

# Dizziness, Postural Hypotension and Postural Blackouts: Two Cases Suggesting Multiple System Atrophy

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## Abstract

**Background:** Dizziness is a non-specific term used by patients to describe a variety of symptoms. The terms dizziness, vertigo, faintness, and blackouts are not synonymous but are often used interchangeably by patients. Postural blackout is a subtype of dizziness and is a result of postural hypotension, a feature of autonomic dysfunction.

**Case reports:** We present detailed case histories of two patients treated elsewhere as postural dizziness and vertigo without a specific diagnosis. Postural blackouts were misinterpreted as postural dizziness and positional vertigo. On detailed evaluation, these were postural hypotension (PH) and postural blackouts. There were additional features of autonomic dysfunction, parkinsonism and ataxia. A diagnosis of multiple system atrophy was made as per the second consensus statement on diagnosis of multiple system atrophy.

**Discussion:** A clinical algorithm to evaluate dizziness subtypes is discussed. Clarification of the term dizziness is necessary for a correct etiological diagnosis. A detailed history, neurological examination, bedside autonomic function testing, and follow-up is necessary in all patients presenting with dizziness.

**Conclusion:** Postural hypotension is an important cause of postural blackouts. Multiple system atrophy should be considered in patients with postural dizziness/blackouts.

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**Categories:** Internal Medicine, Neurology

**Keywords:** multiple system atrophy, autonomic dysfunction, dizziness, postural blackouts, hypotension

## Introduction

Dizziness is a term used by patients to describe abnormal sensations (usually disequilibrium) without any specific meaning. It may mean a) sense of motion, spinning sensation, vertigo, b) imbalance or disequilibrium, c) impending loss of consciousness, presyncope, near faint, blackout, d) syncope, e) seizure, or f) lightheadedness due to psychiatric disorders like panic and hyperventilation [1-3]. Hence, it is important to elucidate the meaning of dizziness and ask the patient to describe the abnormal sensation without using the word "dizziness". Postural blackout is a subtype of dizziness due to orthostatic hypotension. Medications, cardiovascular disorders and autonomic dysfunction are some of the causes of orthostatic hypotension in elderly. We report two patients with recurrent postural blackouts

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due to orthostatic hypotension being treated elsewhere as dizziness and positional vertigo. A methodical approach, detailed neurological evaluation and bedside autonomic function testing led to the correct diagnosis of multiple system atrophy. We discuss the approach to patients presenting with symptoms of dizziness and postural blackouts.

## Case Presentation

### Case 1

A 46-year-old right-handed man presented with dizziness, black-outs on standing, urinary frequency, and thrashing movements of limbs during sleep since one and half years. Five months later, he had gait ataxia. On examination, he had significant orthostatic hypotension. Blood pressure was 140/90 mm of Hg when supine and 106/72 mm of Hg three minutes after standing. Hence, detailed autonomic function testing was done: 30 seconds bradycardia; 15 seconds tachycardia ratio on standing was 0.95 ( $N > 1.04$ ); valsalva ratio of the longest RR interval in phase 4 to the shortest RR interval in phase 2 of Valsalva maneuver was 1.20 (normal  $> 1.45$ ); diastolic BP remained 90 mm of Hg on handgrip maneuvers and ice cold immersion testing. On neurological examination, his higher mental functions, speech, cranial nerves, motor examination, reflexes, and sensory examination, were unremarkable. He had significant gait ataxia and swayed on either side while walking. Magnetic resonance imaging (MRI) brain revealed ponto-cerebellar atrophy and hot cross bun sign. A diagnosis of probable MSA-C was made as per the second consensus statement for diagnosis of MSA [4]. He was advised to avoid rapid postural changes. He was symptomatically better with frequent liquid meals with extra salt, lower limb elastic compression stockings, and anti-Trendelenburg position during sleep. Dream enactment with thrashing limb movements during sleep (REM sleep behavior disorder) responded to clonazepam.

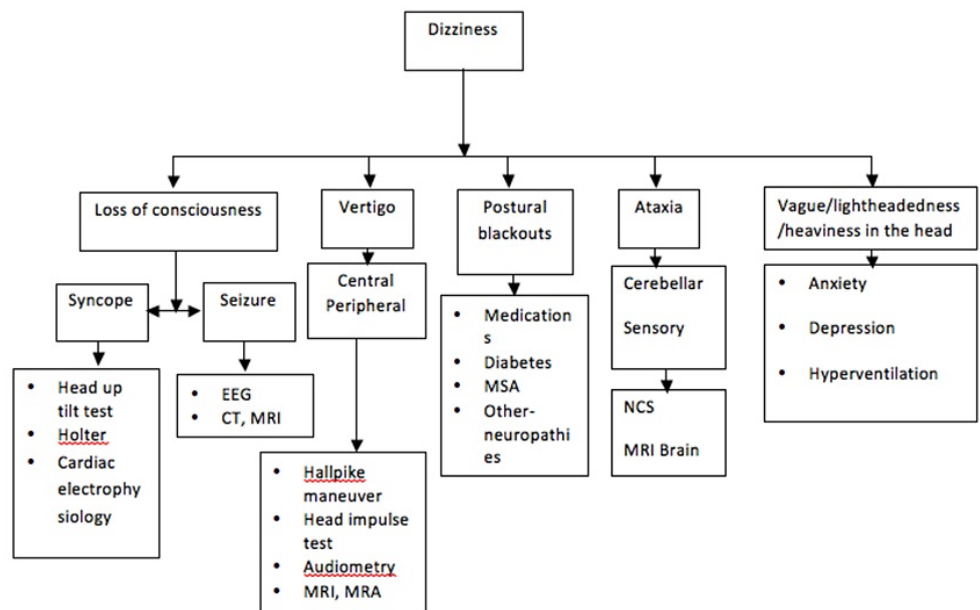
### Case 2

A 50-year-old man presented with urinary frequency and incontinence since four years. Three years later, he had postural dizziness, black-outs, impotence, and thrashing movements of limbs in sleep. He had slowness of activity and rest tremors in both hands since last six months. On examination, he had significant postural hypotension. Blood pressure was 102/60 mm of Hg when supine and 72/44 mm of Hg three minutes after standing. The 30 seconds bradycardia: 15 seconds tachycardia ratio was 0.94 ( $N > 1.04$ ). Valsalva ratio was 1.28 (normal  $> 1.45$ ). There was no diastolic rise in BP on handgrip maneuvers and ice cold immersion testing. On neurological examination, higher mental functions, speech, and cranial nerve examination, were normal. There was symmetrical bradykinesia and cogwheel rigidity. Power was normal and deep tendon reflexes were exaggerated with bilateral extensor plantar response. Sensory system was normal; there were no cerebellar signs and gait was normal. MRI of the brain was normal. Diagnosis of probable MSA-P was made as per the second consensus statement for diagnosis of MSA [4]. He was advised to avoid rapid postural changes. Postural symptoms improved with frequent liquid meals with extra salt, lower limb elastic compression stockings, and anti-Trendelenburg position during sleep. Levodopa was started for parkinsonian symptoms. REM sleep behavior disorder responded to clonazepam.

## Discussion

Both patients had symptoms of postural dizziness and blackouts due to orthostatic hypotension. Case one had orthostatic hypotension leading to postural blackouts from the onset. This was being treated as positional vertigo. Case two had urinary symptoms at the onset and developed postural blackouts three years later. On close enquiry, both patients denied having rotatory vertigo. Orthostatic hypotension was being treated as positional vertigo and dizziness.

The terms dizziness and vertigo are not interchangeable and are frequently misused by patients. Dizziness is a broad non-specific term [5]. While vertigo and postural blackouts are specific subtypes of dizziness. Hence, these symptoms have to be elucidated carefully [6]. An algorithm to approach a patient with these symptoms is suggested (Figure 1).



**FIGURE 1: Algorithm for patients with dizziness, postural blackouts**

The symptoms of blackouts were reproduced during examination for orthostatic hypotension. There was no evidence for any other cause of orthostatic hypotension (Figure 1) (Table 1). Postural hypotension is a common feature of autonomic dysfunction. Symptoms of postural hypotension include postural blackouts, postural dizziness, reeling sensation, coat hanger pain, and tiredness. Elderly patients with these symptoms should be carefully evaluated for the presence of orthostatic hypotension and other autonomic disturbances by doing bedside autonomic function tests. In all patients with dizziness, postural blackouts, and tiredness, an evaluation for other causes of orthostatic hypotension is essential (Table 1).

Seizure	Vertigo
Tongue bite	Rotation of self/environment
Tonic (posturing), clonic activity, amnesia for the event	Duration- seconds in positional vertigo, minutes, hours in vestibulopathy
Confusion, headache after the event	Brainstem symptoms (diplopia, dysarthria) in vertebrobasilar ischemia
Syncope	
Prolonged standing	
Sweating	Postural blackouts
Pallor	Orthostatic hypotension
Ataxia, cerebellar	Medication history – antihypertensive, diuretics, antipsychotics, parkinsonian drugs
Sensory	Cardiovascular illness – arrhythmia, cardiac failure, valvular disease
Vague description of symptoms	
Anxiety, depression, hyperventilation	
Normal examination	

TABLE 1: Differential diagnosis of episodic loss of consciousness, vertigo, blackouts

Both patients had history of urinary frequency and thrashing movements of limbs in sleep. Urinary frequency was wrongly attributed to prostatism, a common condition in the elderly. In both patients, the prostate was enlarged but there was no outflow obstruction. Urinary frequency is an early feature of autonomic dysfunction. Thrashing movements of limbs in sleep was misinterpreted as seizures. Dream enactment manifesting as thrashing movements of limbs in sleep is a REM sleep behavior disorder specific for synucleinopathies like MSA [7].

Both patients had pure autonomic symptoms for a variable period of time. Parkinsonian and cerebellar signs were seen after a follow-up of few years. Hence, a close follow-up for development of parkinsonism or cerebellar features is essential in patients presenting with postural blackouts.

Conclusions

An algorithm to evaluate dizziness subtypes is suggested. Postural blackout a subtype of dizziness is due to orthostatic hypotension. Multiple system atrophy should be considered in patients with postural dizziness/blackouts.

Additional Information

Disclosures

**Human subjects:** Consent was obtained by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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