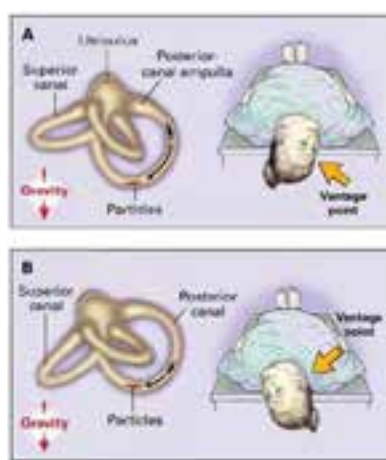
Description

1. Requirements: a bed or table that can be accessed from both sides and allows for the patient's head to be positioned off the end of the table. A bowl is advisable in case of vomiting.
2. Figure 1 below illustrates the Epley manoeuvre and is reproduced with the permission of the New England Journal of Medicine.

See the video in **Training** below.

The presumed position of the debris within the labyrinth during the manoeuvre is shown in each panel. The manoeuvre is a three-step procedure.

Figure. Bedside manoeuvre for the treatment of a patient with benign paroxysmal positional vertigo affecting the right ear



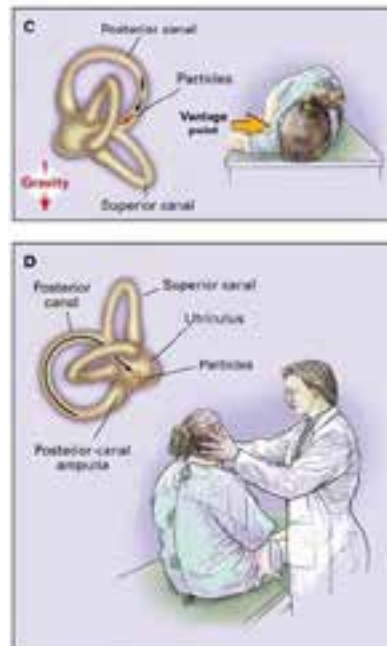
First, a Dix–Hallpike test is performed with the patient's head rotated 45 degrees toward the right ear and the neck slightly extended with the chin pointed slightly upward. This position results in the patient's head hanging to the right (Panel A).

Once the vertigo and 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).



Description

Figure. Bedside manoeuvre for the treatment of a patient with benign paroxysmal positional vertigo affecting the right ear



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 manoeuvre usually provokes brief vertigo.

The patient should be kept in the final, facedown position for about 10 to 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.

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Tips and Challenges

- The Epley manoeuvre is safe and effective for the treatment of posterior semicircular canal BPPV, until symptoms resolve.
- In refractory patients, other diagnoses such as central positional vertigo (see Precautions above) and anterior and horizontal semicircular canal BPPV should be re-considered (see How is BPPV confirmed?) above. Formal vestibular function testing is sometimes required to confirm the diagnosis.
- Useful consumer and practitioner resources are available. See Availability and Consumer Resources.

Training

Cochrane-NHS 'Engagement Project' has produced videos demonstrating the Dix-Hallpike test and the Epley manoeuvre.

www.youtube.com/watch?v=kEM9p4EX1jk&feature=youtu.be

www.youtube.com/watch?v=7ZgUx9G0uEs

Grading

NHMRC Level I evidence.

References

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Hilton MP, Pinder DK. The Epley (canalith repositioning) manoeuvre for benign paroxysmal positional vertigo. *Cochrane Database Syst Rev.* 2014 Dec 8;12:CD003162.

von Brevern M, Radtke A, Lezius F, Feldmann M, Ziese T, Lempert T & Neuhauser H. Epidemiology of benign paroxysmal positional vertigo: a population based study. *J Neurol Neurosurg Psychiatry.* 2007;78(7):710.

Consumer Resources

The Victorian Government's Better Health Channel provides general information about BPPV for consumers.

www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Vertigo_benign_paroxysmal_positional_vertigo?open