



# Unresolved Issues with Repeated MRI and CT Scan of the Brain in Vestibular Migraine and Recurrent Vestibulopathy: A Case Study

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## Abstract

Vertigo and vestibular disorder are one of common illness that still having multiple and unresolved issues especially in term of diagnosis and management. Limited awareness of the actual protocol for the vestibular disorder management lead to unnecessary investigation among the vertigo patients. Many clinicians in our set up focusing more on investigation such as repeated MRI and CT scan of the brain in order to rule out the cause of the problem. Due to this will lead to financial burden to patients and not an optimum management. Since after several investigation and undefined diagnosis patient will end up with the frustration and prolonged the problem without proper management. Recurrent vestibulopathy and Vestibular migraine is among the most common causes of recurrent vertigo in the general population. Despite its high prevalence and impact on healthcare management cost, it has remained an under-recognized condition and unknown pathophysiology. Recurrent vestibulopathy and vestibular migraine common illness that having unclear mode of therapy. In this case the optimum management is intensive vestibular Rehabilitation (VRT) needed and not a medication or injection that only symptomatic relieve. A 48-year-old lady, underlying migraine and hypertension was presented with spinning sensation for 1 year associated with left ear tinnitus. Improved almost 60% after intensive vestibular rehabilitation in ward for 4 days using BAL EX Quick balance module. Optimum and end solution able to achieve using proper diagnosis and management.

**Keywords:** Migraine; recurrent vestibulopathy; vestibular rehabilitation

## Introduction

Clinicians are no strangers to patients with migraine symptoms and frequent dizziness. As a common neurological disorder, migraine affects about 15% of the general population. Dizziness is also a common symptom, accounting for up to 15% of visits in frontline healthcare settings. Considering the prevalence of both conditions, an overlap in the clinical presentations of vestibular symptoms and migraine may not seem surprising at first. Several studies, however, have found a close association between dizziness and migraine beyond coincidence. Dizziness is more common in migraineurs compared with those suffering from other headache subtypes such as tension-type headache, suggesting a pathological link between migraine and dizziness. In some migraine patients, dizziness or vertigo is even more prominent and debilitating than the headache. The link between the vestibular symptoms and migraine is also reflected by a higher incidence of migraine in patients with recurrent dizziness who do not fulfill the criteria for other vestibular disorders. [1]. Recurrent vestibulopathy is defined

as an illness of unknown cause characterized by more than a single episode of vertigo of duration characteristic of that occurring with hydrops but without auditory or clinical neurological symptoms or signs. Eighty-six patients with this condition were diagnosed in the Dizziness Unit, and data on age and sex distribution, natural history and caloric pattern are presented.

On follow-up of mean duration 3.5 year, 6 cases evolved to classic Ménière's disease, and 4 to benign positional vertigo, but none developed brain disease. The prognosis regarding vertigo is generally good. We consider the term recurrent vestibulopathy a logical designation of a distinctive clinical disorder with unknown cause but with probable peripheral vestibular origin, and hope that its use would spur research into previously unrecognized causes of recurrent vertigo [2]. Vestibular migraine is among the most common causes of recurrent vertigo in the general population. Despite its high prevalence and impact on healthcare management cost, it has remained an under-recognized condition

and unknown pathophysiology [1]. Recurrent vestibulopathy is a clinical syndrome first described in 1981 by Lelievre and Barber [3]. It consists of multiple episodes of vertigo lasting for minutes to hours, without auditory or neurological signs or symptoms. The attacks are not provoked by changes in head position. The cause of recurrent vestibulopathy is unknown [4]. Vestibular Rehabilitation (VRT) is a specific form of physical therapy designed to habituate symptoms and promote adaptation to and substitution for various aspects of deficits related to a wide variety of balance disorders. Bal Ex is a home-based module of VRT with specific modules that are available in three forms manual book, poster and DVD. This module was developed with a combination of customized Cawthorne Cooksey Exercise and prayer movements [5,6].

## Case Report

A 48-year-old lady, underlying migraine and hypertension was presented with spinning sensation for 3 months associated with left ear tinnitus. The symptoms were precipitated by migraine headache. MRI Brain was done three times and results are normal. On examination, the patient was conscious and alert. Cerebellar test and Dill Hallpike test were negative. The patient then underwent 20 sessions of intensive BAL Ex therapy in ward

without taking any medicine during the treatment. To evaluate the postural control pre and post therapy we used Bal Exzz Foam test (Figure 1) pre and post balance rehabilitation. This Bal Exzz Foam test has a structured scoring foam that is divided into seven sections (Table 1). Positive Fukuda test has been identified (Table 1). The patient was also given three questionnaires to complete before and after treatment. These were the Malay Version of Vertigo Symptom Scale (MNVSS), Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI). VRT is a type a physical therapy that aims to habituate symptoms and encourage natural cerebral compensation to and substitution for various aspects of deficits associated with a wide variety of balance problems (Table 2). Bal Ex Quick Balance is latest integrated balance rehabilitation module that able to improve patient's postural control if intensively done. This module able to assist people with various balance disorders include Peripheral Vestibular Disorder (PVD) and central vestibular disorder. Bal Ex Quick balance is an adaptation from Bal ex module, Customized Cawthorned Cooksey Exercise and prayer movement. Improvement seen after 15 rehabilitation sessions which is Malay Version of Vertigo Symptom Scale showed 39% improvement, Beck Depression Inventory (BDI) 100% improvement and Beck Anxiety Inventory (BAI) 77% improvement. Great improvement seen in Bal Ex Foam Test.



Figure 1: Bal Ex Foam.

Table 1: Subjective measures Pre- and Post-vestibular rehabilitation.

Component	Pre balance rehab session	Post 10 sessions	Post 15 sessions
Malay Version of Vertigo Symptom Scale (MNVSS)	28	19	17 (39% improvement)
Beck Depression Inventory (BDI)	10	0	0 (100% improvement)
Beck Anxiety Inventory (BAI)	27	7	6 (77% improvement)

Table 2: Bal Ex Scoring Foam.

Level	Description	Pre therapy	Post 3 sessions Bal Ex Quick Balance	Post 18 session Bal ex Quick balance
1	Stand on the floor with arms across your chest and feet together and hold for 30 seconds (opened eyes)	Normal	Normal	Normal
2	Stand on the floor with arms across your chest and feet together and hold together and hold for 30 seconds (closed eyes)	Normal	Normal	Normal
3	Stand on the floor with arms across your chest, toe touching the other side of heel and hold for 30 seconds (opened eyes)	Normal	Normal	Normal


4	Stand on the floor with arms across your chest, toe touching the other side of heel and hold for 30 seconds (closed eyes)	< 6 seconds	< 9 seconds	Normal
5	Stand on a 3-inch-high density foam cushion with your arms crossed, feet together and hold for 30 seconds (opened eyes)	Normal	Normal	Normal
6	Stand on a 3-inch-high density foam cushion with your arms crossed, feet together and hold for 30 seconds (closed eyes)	< 4 seconds	< 7 seconds	Normal
7	Fukuda test	Turn to right side 45 degree	Turn to right side 20 degree	Normal

## Conclusion

Advanced vestibular rehabilitation was proven benefit to patient with vestibular migraine and recurrent vestibulopathy.

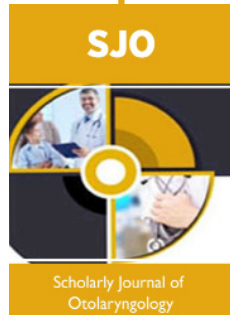
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