

# False positive vHIT for bilateral vestibular failure in a multiple sclerosis case

**Keywords:** oscillopsia, anamnesis, convergence alteration, paraparesis, lower limbs, ophthalmoplegia.

## Introduction

We have decided to write this paper as we found the case very interesting since the patient's reason for consultation was oscillopsia but a Bilateral Vestibular Failure was found after performing a Video Head Impulse Test (vHIT). We understand that such interpretation would lead to misdiagnosis, therefore the importance of this report.

## Material and methods

We performed a thorough anamnesis and physical exam,

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we requested all current and past MRIs as well as vHIT videonystagmography tests (Impulse, Natus) Figure 1 (VHIT Horizontal Canal).

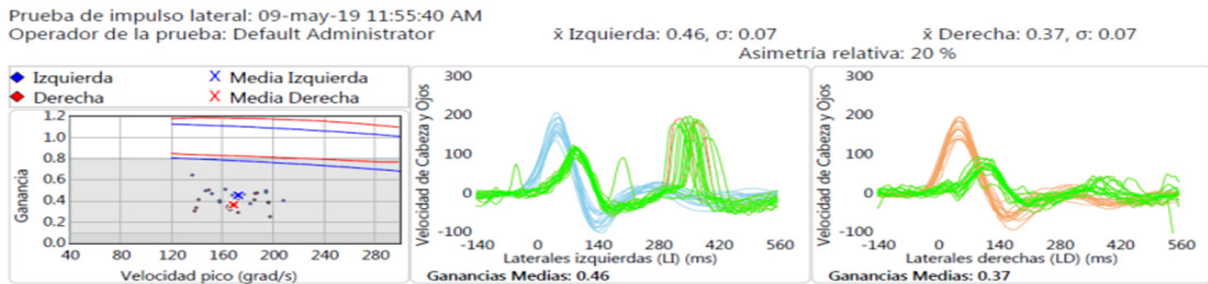


Figure 1 VHIT horizontal canal.

## Objectives

To find the cause of the false Bilateral Vestibular Failure by analyzing the patient's record and the clinical findings of her physical exam, as the patient suffered from Multiple Sclerosis for the past 13 years with several demyelinating lesions in the Central Nervous System. We verified internuclear ophthalmoplegia (INO) Video 1, more specifically, right eye adduction limitation, left eye monocular nystagmus (abducent), convergence alteration, dysarthria Video 2 paraparesis (3/5) of lower limbs, gait with a widened base of support Video 3 overall rigidity, positive bilateral Babinski sign.

## Results

As the medial longitudinal fasciculus (MLF) lets axons travel from the vestibular nuclei to the oculomotor nuclei, patients with a lesion that involves the MLF may show variable patterns of altered vestibular responses apart from internuclear ophthalmoplegia. The MLF acts as the main passage for the VOR that produces excitation of the contralateral posterior canal. During high-acceleration stimuli, there is a gain reduction in the VOR head impulse for the contralesional posterior canal and usually for the ipsilesional horizontal canal Figure 2 (pons lesion) Figure 3 (VHIT six channels). In the VNG the speed of the saccadic were critically reduced. Figure 4 (saccadic speed alteration).<sup>1,2</sup>

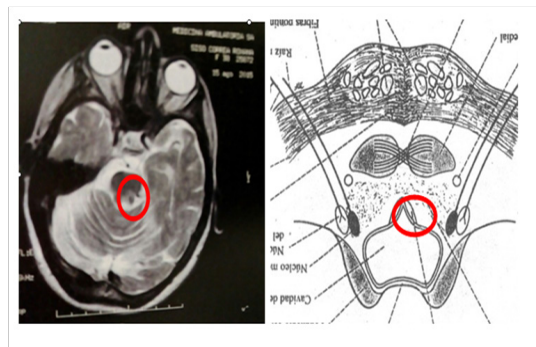


Figure 2 MRIs Posterior Pons lesion.

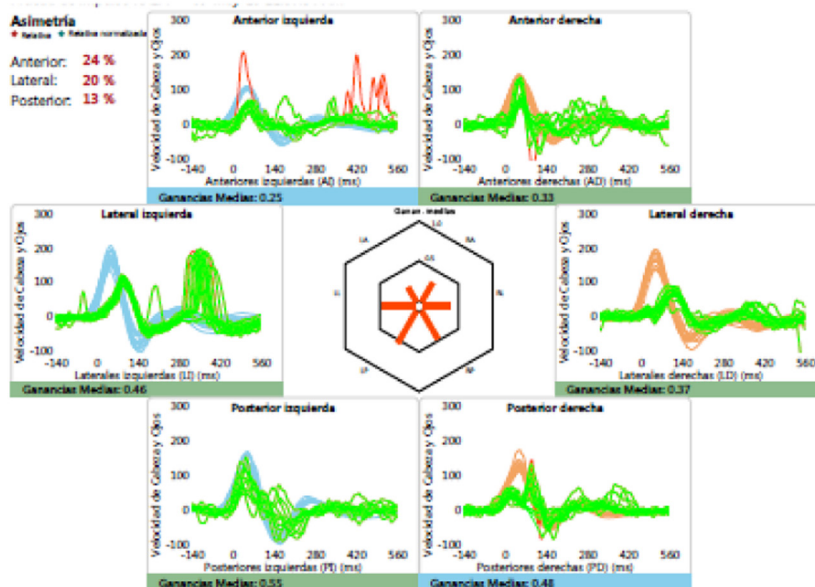


Figure 3 vHIT six channels.

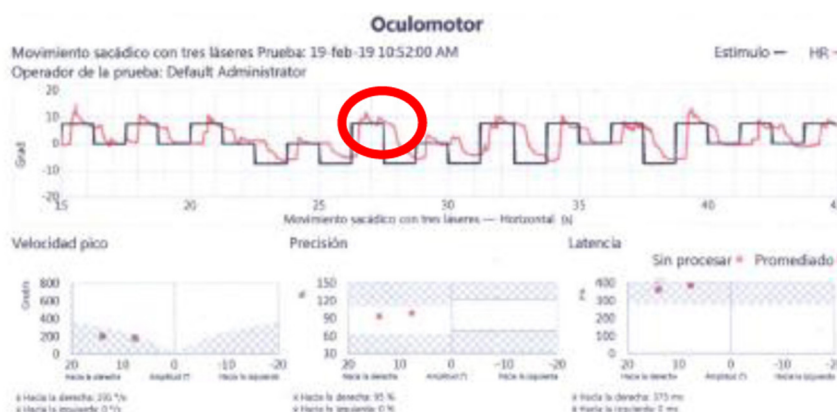


Figure 4 saccadic speed alteration.

**Conclusion**

The caloric tests performed were normal, to explain the reduction of the efferent response is necessary that the PPRF (Paramedian Pontine Reticular Formation) has a damage, so we believe the vHIT result is caused by the lesion at the midbrain-pons which involves FML vestibular fibers and reduction of the saccadic speed and not a labyrinth lesion per se.

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None.

**Conflict of interest**

The authors declare that there is no conflict of interest regarding the publication of this paper.

**Funding details**

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