An Unusual Cause of Vertigo

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Case Presentation

A 27 year old female patient presented with a six week history of constant dizziness, nausea and vomiting. She was readmitted under the ENT team after being discharged from the medical team. On initial assessment she reported constant vertigo, nausea and vomiting. This was exacerbated by lying flat or turning her head to the right. She did not report any changes in her hearing. The patient did not have any significant past medical or surgical history. She did not take any regular medications. Her social history was unremarkable except for her occupation which involved close contact with domestic animals.

The patients vital signs were all within normal limits. Examination of her ears was unremarkable and the patient had a full range of eye movements with no evidence of nystagmus. Cranial nerve examination, Romberg's test and Unterberger's test were all satisfactory. There was no evidence of past pointing or dysdiadochokinesis however, her gait was thought to be ataxic. A Dix-Hallpike manoeuvre was carried out and caused vertigo, nausea and vomiting when the right ear was tested. However, there was no evidence of nystagmus during the test. Following the Dix-Hallpike test, an Epley manoeuvre was attempted but this continued to induce symptoms and did not result in any improvement. Over the course of the next few days the patient's symptoms progressed to dizziness, nausea and vomiting on head movement in any direction.

Investigations

Initial investigations included routine blood test, pure tone audiogram and tympanometry. These were all normal except for the patients renal function test which showed evidence of dehydration. A computed tomography (CT) scan of the patients brain was requested which showed a small hypodensity lateral to the right lateral ventricle (**Figure 1**). This was felt to be of uncertain clinical significance. A magnetic resonance imaging (MRI) scan was carried out which was suggestive of multiple sclerosis (**Figure 2**).

Figure 1: non-contrast CT brain. There is a small hypodensity lateral to the frontal horn of the right lateral ventricle of uncertain clinical significance.

Figure 2: T2 weighted MRI brain with evidence of multiple bilateral focal periventricular hyperintensities.

Figure 3: T2 weighted MRI brain demonstrating the largest periventricular hyperintensity which was contiguous with the abnormality found on CT.

Discussion

Multiple sclerosis (MS) is the most common immune-mediated demyelinating disease of the central nervous system. Patients can present with nystagmus or vertigo which can prompt referral to ENT. Vertigo is the result of acute demyelinating plaques affecting parts of the vestibular pathway¹ e.g. root of the vestibulocochlear nerve at the pontomedullary junction. Pendular nystagmus is a distinctive clinical sign which occurs almost exclusively in MS¹.

Dizziness is a common symptom which can originate from conditions affecting a variety of body systems. However, it is still a regular reason for referral to ENT. Although we are experienced at diagnosing and managing the otological causes, it can be challenging to recognise central causes. Central causes to consider in any patient presenting with vertigo include vestibular migraine, brainstem ischaemia, cerebellar infarct or haemorrhage, Chiari malformation and MS. Nystagmus which is disproportionate to symptoms should raise the suspicion of a central cause. Another feature which differentiates peripheral from central nystagmus is the direction. Nystagmus resulting from a peripheral cause is usually horizontal and can be suppressed by visual fixation. It occurs predominantly in only one direction unlike central nystagmus which can reverse direction.

References:

1. Olek MJ et al. *Clinical features of multiple sclerosis* available at <https://www.uptodate.com/contents/clinical-features-of-multiple-sclerosis-in-adults> (accessed 28/06/2018)