

# Efficacy of Epleys Manoeuvre in the Management of BPPV

KHALID MUNIR CHEEMA, MUHAMMAD TARIQ, MOHAMMAD ISMAIL, GHULAM MURTAZA, MAZHAR UL ISLAM, MOHAMMAD MUJEEB

## ABSTRACT

**Introduction:** Benign paroxysmal positional vertigo is the most frequent vestibular disorder. In almost all patients it occurs spontaneously and mainly through involvement of the posterior semicircular canal. Treatment consists in vestibular habituation training and in repositioning manoeuvres.

**Patients and method:** 87 patients diagnosed as having BPPV were included and Epleys maneuver performed. Study conducted from January 2008 to August 2010 at ENT department SIMS, Lahore. The cases are described and analyzed and their response to treatment is documented.

**Results:** The vast majority of the patients claimed a dramatic improvement reflected in complete cessation of vertigo 80 patients (92%), the remainder 7 patients (8%) showed either minimal or no improvement at all.

**Conclusions:** The evident advantage with Epley's manoeuvre is that it greatly reduces the time required to obtain a satisfactory result. In addition, it allows patients to return quickly to their daily activities and improves their quality of life.

**Key words:** Epley, BPPV, vertigo

---

## INTRODUCTION

Benign Paroxysmal Positional Vertigo (BPPV) is a disorder of the labyrinthine function characterized by paroxysmal attacks of vertigo and rotatory nystagmus when head is brought in a particular provocative position. It is documented in the literature that 20% of patients presenting with dizziness have BPPV; however, as it is frequently under diagnosed, this figure may not be completely accurate. Since BPPV can occur concomitantly along with some other inner ear pathology, it may be overlooked and so remain undiagnosed, moreover as this is a multispeciality disorder, its occurrence and statistical data may remain scattered and lower in number. Barany described BPPV in 1921 and attributed its relationship with otolith organs<sup>1</sup>. Dix and Hallpike performed provocative positional test (1952)<sup>2</sup> and Harold Schuknecht proposed the theory of cupulolithiasis as an explanation for BPPV<sup>3</sup>. House created a mathematical description of BPPV mechanics based on biophysical principles<sup>4</sup>.

Epley published his theory regarding Canalolithiasis, postulating that BPPV symptoms are more consistent with free moving densities (canaliths) in the posterior canal than fixed densities attached to cupula<sup>5</sup> and suggested a maneuver, involving sequential movements of head into four positions, aiming to move the otolith particles progressively from the posterior SCC back into the utricle<sup>2</sup>. Canal Repositioning Procedure (CRP) was introduced by

Semont in 1988 and by Epley's in 1992<sup>6</sup>. The majority of the studies published about the outcome of Epley's maneuver report more than 80% success rate from the first attempt of CRP<sup>7</sup>. The present study is aimed to investigate the effectiveness of Epley's maneuver and its positive impact on the quality of life.

## METHODS AND MATERIALS

Eighty seven patients were included in this study from Jan 2008 to Aug 2010. Diagnosis of BPPV was made on the basis of clinical features and positive Dix-Hallpike test. Diagnostic workup included history, clinical and audiological examination to rule out other underlying etiologies. All the patients were found to have a normal ENT and CNS examination, except for a positive Dix-Hallpike test confirming the clinical suspicion of BPPV. A questionnaire was designed stressing the various applicable issues to vertigo, among which were the nature and duration of vertigo, its relevant symptoms, accompanying complaints, and associated chronic medical illnesses. Effectiveness of Epley's Maneuver was evaluated on the basis of recurrence of symptoms, any future need for labyrinthine sedatives, and the improvement in the patient's quality of life subjectively. The results were graded in a manner similar to the one used by Harvey et al<sup>8</sup>.

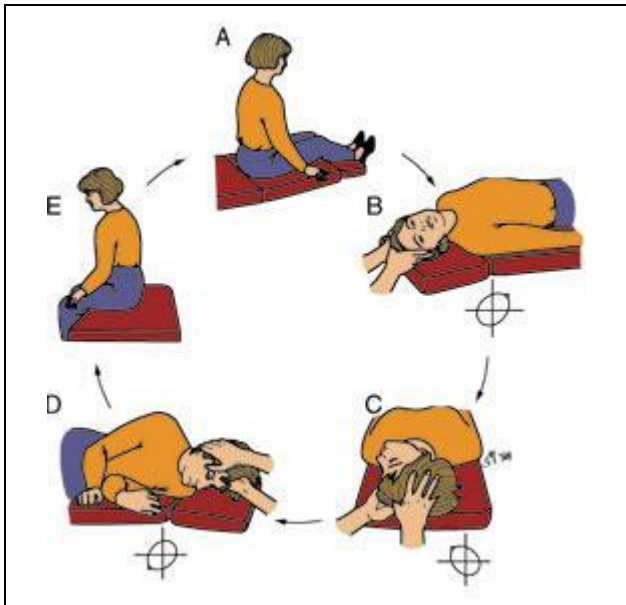
Procedure was performed in following steps Step 1-Dix-Hallpike was used as First step and Epley maneuver started as continued procedure with the affected ear hanging downward (head rotated 45 degrees and hyperextended) (Figure 1 B). Step 2

---

Department of ENT, Services Institute of Medical Sciences, Lahore  
Correspondence to Dr. Khalid Munir Cheema,

Head rotated 45 degree (90 degree from the starting position) to the opposite side (unaffected ear directed downward) (Figure 1 C). Step 3 Patient rolled over onto the side of unaffected ear, while maintaining the position of head in step 2 until the nose points toward the floor 180 degree from starting position (Figure 1 D). Step 4 Patient brought into the sitting position with the face rotated and hyper extended to the side of unaffected ear (Figure 1 E).

The head was held in each position until dizziness disappears. Post maneuver instructions were advised (Post-Epley's Maneuver Instruction sheet). No medications were prescribed. Patients were followed-up a week after the maneuver, and instructed to come for follow-up within one year if symptoms recur.



## RESULTS

Eighty seven patients were included in the study, males were 55 (63%), females 32 (37%). Their age ranged between 20 and 60 years (mean 42.7 years). In forty seven patients (54%), nausea and/ or vomiting were found to be a common associated symptoms, while nineteen patients (21.8%) were found to have some other associated aural complaints like aural fullness etc. While all the patients had head positional changes as a trigger for the vertigo episode, some postural element was found in fifty-four patients (62%). None of the patients had history of preceding viral URTI, or any associated visual, cervical or neurological complaints. No associated chronic medical illness was found in 59 patients (51%), nineteen patients (21.8%) were diabetics, twenty two (25%) were hypertensives,

eleven (12.6%) were suffering from hyperlipidemia, and 10 patients (11.4%) were known to have history of ischemic heart disease. Positive history of head injuries was revealed in 10 patients (11.4%) (80 patients (92%) admitted a significant improvement post-therapy. The follow up period ranged from one week to 18 months. All patients claimed a strict compliance with post-Epley's maneuver's instructions after the procedure. The vast majority of the patients claimed a dramatic improvement reflected in complete cessation of vertigo 80 patients (92%), the remainder 7 patients (8%) showed either minimal or no improvement at all.

## DISCUSSION

The nature has designed vestibular system in addition to visual and the somatosensory systems responsible for spatial orientation and posture. Disturbance of any kind in the coordinations of these systems result in a number of conditions with dizziness being the most significant. The benign paroxysmal positional vertigo (BPPV) is considered as first common cause of vertigo after vestibular neuritis<sup>9</sup>. This study demonstrates the effectiveness of Epley's maneuver in the treatment of BPPV, with success rate approaching 92%. The single-session Epley's maneuver publications, report success rate usually ranging from 78 - 90%<sup>10</sup>. An overlooked important aspect of the BPPV is its impact on the quality of life, daily activity, and the dramatic improvement achieved post-therapy, was addressed in this study. Sex distribution in this study concurs with the literature review, which suggests that BPPV is more common in males (64%), which is comparable to 63% in our study. The recurrence rate of BPPV after Epley's maneuver is about 30% within the following year, and in some instances a second session may be necessary<sup>11</sup>. Some authors modified the original procedure aiming to achieve extra success in the outcome by shaking or tapping the temporal region of the affected ear during the procedure, or using vibrators placed over the mastoid bone<sup>12</sup>. Others, however, modified the procedure by increasing the degree of head rotation, or the duration of each head position<sup>10</sup>. Furthermore, some studies claimed better outcome by repeating the procedure within a week<sup>11</sup>.

In this study, we followed the original Epley's Maneuver with better and acceptable outcome. Daniel et al. reported a study on the management of Bilateral BPPV (BiBPPV) and described that they can be managed successfully with Epley's maneuver performed on the most symptomatic side<sup>13</sup>. The treatment designed for cupulolithiasis resulted in remission of vertigo and nystagmus in 70% of the

patients and improvement of the symptoms in another 20%. The treatment designed for canalithiasis resulted in remission of vertigo and nystagmus in 57% of the patients and improvement in another 33%. There was no statistically significant difference between treatments<sup>14</sup>.

Epley classified the result after treatment with the maneuver into I. Resolution of vertigo, II. Presence of non-positional vertigo, III. Partial resolution and IV. Same or worse. In our follow-up, none of the patients who showed an initial improvement experienced a recurrence. However strict patient's compliance with the post-therapy instructions and repeating the procedure within one week of the initial therapy session in selected cases may improve the outcome.

## CONCLUSION

We found that Epley's Maneuver is an effective and very efficient modality of treatment for the patients suffering from BPPV. We strongly recommend it as the first line of treatment. Further studies with larger sample size and longer follow-up are needed to support the current study. We also suggest that the BPPV and role of Epleys should not be overlooked. Awareness in the community and early referral to the tertiary care hospitals should be encouraged.

## REFERENCES

1. Epley JM: The Canalith Repositioning Procedure: For The Treatment of Benign Paroxysmal Positional Vertigo. *Otolaryngol Head and Neck Surg* 1992;107(3):399-404.
2. Dix, MR, Hallpike CS. The pathology, symptomatology, and diagnosis of certain common disorder of the vestibular system. *Proc Roy Soc Lond* 1952;45:341-54.
3. Schuknecht HF. Cupulolithiasis, *Arch. Otolaryngol* 1969; 90(6): 765-78.
4. House MG, Honrubia V. Theoretical models for the mechanisms of benign paroxysmal positional vertigo. *Audiol Neurootol* 2003;8(2):91-9.
5. Epley JM: New Dimension of Benign Paroxysmal Positional Vertigo. *Otolaryngol Head and Neck Surg* 1980;88(5):599-605
6. Semont A, Freyss G, Vitte E. Curing the BPPV with a laboratory Maneuver. *Adv Otolaryngol* 1988; 42:290-3.
7. Fung K, Hall S. Particle Repositioning Maneuver: Effective Treatment for Benign Positional Paroxysmal Vertigo. *Arch Otolaryngol* 1996;25(4):243-8.
8. Mujeeb M, Khan NJ. Epley's manoeuvre: treatment of choice for benign paroxysmal positional vertigo. *Laryngol Otol*. 2000 Nov;114(11):844-7.
9. Ali Akbar Rezaie, Farnaz Hashemian, Nima Rezaie. Corticosteroids effect on vestibular neuritis symptom relief. *Pakistan journal of health sciences*, vol 22, no.4, Oct-Dec 2006
10. Herdman SJ, Tusa RJ, Zee DS: Single Treatment Approaches to Benign Paroxysmal Positional Vertigo. *Arch Otolaryngol Head and Neck Surg* 1993 Apr; 119(4): 450-4.
11. Smouha EE, Roussos C: Atypical Forms of Benign Paroxysmal Positional Vertigo Nystagmus. *Ear Nose Throat J* 1995; 74(9): 649-56.
12. Massoud EA, Ireland DJ: Post-treatment instructions in the Nonsurgical Management of Benign Positional Vertigo. *J Otolaryngol* 1996;25(2):121-5.
13. Daniel M. Kaplan, MD et al: management of Bilateral Benign Paroxysmal Positional Vertigo. *Otolaryngology-Head and Neck Surg* 2005;133:769-73.
14. Niamatullah, Naveed Yousaf. Single treatment approaches to Benign Paroxysmal Positional Vertigo. *Pak J Otolaryngol* Apr 2004;20(1):3-5.