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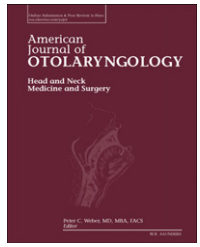

Recent onset disequilibrium mimicking acute vestibulopathy in early multiple sclerosis☆

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ABSTRACT

The differential diagnosis of patients with acute unilateral vestibulopathy rests in the proper clinical assessment and use of selected tests of vestibular function. In case of a central nervous system lesion as in Multiple Sclerosis, the case shown here, it is of particular importance to observe congruency between severity of symptoms and signs and, of topographic diagnosis. We report a case of a 37 year old woman with recent onset disequilibrium that after careful analysis of the different test results several incongruences were found; this prompted a radiological study that provided the clue to diagnosis. After treatment the patient recovered completely not only clinically but also in vestibular deficit.

1. Introduction

The evaluation of patients complaining of disequilibrium needs adequate interplay of the clinical characteristics after a detailed medical history and specific vestibular testing coupled with orientated ancillary methods of neurological function and imaging. The medical history should focus on some clinical issues of symptoms the most relevant of which are the following: their duration (recent onset or chronic), the existence of identifiable vestibular antecedents (acute vestibulopathy, Meniere's disease, etc), of risk factors for dizziness (neurological, cardiovascular, visual, etc) and, whether there is a disorder during gait or this is only perceived by the patient. A proper bedside vestibular examination is the key step for the selection of following tests [1].

All this has provided increasing awareness of puzzling clinical cases of which most frequently a peripheral vestibulopathy is considered, in accordance with the pattern in their initial symptoms and signs but concludes as a central lesion after complete examination and work up; this is more frequent in stroke [2], but less for multiple sclerosis [3] and vestibular schwannoma [4].

We present a case in where the clinical symptoms and vestibular evaluation found some incongruities.

2. Case reports

A 37 year old woman presented to our hospital due to unsteadiness that worsened with ambulation and abrupt head movements, associated with nausea and vomiting. She denied tinnitus, hearing loss or any other otological symptoms; nor was there was a precedent vertigo spell. It had all begun 15 days before visiting the physician and its severity remained constant. The patient stated

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she had fallen twice: while walking down the stairs and while getting up from bed. Subsequently, the patient had difficulty focusing her vision, oscillopsia and right hemifacial numbness.

Three years before, following her first pregnancy she had urinary incontinence for 8 months. A year later, she was seen because of an acute right otitis media. At that time a mixed hearing loss was detected in her right ear and a moderate sensorineural hearing loss in her left ear: the bone conduction audiometry was worst in her right ear. She was treated by myringotomy to evacuate middle ear effusion; 1 month later the tympanic membrane and middle ear were normal as was hearing in both ears: the pure tone average was lower than 10 dB in all the frequencies. Also, the patient had suffered migraines with aura for many years.

At the time of diagnosis in her actual problem otological examination showed normal bilateral otoscopy.

Neuro-otologic examination showed spontaneous left beating nystagmus with an upbeat component under Frenzel glasses in a completely darkened room. In primary position the slow-phase velocity (SPV) of nystagmus was 12°/s for the horizontal component and 5°/s for the vertical component. Both components of nystagmus SPV increased in leftward gaze and almost disappeared in rightward gaze; upward and downward gaze had no effect on any of the components of nystagmus. This nystagmus was seen in all the positions examined (supine, left and right lateral) and increased in velocity after head shaking. Visual fixation effectively suppressed the nystagmus. There was small non-quantified skew deviation on cover test during which the right eye was the lower.

The vestibulo-oculomotor reflex (VOR) was examined with the Video Head Impulse test (vHIT, GN Otometrics). Rightward head thrusts disclosed abnormal results for all the semicircular canals (SC). This was evident for the vertical canals (superior, SSC and posterior, PSC) with low gains and less for the horizontal (HSC), although clear refixation saccades (covert and overt) were registered. Leftward head thrusts provoked normal responses for all the SC (Fig. 1).

A normal pure-tone audiometry was obtained in both ears. Brainstem auditory evoked potentials (BAEP), applying clicks of 70 dB HL, were normal for both ears.

Vestibular evoked myogenic potentials (VEMP) were done using 0.5 kHz stimulation (airborne) at 95 dB nHL and registering at the ipsilateral SCM: on the right side the rectified response was abnormal (the p13 latency was 16.3 ms and the n23 latency was 22.3 ms with an interpeak amplitude of 5.8 μv) but no response was obtained after left-side stimulation (Fig. 2A). Clear later components (n34 and p44) are obtained after right ear stimulation.

A brain MRI performed showed multiple supratentorial periventricular foci (Fig. 3A). In addition, two infratentorial foci were present (Fig. 3B), one in the right middle cerebellar peduncle and the other in the left cerebellar lobe. After paramagnetic contrast, 2 enhancing lesions were observed, located in the right middle cerebellar peduncle (Fig. 3C) and left frontal lobe (Fig. 3D). Cervical and thoracic spinal cord MRI showed multiple foci of increased signal in the left cervical

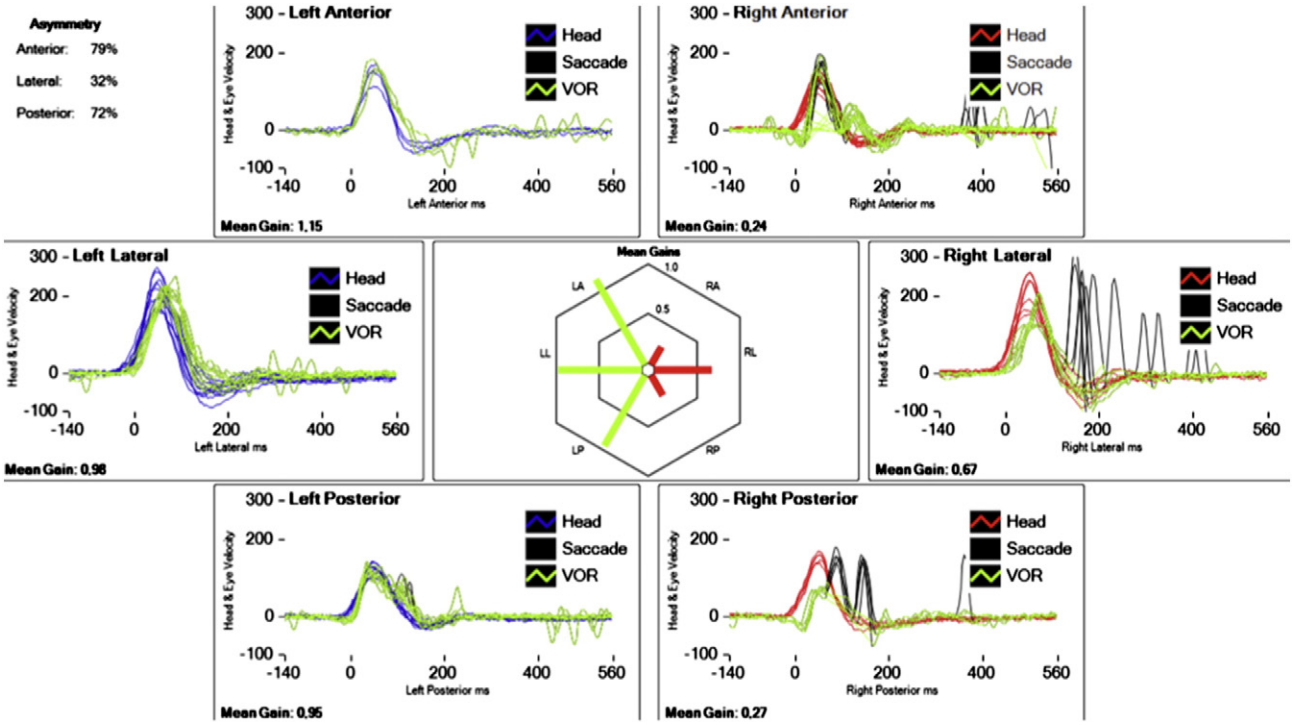

Fig. 1 – Recording of the VOR after head impulses in the plane of each semicircular canal in both ears at the time of diagnosis. In blue and red, the head velocity profile and in green the eye velocity corresponding to each head impulse; refixation saccades are depicted in black. In the center hexagonal plot of mean gain of the responses: in red, abnormal results, and in green, normal results. LA: left anterior semicircular canal, LL left lateral or horizontal semicircular canal, LP left posterior semicircular canal, RA: right anterior semicircular canal, RL right lateral or horizontal semicircular canal, RP right posterior semicircular canal.