

Dizziness: Concurrence of stroke and vestibular schwannoma, A case report

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ABSTRACT

Dizziness can be seen in 20% of cerebrovascular disorders. We present a case of a 67 years old, right-handed woman with a history of right-stroke with residual left-sided deficits who presented to our hospital seeking further rehabilitation. After admission, she complained of sudden onset dizziness. It was worsening while walking she had a feeling of moving around. Neurological examination was stable. Berg Balance Score was 41/50. Magnetic resonance imaging revealed a previously undiagnosed vestibular schwannoma. Since similar symptoms may be seen in patients with stroke or vestibular schwannoma, a complete physical examination with necessary tests should be done in patients presenting with dizziness after a stroke.

Introduction

Dizziness is very common symptom in population especially in elder population. In elder population, 30% of older than 65 years and 50% older than 85 years experience dizziness (1). In primary care 20% to 40% of dizzy patient, the underlying cause remains unknown (2).

Dizziness is a common clinical presentation with brainstem or cerebellar strokes (3). Dizziness can be seen in 20% of long term results of cerebrovascular disorders (4). However "dizziness" is a nonspecific symptom, a conclusive diagnosis of dizziness related to ischemic stroke remains difficult (4). Posterior fossa tumors especially vestibular schwannomas are rare tumors which are seen less than 1 percent of patient with dizziness (5,6). Herein we present an individual with concurrence of stroke and vestibular schwannoma for the emphasize importance of detailed evaluation of dizziness.

Presentation of Case

A sixty seven year old left hemiplegic female patient was admitted to our hospital for neurologic rehabilitation with a complain of vertigo. Vertigo characteristics as follows, sudden on-

set, present during walking not sitting, starting with coming to upright position, not having symptoms such as nausea, vomiting, imbalance, not related to movements of head. She had no sensation that objects in the environment are moving; felt as if she was moving around. In her history, she was diagnosed with stroke with a normal cranial MRI. Her cranial MRI was repeated one month after and reported as cerebellar sulcus and vermian, bilateral optic radiation, major forceps, minor forceps, periventricular white matter, central semiovale, subcorticalfrontoparietal white matter and posterior leg of right internal capsule had ischemic-gliotic nodular signal change. Her past medical history revealed diabetes mellitus and hyperlipidemia.. Also, 7 months ago she had fall down on her right wrist and broke distal radius. She did not have any dizziness nor lose her conscious. In her physical examination, vitals were stable. Left Brunnstrom of arm, hand and leg were 6. Tonus and reflexes were normal. Sensory examination was left hemiparesthesia and right wrist paresthesia. Cerebellar test: Normal speech, normal gait, no sign of nistagmus, normal finger to nose / finger to finger test, normal rapid alternating movements, normal heel to shine test, Romberg test was positive when patient closed her eyes. Berg

Balance Score was 41/50.

Even though patient didn't reveal any dizziness 7 month ago when she fell and broke her radius, fall risk with a normal cranial MRI brought suspect of peripheral vertigo. Ear nose throat consultation note was negative for Dix Hillpike test nor nistagmus. Carotid vertebral artery doppler ultrasonography and odiotimpanometry test was ordered due to recommendation of consultant. Ultrasonography reported as irregular arteries. Audiometry and timpanometry tests results were reported as particular loss of sensitivity around 4KHz. Abnormal audiometry test result led us to take temporal bone MRI scan. Temporal bone MRI was reported as 2 mm diameter of nodular signal change after intravenous contrast agent injection in the course of both 7. and 8. cranial nerves in the left inferior part of internal acoustic canal. This signal change may be contributed to vestibular schwannoma. With the result of these tests, patient was advised to have MRI scan control and betahistine hydrochloride 24 mg twice a day was given for her dizziness. During patient's rehabilitation program, patient received balance and coordination exercises to reduce her fall risk. After two months, even though the severity of dizziness did not change, patient's walk was more stable which reduced her fall risk and increased her quality of life.

Discussion

Dizziness can be seen in 20% of long term of stroke survivors (4). Hoffman et al reported that the most common central nervous system cause of dizzy patients in primary care were cerebrovascular ischemia or infarction (2% to 10%); tumors were rare as less than 1 percent (6). Vestibular schwannomas account for 8% of intracranial tumors (8). Tumor rates were getting higher in elder population (6). Our patient was 67 years old which increases the risk of having vestibular schwannoma. Evaluation of dizziness in patients with stroke should be made like in our case.

Diagnosis of vestibular schwannoma is made by MRI scanning with gadolinium or high resolution CT scanning including the internal auditory meatus with or without contrast, if a suspicion of a vestibular schwannoma is high like in our case (8). Our patient had abnormal audiometry test since she had no symptom for hearing loss, and that made us to have high suspicion of vestibular schwannoma. We recommend that every dizzy stroke patient should have audiometry test, even they do not describe any hearing loss. If there is abnormality in audiometry test, patient should be scanned with MRI which includes millimeter sections through the internal auditory meatus in order not to skip diagnosis of vestibular schwannoma.

Glasscock et al reported that elderly patients with small vestibular schwannoma should be observed with follow ups (9). Since in our case, our patient was 67 years old and tumor size was 2 mm in MRI scan, observation was the treatment of choice, medication was given for dizziness and patient was advised to have follow up MRI scan every 6 months. Patients also received extensive balance and coordination exercises in order to decrease fall risk.

Dizziness is a known risk factor for falls (10). Fall risk increases with age and concurrence of stroke and vestibular schwannoma increment this risk (11). It is important to prevent falls in stroke patients with extensive rehabilitation program. This prevention can be succeeded with identifying underlying causes.

Conclusions

Chronic dizziness is a common sequela of ischemic stroke.

It is a common mistake that every dizzy post stroke patients are being considered as a result of ischemic event. Stroke patients may have concurrent vestibular schwannoma which may cause dizziness. Since cerebrovascular disorders itself is not the only cause of dizziness, every dizzy stroke patient must be researched exhaustively to find out the underlying other cause of dizziness to decrease fall risk and increase quality of life.

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Conflict of Interest

The author declared they do not have anything to disclose regarding conflict of interest with respect to this manuscript.

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