

A person in a white lab coat is interacting with a computer monitor. The monitor displays two side-by-side images of human eyes with a small crosshair in the center of each. To the left of the eye images is a software interface with a 'DONE' button at the top, followed by a play/pause icon, and several menu options: 'Add Note', 'Print Screen', 'Delete Video', 'Repeat Test', and 'Edit Tools'. Below these options is a 'Back' button. The person's hand is pointing at the 'Add Note' option. The background is a blurred clinical setting.

Vestibular Migraine (VM)

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Vestibular Migraine (VM) – *Definition*

- Vestibular Migraine (VM) is a common problem affecting about 1% of the general population and 11% of dizzy patients
 - The most common cause of episodic vertigo in adults
 - The most common cause of vertigo and motion sensitivity in children
- The term VM was introduced over 100 years ago and was accepted by the Barany Society in 2012 over other terms

Vestibular Migraine (VM) – Diagnostic Criteria

- Definite VM (Lempert et al, 2012)
 1. At least 5 episodes with vestibular symptoms of moderate or severe intensity, lasting 5 minutes to 72 hours
 2. Current or previous history of migraine with or without aura according to the International Classification of Headache Disorders (ICHD)
 3. One or more migraine features with at least 50% of vestibular episodes
 - a. Headache with at least two of the following characteristics: one sided, pulsating, moderate/severe intensity, aggravated by routine physical activity
 - b. Photophobia and phonophobia
 - c. Visual aura
 4. Not better accounted for by another vestibular or ICHD diagnosis

Vestibular Migraine (VM) – Diagnostic Criteria

- Probable VM (Lempert et al, 2012)
 1. At least 5 episodes with vestibular symptoms of moderate or severe intensity, lasting 5 minutes to 72 hours
 2. Only one of the criteria 2 and 3 for vestibular migraine is fulfilled (migraine history or migraine features during the episode)
 3. Not better accounted for by another vestibular or ICHD diagnosis

Vestibular Migraine (VM) - *Symptoms*

Powers et al 2018

Table 1

The frequency of various reported symptoms in the study cohort.

Symptom	Frequency
Vertigo	96%
Headache	60%
Visual disturbance	51%
Nausea	49%
Tinnitus	44%
Aural fullness	30%
Phonophobia	26%
Hearing loss	23%
Vomiting	19%
Other neurology (e.g. sensory disturbance)	14%
Otalgia	2%

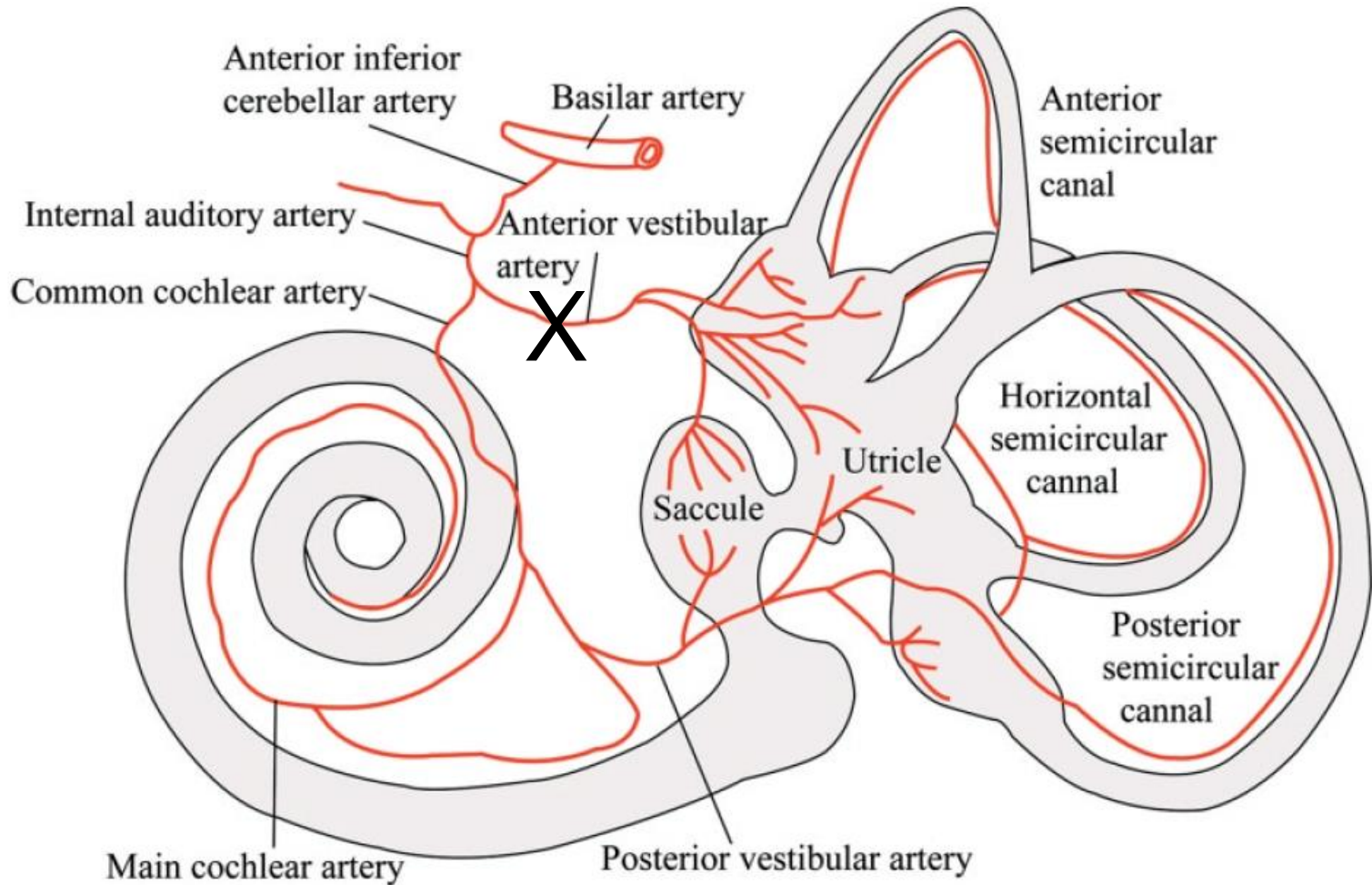
Diagnostic Challenges in VM

- Pathophysiology of VM is not fully understood
- No test provides findings unique to the VM patients
- Symptoms are variable
 - The headaches can occur before, after, or not at all with vertigo episodes
 - In 30% of the cases, vertigo is completely independent of headaches
 - Attacks can last from seconds to days, can be episodic or constant, can occur every day or once every few years, can occur with or without triggers (menstrual cycle, barometric pressure, food, etc.)
- A family history of migraine is common
- History of childhood motion sensitivity is common
- 1.5 to 5 times more common in women
- High co-morbidity with Meniere's disease
- VM remains a clinical diagnosis (still underdiagnosed)

Mechanism of Vestibular Migraine

- Vascular?
- Neural?
- Does it matter?

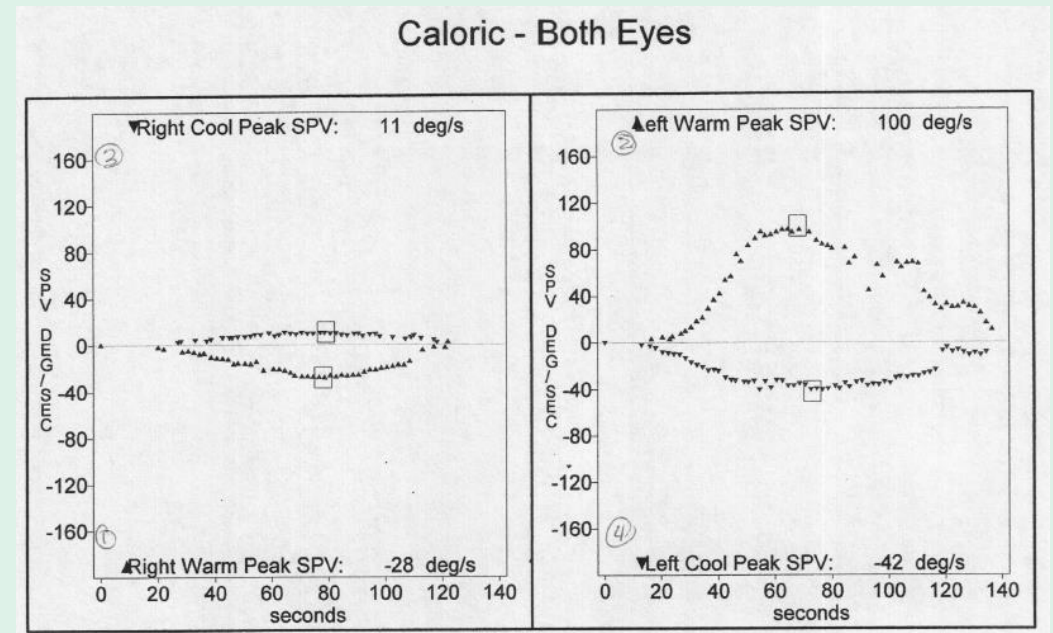
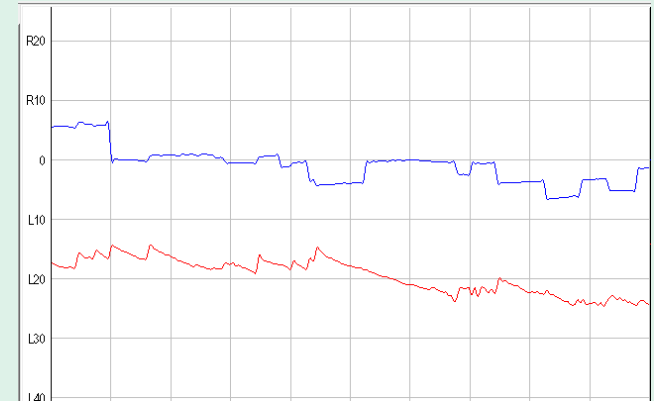
Blood Supply to Labyrinth



- Fluctuations of the blood supply to the labyrinth can cause fluctuating vestibular symptoms

Vestibular Findings in Vestibular Migraine?

- Upbeat nystagmus without fixation
- Strong caloric responses either bilaterally or to one of the warm irrigations



Vestibular Migraine (VM) – Management

- Avoiding dietary and behavioral triggers
 - 1/3 of patients can improve with dietary restrictions
 - General recommendation is for healthy nutrition, hydration, and lifestyle
 - Most common food triggers:
 - Dehydration, cheese, chocolate, nuts, foods containing MSG, smoked meats, artificial sweeteners, alcohol (red wine, sherry, gin etc.)
 - Most common behavioral triggers
 - Visual stimuli, fatigue, stress, lack of sleep, hormonal changes

Vestibular Migraine (VM) – Management

- Anti-migraine medications

Powers et al 2018

Table 2

Proportion of patients receiving various pharmacological agents as initial treatment.

Medication	Frequency of use as a first line agent (%)
Pizotifen	30
Amitriptyline	21
Propranolol	10
Venlafaxine	9
Topiramate	7
Verapamil	4
Carbamazepine	3
Cinnarizine	3
Medication not prescribed	4

Vestibular Migraine (VM) – Management

- Vestibular rehabilitation
 - Decrease visual dependence
 - Improve eye/head coordination
 - Improve balance
 - Increase tolerance of complex visual environments
- Be careful because you can make the patient worse