

VESTIBULAR NEURONITIS



“Passer Italiae” (Female Italian Sparrow), Vincenzo Leonardi, 1629, Royal Collection, Windsor

Another of the king’s chief men, approving of his words and exhortations, presently added, “The present life of man, my Lord, seems to be, in comparison with that time which is unknown to us, like the swift flight of a sparrow through the room wherein You sit at supper in winter, with your commanders and ministers, and a good fire in the midst, whilst the storms of rain and snow prevail outside; the sparrow, I say, flying in at one door, and immediately out at another, whilst he is within, is safe from the wintry storm; but after a short space of fair weather, he immediately vanishes out of your sight, into the dark winter from which he had emerged. So this life of man appears for a short space, but of what went before, or what is to follow, we are entirely ignorant. If, therefore, this new doctrine contains something more certain, it seems justly to deserve to be followed.”

Bede, Historia Ecclesiastica Gentis Anglorum, AD 731

So wrote the "Venerable" Bede, describing the conversion to Christianity of King Edwin of Northumbria in AD 627.

The artist of the beautiful "Passer Italiae" print residing in the royal collection at Windsor remained unknown for over three centuries. There had been much conjecture as to who had been its creator, one expert arguing for one artist, another expert arguing for another. The answer was simply unknown, and so most simply took it on faith their own answer to the vexing question.

That is until one day in 1986 when print was most carefully and expertly lifted from its mount to stunningly reveal the artist's name on its verso side that had remained hidden for over 300 years.

Since the dawn of human consciousness, humanity has had a primal drive to know the "unknown" and it is the story of the two sparrows that demonstrates to us the two "ways of knowing". For some, hard scientific evidence such as in the case of the Windsor sparrow is required. Yet for many others an idea or faith such as occurs in the story of Bede's sparrow is sufficient.

In the field of medicine we do many things on the basis of faith, which seemed perfectly adequate in past times. In a more enlightened and secular age however we now strive by the scientific method bequeathed to us by Francis Bacon and many others, to understand the world around us. In past times our management of the condition known as Vestibular neuronitis, was based primarily on each individual physician's own personal faith in a particular treatment! Recent scientific advances however now guide us in regard to the use of steroids. Our best current beliefs about vestibular neuronitis would suggest that it should also be treated with antiviral agents - this alas remains only a matter of faith - as when this idea has been subjected to the cold light of empirical science, the evidence for the benefit of these agents, unlike corticosteroids, has not been found.

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Introduction

Vestibular neuronitis (or neuritis) is a common cause of severe spontaneous peripheral vertigo.

Treatment of vestibular neuritis with corticosteroids has been shown to significantly improve vestibular function and hasten clinical recovery, and is now recommended therapy. ¹

Empirical therapy with the antiviral agent valacyclovir has **not** been shown to be beneficial.

Pathology

Vestibular neuritis is caused by decreased vestibular tone on one side.

Causes:

Uncertain, but current theories include:

1. Viral infection:
 - There is some evidence to suggest that many cases are due to a reactivation of **herpes simplex type 1 infection**.

The major damage in vestibular neuritis is thought to be caused by the swelling and mechanical compression of the vestibular nerve within the temporal bone, (which is also assumed in Bell's palsy).
2. Microvascular disturbances:
 - Acute localized microvascular ischemia of the vestibular nerve and/or labyrinth may also be a cause in some cases.

Recovery, based on the results of *formal vestibular testing*, is usually incomplete.²

Epidemiology

This syndrome occurs most commonly in middle-aged adults.

Clinical assessment

The most important initial assessment of any patient who presents with vertigo, will be distinguishing a peripheral cause from a central cause.

See also separate guidelines on Vertigo.

Clinical features of **vestibular neuronitis** include:

1. A history of gradual onset of severe and prolonged vertigo:
 - As opposed to stroke where symptoms reach maximal intensity at onset, and opposed to BPPV where episodes of vertigo are brief - seconds to minutes.
2. The finding of a unidirectional mixed horizontal and torsional nystagmus
3. The vertigo can come on and persist at rest, and maybe slightly aggravated by movement - (as opposed to BPPV which is strongly aggravated by movement).
4. Associated autonomic upset is **common** in the form of:
 - Nausea/ vomiting
 - Sweating
5. Absence of other central neurological signs, such as brainstem, or cerebellar.
6. Hearing loss is **not** a typical feature.
7. The tympanic membrane is **not** usually inflamed
8. Fever is **not** a typical feature.
9. Vestibulo-ocular testing:
 - Head impulse testing is **positive**
 - The Hallpike diagnostic manoeuvre is **negative**.

In distinction to the short lived episodes of BPPV, the condition is *not strongly aggravated by movement and is more constant and present at rest.*

Symptoms peak during the first day and begin to improve within a few days,

Most patients clinically recover from severe vertigo and imbalance within 1 week, although full recovery may take weeks to months.

A minority have recurrent, less severe attacks or persistent symptoms.

Investigations

There are no specific investigations, relevant to the ED, to establish a definitive diagnosis of vestibular neuronitis.

Investigations that are done will be to rule out possible central causes for vertigo.

A lower threshold for imaging should be maintained for elderly patients or those with risk factors for cerebrovascular disease. These patients have a higher risk for a central cause of vertigo, even when no other symptoms manifest.

CT scan is useful for excluding a bleed, particularly within the posterior fossa

More definitive imaging involves:

- **CT angiogram** to exclude posterior circulation thrombus/ embolus
- **MRI/MRA** is the best imaging to exclude infarctions in the posterior fossa

Management

1. IV fluids:

- IV rehydration is often required for patient with prolonged nausea and vomiting.

2. Antiemetics:

- Prochlorperazine
 - ♥ Can be given orally, IV, IM or rectally
- Ondansetron/ granisetron

See latest Therapeutic Guidelines for full prescribing details.

3. Diazepam:

This can be an additional option for those with severe symptoms

- Diazepam 5 to 10 mg orally, 3 times daily. ²
- Small titrated IV doses may be considered for very severe symptoms, in those who cannot tolerate anything orally.

4. Promethazine

- This is also an alternative option to help alleviate severe symptoms

See latest Therapeutic Guidelines for full prescribing details.

5. **Corticosteroids:**

Treatment of vestibular neuritis with corticosteroids has been shown to significantly improve vestibular function and hasten clinical recovery, and is now recommended therapy

Give:

- Prednisolone 1 mg/kg (up to 100 mg) orally, daily in the morning for 5 days, then taper dose over 15 days and cease.²
6. Antiviral therapy:
- The addition of antiviral therapy (Valacyclovir) has **not** been shown to provide any benefit, (despite the presumed viral cause in many cases).¹

Disposition

Younger patients with vestibular neuronitis may be able to be treated as outpatients.

If symptoms are severe and/ or there are significant comorbidities or patients are elderly, admission to hospital will be necessary.

References

1. Strupp M et al. Methylprednisolone, Valacyclovir, or the Combination for Vestibular Neuritis. N Engl J Med July 2004; 351:354-61.
2. Neurology Therapeutic Guidelines, 4th ed, 2011.
3. Nelson J.A et al. "The Clinical Differentiation of Cerebellar Infarction from Common Vertigo Syndromes". West J Emerg med 2009; (10) 4: 273-277.

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