



Dizziness in the Emergency Department

David Brosa PA-C

Is it Vertigo or Lightheadedness?

Is the room spinning around and around? Are you tilting?

Are you dizzy all of the time? With position change?

Can you walk or are you too dizzy to get up?

Do you have a Headache?

Are you having trouble with your vision? Double vision?

Have you had a loss of consciousness?

Do your symptoms come and go?

Have you been Vomiting? Diarrhea? Bleeding from anywhere?

Find a Central Cause

- If you have persistent Vertigo that Exits that doesn't go Away:
Perform an accurate physical exam. VAN exam.
Perform A HINTS exam.
obtain a STAT CT of the head and CTA, perfusion study
Consider MRI of brain
Labs, EKG, glucose.

Must Rule out a posterior CVA.

Generally, a Basilar stroke has rotary or vertical nystagmus and Bidirectional horizontal nystagmus.

HINTS Exam

- **Head Impulse**
 - Pt fixes eyes on examiner's nose. Head quickly rotated. Normal side → eyes remain fixated. Affected side → eyes make corrective saccade to fix on target
 - Abnormal VOR reflex suggests **peripheral pathology**
- **Nystagmus**
 - Vertical/bidirectional nystagmus = **central pathology**
- **Test of Skew**
 - Cover/uncover test → pt focuses on examiner's nose. Refixation of eyes/vertical misalignment suggests **central pathology**

The 5 Ds of a Posterior circulation stroke

- Dizziness
- Diplopia
- Dysarthria slurred speech
- Dysphagia difficulty swallowing
- Dystaxia ataxia

PC Stroke

- Embolism is the most common cause of a posterior stroke. (A Fib)
- Other causes include Vertebral dissection, small vessel disease, atherosclerosis causing stenosis.
- 20% of all Strokes are posterior strokes
- Remember that MRI will miss 1/3 of all posterior strokes esp at the onset of symptoms.
- 4% of all ED complaints for Vertigo are a Posterior infarct.

Other possible central causes

- Central Venous Thrombosis:
75% of patients female. 3rd Decade of life.
severe headache, often sudden onset
increased Risk with the use of birth control, pregnancy
post partum. Hypercoagulable state. Differs from a Cavernous
Thrombus.

TIA affecting posterior circulation.

Vestibular Migraine

Posterior fossa Tumor—space occupying lesion

Chiari malformation

So if it's not Vertigo..What is it?

Dysequilibrium:

gait disturbance. You can't figure out your legs in space.

Eg: Diabetic neuropathy. B12 Deficiency. Tumor. Multiple Sclerosis

Myasthenia Gravis. Chronic Alcoholism. Medications. Electrolytes.

Guillain Barre.

Pre-Syncope or Lightheadedness:

The feeling that you could faint or “black out”

This has a vast differential.

Psychiatric:

Anxiety, a feeling of being disconnected. “Whoozy”

Lightheadedness

- Cardiac

Tachyarrhythmias:

SVT, V Tach, atrial fibrillation, atrial tach, junctional tach, torsades.

Consider Vagal maneuvers, -- discern Reg vs Irregular

If narrow complex, Adenosine, Calcium channel blockers, Beta blockers, Cardioversion if indicated.

If V Tach, V fib shock. Cardiology consult. Amiodarone.

Find out if your pt has a pacemaker, interrogate it.

Lightheadedness

Bradycardias:

symptomatic slow rate. < 60 bpm old, young, athlete? Stable or unstable?

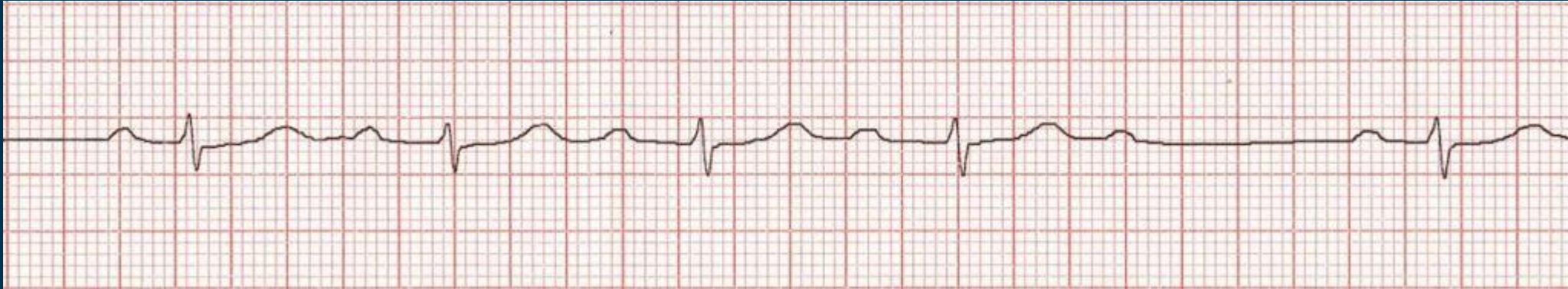
Consider Heart blocks.

Second degree blocks: Mobitz type 1 –Wenckebach and Mobitz type 2, Consider a Third degree block.

Sick sinus syndrome

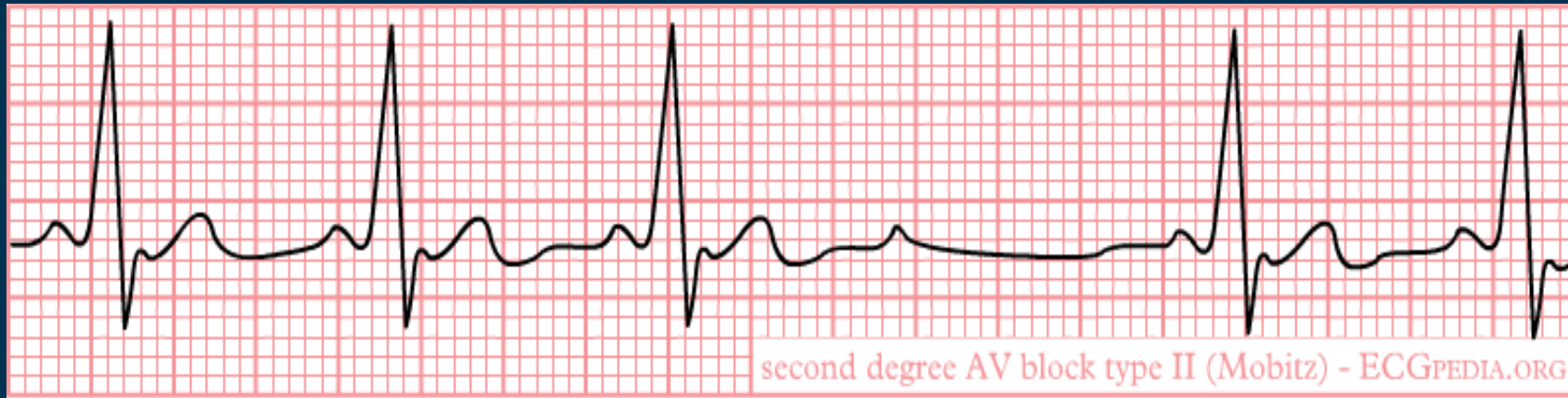
Consider stability of the patient. Atropine- maybe. Transcutaneous pacing.

Mobitz type 1



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Mobitz type 2



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Lightheadedness

- CHF, valvular heart disease, cardiomyopathy. HCM. Myocardial infarct
- Pulmonary embolus, hypoxia Right heart strain.
- Hypercapnia, CO.
- POTS –Postural Orthostatic Tachycardia Syndrome
 - Neuropathic- decreased sympathetic innervation to the legs. Blood pooling.
 - Hypovolemic- decreased plasma volume. Weakness. No exercise tolerance.
 - Hyperadrenergic- elevated plasma norepinephrine. Tachycardia,

POTS

- Increase in Systolic BP when standing. Migraines, nausea, vomiting.
- Starts often in the adolescent years. Women are more prevalent than men with 80 to 90% of cases.

Lightheadedness

- Hypovolemia

- lack of fluid volume.

- Consider GI bleed, dehydration, over diuresis, Sepsis, trauma, dialysis patient.

- Pt with liver disease, Ascites..3rd spacing.

- AAA, Aortic dissection

- Ruptured Ectopic Pregnancy

- Obtain orthostatic BP. CBC, Type and screen, Coags, IV fluids.

Shock

Consider other forms of Shock: Cardiogenic, Obstructive, Distributive.

Lightheaded

Medications that Cause Dizziness:

Antibiotics- Fluoroquinolones, Aminoglycosides, Macrolides

Antihypertensives- calcium channels blockers, Angiotensin receptor blockers, beta blockers.

Diuretics- Furosemide, Torsemide, HCTZ

Antidepressants- Paroxetine, Sertraline, Amitriptyline, Doxepin

Antipsychotics- olanzapine, clozapine, Haldol, risperidone

NSAIDS.

Lightheadedness

- Medications (cont) :

Benzodiazepines- Valium, Xanax, Ativan, Klonopin

Opioids- all of them

Muscle relaxants- cyclobenzaprine, methocarbamol, baclofen

Sleeping pills- Ambien, Halcion, Restoril, Sonata, Benadryl

Nitroglycerin

Seizure medications- Lamictal, Keppra, Valproic acid, Tegretol,
Neurontin, Topamax.

Antifungals- fluconazole, voriconazole, amphotericin B

Cholesterol medications: simvastatin, atorvastatin

Lightheadedness

- Medications (cont.)

Parkinson's agents- Bromocriptine, Levodopa/carbidopa

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Thank You

Staying Grounded: Practical Approaches to Neurological “Dizziness”


Zane Foster, MD



Stormont Vail
Health



OUTLINE

- 
1. Part 1
 1. What is “dizziness?”
 2. Part 2 neurological “dizziness”
 1. Differential diagnosis
 2. History taking
 3. Cases




Disclosures

No disclosures



What is dizziness?

- Symptom?
 - Sign?/finding?
 - Test result?
 - Diagnosis?
- 

“I feel dizzy”

- “When I turn my head to the left, the world starts spinning”
 - Vertigo
- “I feel lightheaded when I stand up, and I need to sit back down”
 - Presyncope
- “When I get up and go into a new room, I forget why I’m there”
 - Memory loss?
- “I can’t focus at work”
 - Concentration deficits?
- “I just feel like I can’t walk straight”
 - ?
- “I just don’t feel like myself”
 - ???

Dizziness isn’t a symptom - it’s a cry for clarification

Differential diagnosis

1. “True” vertigo (disorders of the vestibular system)
 - Episodic spontaneous
 - Migraine with vestibular aura / vestibular migraines
 - Meniere’s disease
 - Episodic positional
 - Benign paroxysmal positional vertigo (BPPV)
 - Acute vertigo
 - Vestibular neuritis
 - Stroke
 - Multiple sclerosis
2. Vascular/syncopal
 - Orthostatic hypotension, vasovagal syncope, cardiogenic syncope (arrhythmia vs aortic stenosis), etc
3. Dysequilibrium
 - Neuropathy, cerebellar disease, medication side effects, electrolyte abnormalities, hypo-/hyperthyroidism, renal or hepatic failure, etc
4. Psychiatric
 - Anxiety, panic disorder, hyperventilation syndrome, etc

And many more!



Differential diagnosis


- Episodic spontaneous vertigo
 - Migraine with aura & vestibular migraines
- Acute vertigo
 - Vestibular neuritis
 - Multiple sclerosis
 - Stroke
- Vascular/syncopal
 - Parkinson's disease & related syndromes





HPI


Open-ended method - focus on experience, not labels

- “What does it feel like?”
 - “Walk me through an episode”
 - “What are you doing when it happens?”
 - “How do you feel before/after an episode?”
- 




HPI

Pertinent questions

- Duration
 - Frequency
 - Provoking factors
 - Relieving factors
 - Associated symptoms - nausea, headache, difficulty speaking/swallowing, etc
 - Headache - what are its characteristics?
- 



HPI

- Associated symptoms
 - Associated neuro deficits (e.g., dysarthria, dysphagia, weakness, double vision, numbness, tremors)
 - Hearing loss (Ménière's disease, vestibular tumors, brainstem strokes)
 - Non-migrainous pain (ear pain, neck pain, or headache)
 - Direction-changing or vertical nystagmus
- 



—
Cases

Case 1

A 21 year old woman presents to the clinic with concerns about dizziness.

- The patient states she has had episodes of dizziness dating back to her teenage years.
- The dizziness is described like she is spinning around in circles, even though she is standing still. This can be bad enough to result in falls.
- These episodes of dizziness are typically associated with a headache localized to the front of her head.
 - It's described as sharp/stabbing, moderate-severe intensity, worsened by bright lights and loud sounds. It occurs 12-16 times per month and can last up to 8 hours.

Case 1, cont.

Examination:

- Neurological examination is benign

Workup:

- MRI: normal

Case 1, cont.

Diagnosis:

- Chronic migraine with aura (vestibular aura)

Treatment:

- Qulipta for preventative, nurtec for abortion

Follow up:

- At 3 months the patient went from ~15 episodes per month to ~3.
- Nurtec is very effective at aborting episodes when they do occur

Case 2

A 74-year-old man presents to the clinic for evaluation of dizziness

- He states that for the past 20 years he has experienced sudden onset, severe episodes of dizziness.
- He describes an episode as follows: he will be having a normal day, when all of the sudden he will develop a sensation of the world spinning around him. These occur about 3-4 times per month, and will last anywhere from 12 hours to 4 days, after which it will spontaneously resolve. Sometimes these episodes will be associated with a “pulsing” “pressure” he notes in his forehead, but not always.
- There is no associated triggers. Nothing makes it better, such as going into a dark room or resting. There is no double vision, blurry vision, dysarthria, dysphagia, aphasia, lightheadedness.

Case 2

- The patient was initially sent to Dr. McKnight for evaluation
 - Per report, “There was no spontaneous or headshake nystagmus. Positionals and Dix-hallpike testing negative”.
- He was then sent to cardiology
 - Holter monitor captured an episode with no change in rate or rhythm
 - CT angiogram of the head and neck was unremarkable.
- He was then sent to me
 - Neurological examination was completely unremarkable
 - MRI of the brain was obtained: it was unremarkable

Case 2 - what's next?

- Decided to perform an empiric trial of verapamil and nurtec ODT
 - On follow up, he reports dramatic improvement in the frequency and severity of episodes, now occurring approximately once a month, and not nearly as severe.
 - The nurtec was very effective if taken early into an episode
- Diagnosis?
 - Vestibular migraine

Vestibular Migraines

- Epidemiology (1)
 - A nationwide 1-year prevalence of 2.7%
 - Approximately 2 to 3 times more common in women than men
 - Median age of onset is 40 years
- Pathophysiology
 - Poorly understood
- Clinical presentation
 - Episodic, unprovoked, true vertigo described as a spinning sensation either internally or externally.
 - Most people also have migraines (50-90%), however, the episodes of vertigo are rarely (<10% of the time) directly associated with migraine-type headache pain.
 - Very often photophobia, phonophobia & nausea co-occur with the episodes of vertigo even when there is no headache.



Vestibular Migraines - cont.

- Examination
 - As a rule, bedside examination is unremarkable unless the patient is actively having an episode
 - About half of patients may have abnormalities on videonystagmography

Vestibular Migraines - cont.

- Diagnostic criteria:

Diagnostic Criteria for Vestibular Migraine and Probable Vestibular Migraine^a

Vestibular migraine

- A** At least five episodes with vestibular symptoms^b of moderate or severe intensity,^c lasting 5 minutes to 72 hours
- B** Current or previous history of migraine with or without aura according to the International Classification of Headache Disorders (ICHD)
- C** One or more migraine features with at least 50% of the vestibular episodes:
 - Headache with at least two of the following characteristics: one-sided location, pulsating quality, moderate or severe pain intensity, aggravation by routine physical activity
 - Photophobia and phonophobia
 - Visual aura
- D** Not better accounted for by another vestibular or ICHD disorder

Probable vestibular migraine

- A** At least five episodes with vestibular symptoms^b of moderate or severe intensity,^c lasting 5 minutes to 72 hours
- B** Only one of the criteria B and C for vestibular migraine is fulfilled (migraine history or migraine features during the episode)
- C** Not better accounted for by another vestibular or ICHD disorder

Vestibular Migraines - cont.

- Treatment
 - Abortive
 - Meclizine
 - Triptans
 - CGRP medications (ubrogepant, Rimegepant)
 - Lasmiditan
 - Preventative (4 or more per month)
 - Antiepileptics (topiramate, valproic acid)
 - Beta blockers (propranolol, atenolol)
 - Calcium channel blockers (verapamil, diltiazem)
 - SNRIs (venlafaxine, desvenlafaxine)
 - TCAs (amitriptyline, nortriptyline)
 - CGRP medications (atogepant, galcanezumab, erenumab)

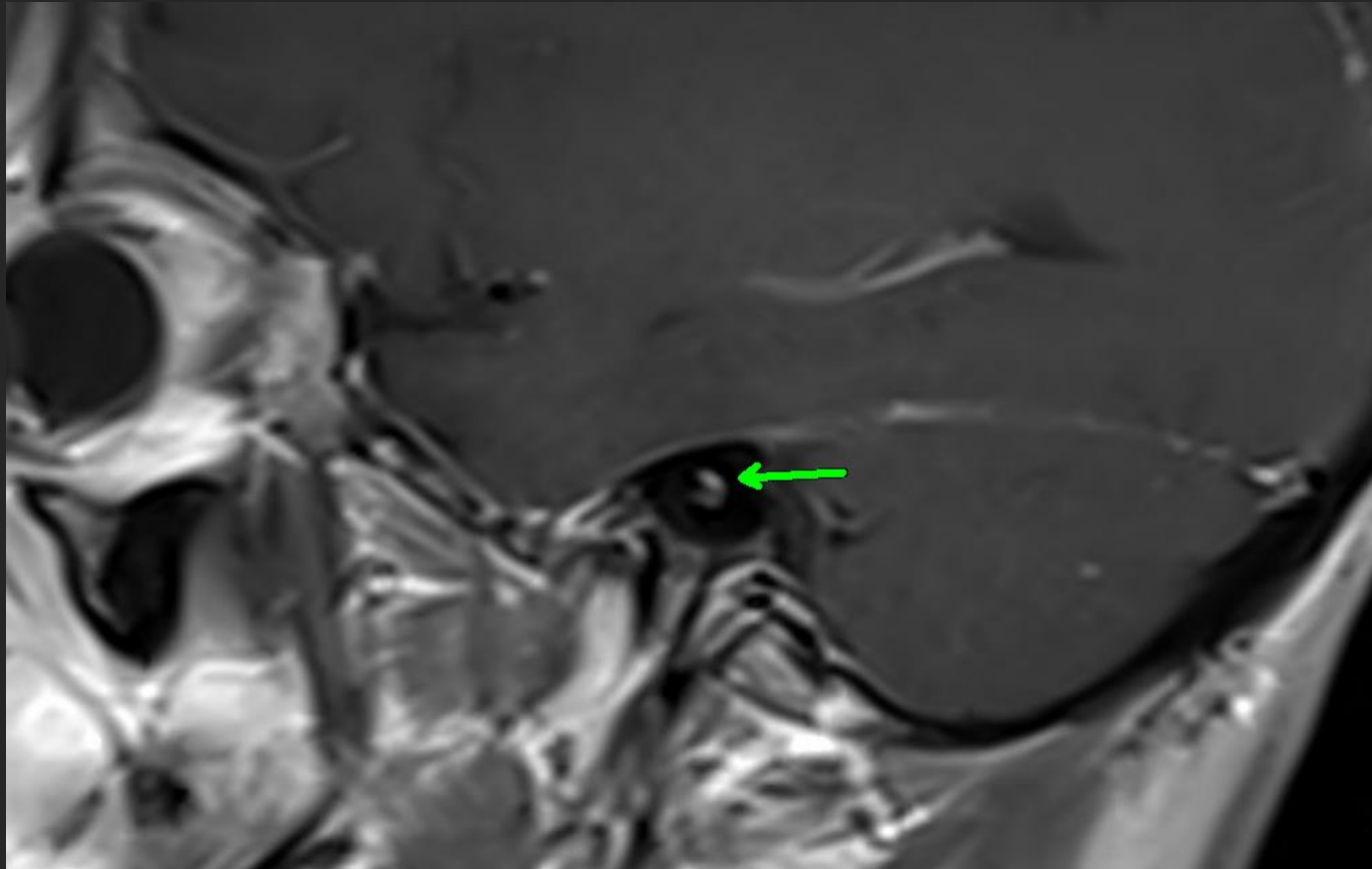
Case 3

52 year old woman presents with dizziness

- 5 months ago, she developed sudden onset left ear discomfort associated with vertigo, nausea and vomiting.
- She presented to an urgent care where she was diagnosed with “inner ear infection” and started on augmentin and prednisone.
- A week later, with no improvement, she presented to an OSH ER where the augmentin was switched for ceftriaxone. The inpatient otolaryngologist increased her prednisone to 60 mg daily.
- Two weeks later, she followed up with ENT outpatient where she reported persistent balance/vertigo symptoms.

Case 3 - cont.

- She was sent for an MRI brain IAC protocol with and without contrast, which reported:
 - “Thin linear enhancement in the left internal auditory canal with questionable very subtle enhancement of the left inner ear structures”.

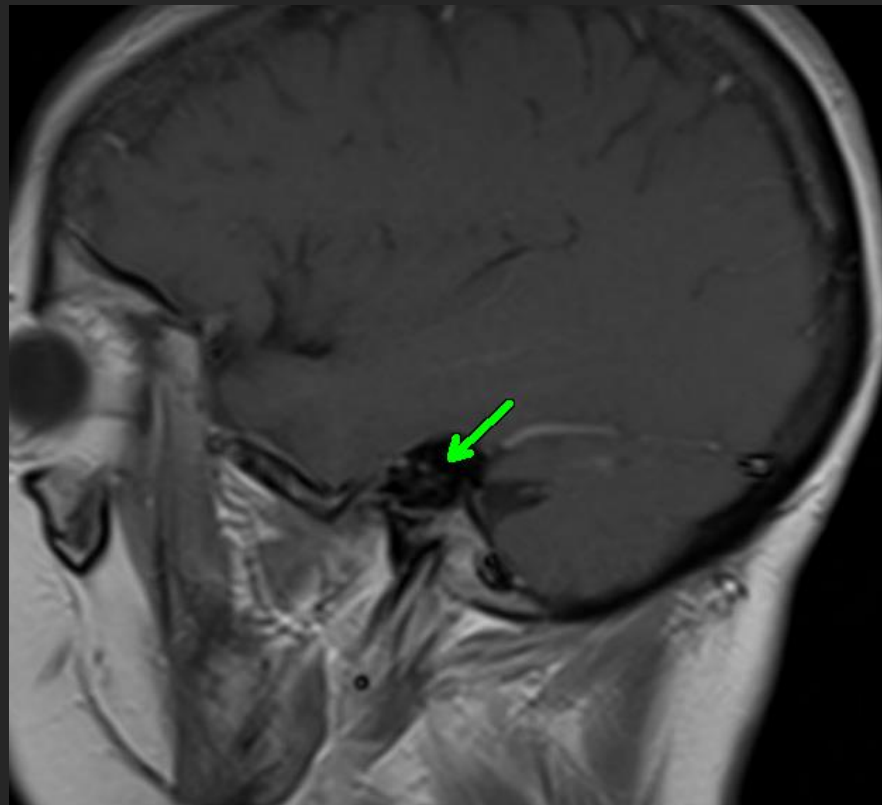


Case 3 - cont.

- The patient was subsequently referred to neurology
- Bedside neurological examination was unremarkable
- The patient was diagnosed with vestibular neuritis of the left vestibular nerve
- Given that she was already starting to feel better by the time she saw me, I recommended PT for vestibular rehabilitation
 - The patient consulted at Tallgrass Balance, Hearing, and PT, where examination was consistent with left vestibular nerve impairment.
- She noted no improvement after a month, so I recommended repeat MRI of the brain IAC protocol, which was obtained 3 months after the first MRI, and was read as identical to prior.
- Given persistent symptoms and imaging findings, I recommended further evaluation with LP with CSF analysis to evaluate for atypical infection/malignancy.
 - CSF cell culture, glucose, protein, IgG index, spinal fluid culture, cryptococcal antigen, meningitis encephalitis PCR panel, VDRL, and cytology were negative.

Case 3 - cont.

- A course of doxycycline was attempted as prior antibiotics did not cover atypical infections, and the patient reported no benefit.
- At the suggestion of Dr. McKnight, the patient was given an empiric course of acyclovir 400 mg five times daily for 2 weeks.
- MRI was repeated, demonstrating resolution of enhancement.



Case 3 - cont.

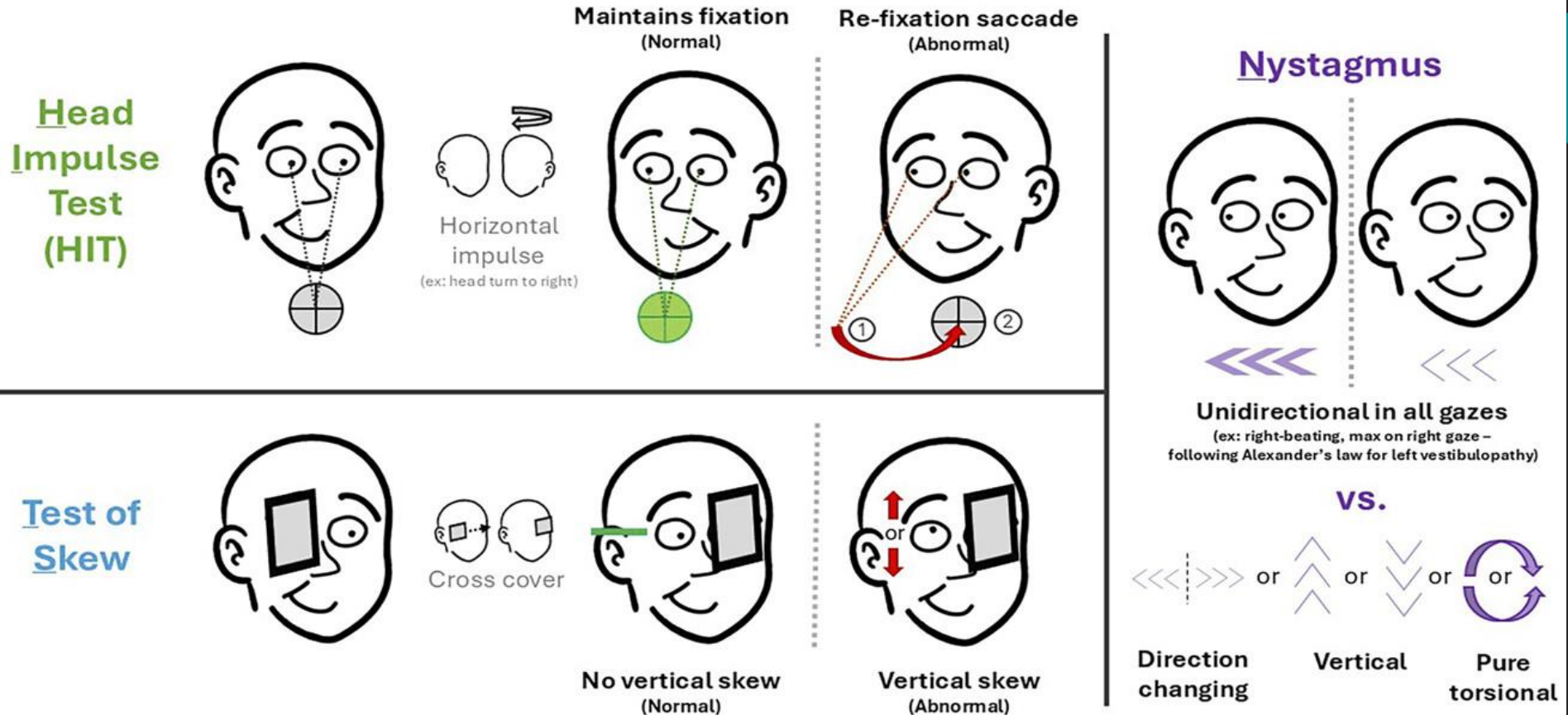
- On follow up, the patient reported “90%” resolution of symptoms.

Vestibular neuritis

- Pathophysiology (2)
 - Generally thought to be a viral or postviral inflammatory disorder affecting the vestibular nerve
- Clinical presentation
 - Typically presents with acute vestibular syndrome: severe vertigo, nausea, vomiting, gait instability, often following a viral infection.
 - Because of its severity and it is typically, it is often mistaken for ischemic stroke.
- Examination findings
 - HINTS exam has a 100% sensitivity and 96% specificity of distinguishing vestibular neuritis from stroke
 - Unidirectional nystagmus beating towards affected side
 - Positive head impulse test when turning head towards the affected side
 - Patient typically falls to the affected side when walking
 - Other neurological findings (e.g., dysarthria) are red flags for stroke

Hints to the H.I.N.T.S. Exam for Acute Vestibular Syndrome

(AVS = sudden-onset constant vertigo with nausea/vomiting, gait unsteadiness, and nystagmus)



Localization	Saccade on HIT*	Nystagmus	Skew deviation*
Peripheral (need all 3)	Present	Unidirectional	Absent
Central (need any 1)	Absent	Any other nystagmus	Present

*Perform maneuver on both sides

Vestibular neuritis

- Treatment
 - Typically a self-limited illness, usually resolves on its own after several days/weeks.
 - Treatment is usually symptomatic, including antiemetics (metoclopramide, ondansetron), antihistamines (meclizine, diphenhydramine)
 - Historically, steroids and antivirals have been administered during the acute phase, with poor reliability of data to support this.
 - Often patients are left with chronic dysequilibrium following injury to the vestibular nerve, so vestibular rehabilitation can be very helpful for long term recovery.

Case 4

77 year old man presents with dizziness

- Over the past 3 years he has noticed very frequent episodes of dizziness that he describes as “like a numbness in my head”. When asked for clarification, he states “It doesn’t hurt, it just feels like the starting point of something that could get worse, if that makes any sense”.
- When asked if it feels like the room is spinning, he says no.
- When asked if it feels like “that sensation you get when standing up too quick”, he states no.
- When asked what type of activities seem to cause it, he states it tends to occur when he is doing dishes. It happens more days than not, and usually sitting down for a few minutes will relieve it when it occurs.

Case 4 - cont.

Vitals

- Blood pressure 122/78, pulse 73 and regular, weight 161 lbs, SpO2 96%

Neurological examination:

- Mental status exam is normal
- Cranial nerves are normal
- Motor strength is normal
- The patient demonstrates a moderate frequency, high amplitude tremor of his right > left hand when sitting in a chair.
- He exhibits moderate to severe bradykinesia to rapid alternating movements in his right > left hands, as well as mild rigidity of his right wrist.

Case 4 - cont.

Orthostatic vitals:

- Supine BP: 110/76
- Supine HR: 75
- Standing #1 BP: 108/74
- Standing #1 HR: 75
- Standing #2 BP: 75/63
- Standing #2 HR: 75

Case 4 - cont.

Diagnosis:

- Parkinsonism
- Orthostatic hypotension

Treatment:

- Counseled on conservative measures to relieve orthostatic hypotension
- The patient continued to experience significant symptoms on follow up, so midodrine 5 mg twice daily (breakfast and lunch) was started, with significant improvement in symptoms
- He was subsequently started on carbidopa levodopa IR 25-100 mg three times daily, with improvement in parkinsonian symptoms
 - Orthostatic symptoms returned, prompting increase of midodrine to 10 mg twice daily
 - Carbidopa levodopa and midodrine were slowly ramped in conjunction to treat symptoms.

Parkinson's disease with neurogenic orthostatic hypotension

- Epidemiology
 - Approximately 1-4% of people over the age of 60-80 have Parkinson's disease
 - Orthostatic hypotension is present in 20 to 30% of patients at the time of diagnosis (4,5)
- Pathophysiology
 - Accumulation of toxic alpha-synuclein protein in the peripheral and central nervous system
 - Leads to degeneration of substantia nigra (parkinsonian features) as well as peripheral autonomic pathways (impaired baroreflex)
- Clinical presentation
 - Approximately 20-25% of patients with Parkinson's disease experience hypotension after standing for over 3 minutes (6).


Parkinson's disease with neurogenic orthostatic hypotension

- Treatment
 - Levodopa remains mainstay of treatment of Parkinsonism
 - However, it worsens orthostatic hypotension through its peripheral dopaminergic effects, causing both vasodilation and inhibition of noradrenergic transmission
 - Should be administered with caution in patients who already experience symptomatic orthostatic hypotension
 - Treatment of orthostatic hypotension
 - Reduction in levodopa
 - Conservative measures (salt loading, hydration, compression stockings, slow positional changes)
 - Reduction in antihypertensives (check BP when standing instead of sitting)
 - Midodrine, droxidopa, fludrocortisone



Case 5

A 72 year old man with a history of hypertension and hyperlipidemia presents with “dizziness”

- It began suddenly about two days ago.
 - Describes it like the world is “spinning” around him, and he has had some difficulties with walking.
 - It feels like it’s starting to get better, but slowly.
 - He states that he thinks it’s because his right ear is plugged, as he can’t hear much of anything out of his right ear.
- 

Case 5

Examination:

- External acoustic meatus is unremarkable
- The patient cannot hear finger rub to the right.
- Rinne and Weber test reveal complete absence of hearing in the right ear.
- The patient demonstrates bilateral end-gaze, direction-changing nystagmus
- His gait is ataxic
- His left arm and leg are dysmetric

Case 5

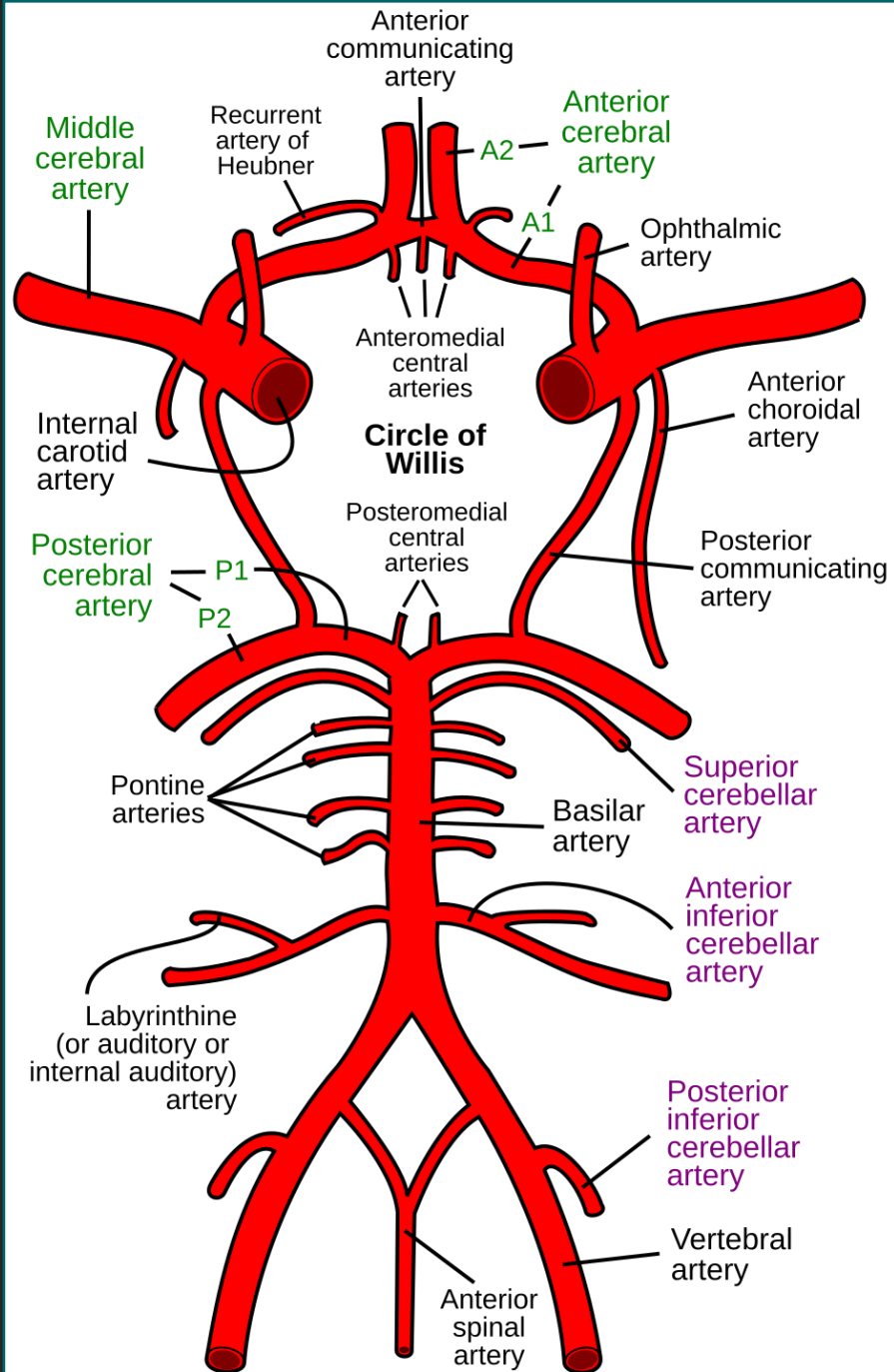
Workup:

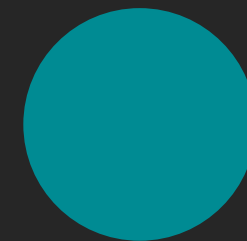
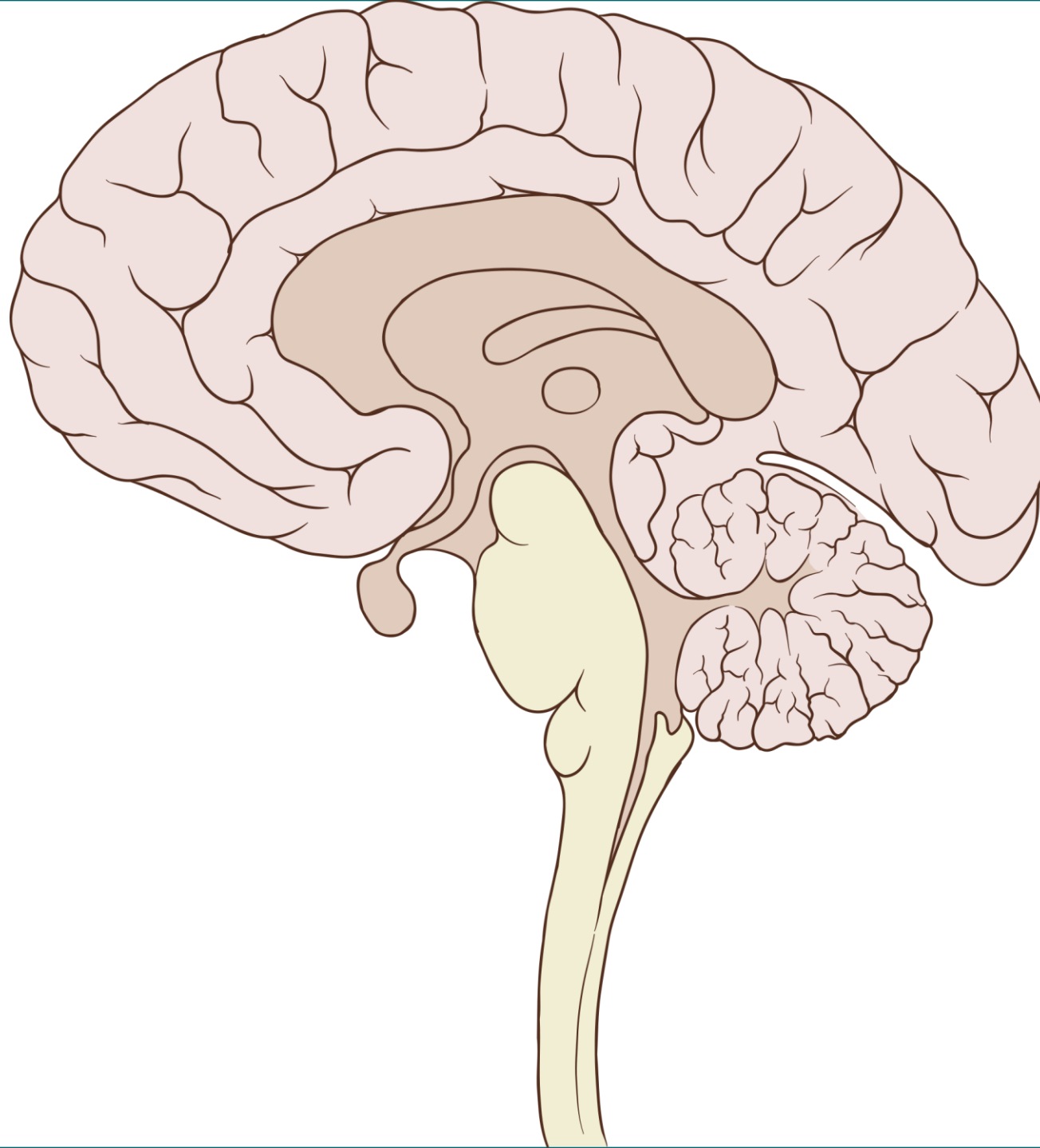
- MRI reveals an acute ischemic infarction of the right lateral cerebellum
- CTA demonstrates occlusion of the right anterior inferior cerebellar artery
- Further stroke workup including transthoracic echocardiogram and 30-day holter monitor are negative

Treatment:

- Aspirin and Plavix for 21 days, followed by aspirin monotherapy
- Statin is increased to target LDL goal <70
- Vestibular rehabilitation

Case 5







Case 6 - just for fun

32 year old spouse of a neurologist with no past medical history states she feels dizzy, like she could fall down.

- The patient had just completed a 2 hour whale watching boat tour.
- She states that everything “feels like it’s swaying”, like she’s “still on the boat”, even though she’s on steady ground.
- Closing her eyes accentuates this sensation.



Case 6 - just for fun

Neurological examination

- Unremarkable

After 4 days, the symptoms resolved completely without treatment

Diagnosis?

- Mal de débarquement syndrome (7)



Mal de débarquement syndrome



- A chronic feeling of oscillating vertigo described as rocking, bobbing, swaying, almost always occurring after exposure to water-based travel, particularly cruises. Most patients report they feel like they are “still on a boat”.
- True prevalence and incidence are hard to estimate as most people who experience this never bring it up to their physician.
- Affects women more than men, typically around age 40 to 50.
- Tends to recover spontaneously, and often suddenly resolve.
- Treatment includes conservative advice to reduce stress, improve sleep quality, and there is some anecdotal evidence of improvement with SSRIs and benzodiazepines.

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THANK YOU

Vestibular (and kind of my own)
approach to the Dizzy Patient

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Two Points

- #1. I have no plans to retire, I get asked weekly and I'm still having fun, learning and enjoy my practice. I AM training Dr. Emily Loveland and Dr. Jessica Taylor (both smarter than me) so I can take some vacation time.
- #2. Never hesitate to contact me with questions, concerns, discussion, whatever. You are always welcome to come spend time with us at the clinic, just to see what we do. We always have students from several programs.

Patient History

- Only let the patient use the word "dizzy" one time. MAKE them explain the sensation.
- Length of episodes
 1. I'm always dizzy. (Metabolic? Medications? Central? Psychogenic?)
 2. It lasts hours. (Menieres Disease? Labyrinthitis? Neuritis?)
 3. It lasts minutes or seconds. (Positional? Cardiac?)

Patient History 2

- What (if anything) makes the sensation worse?
- Exertion?
- Positions?
- Time of day?

Patient History 3

- Are there other symptoms that present in the same time frame as the dizziness?
- Sudden hearing changes? Tinnitus? Aural pressure?
- Visual changes? Light sensitivity? Occipital pressure?
- ANY central indications (diplopia, numbness, tingling, weakness)

Nystagmus Basic Concepts

- Every rule is made to be broken
- End Point nystagmus
- Horizontal nystagmus
- Rotary (fatiguable vs non fatiguable)
- Now, the sad truth about vestibular nystagmus

Video Goggles

- In darkness, vestibular nystagmus has a harder time suppressing
- The size of the eyes and movements are much easier to evaluate and record
- Cons-Expensive and temperamental (buy a toolbox and soldering iron)

VNG

- Videonystagmography is a series of eye examinations looking for clues for weakness and asymmetries
- A "classic" series of tests that some of us are starting to question the usefulness of.
- Painless and quick
- Done under video goggles with targets on a TV screen, recorded in light and darkness

Rotary Chair

- A spinning chair with video goggles
- Quick and painless, doesn't make patients sick
- Helps with looking at the gain (strength) of responses

VHiT

- Video high speed head movement testing
- Allows us to localize the sick ear AND canals involved
- We are currently working on incorporating this info into very targeted VOR therapy. I think this technology will really help us improve therapy in new ways.

Vestibular/Balance Therapy

- Much more effective when targeted
- Generalized “balance” therapy is not impressive
- Vestibular/visual retraining with VRA system
- “Reactive” balance training with Proprio 5000 system

General Vestibular Symptoms

- Of course, true vertigo (the illusion of movement)
- Imbalance worsened with quick head movement (VOR weakness)
- Example of ear/eye (VOR) vs central eye/brain (smooth pursuit)
- Positional symptoms
- Worse in darkness (shower, restroom at night, dim lighting situations)
- Vestibular function can simply decrease with age, same as visual and proprioceptive systems

Meniere's Disease

- Inner ear problem with fluid build up in the inner ear system
- One sided low frequency hearing loss, aural pressure, roaring tinnitus, drop attacks of severe vertigo lasting hours
- First treatment is dietary
- Second line is diuretics and/or SERC (not FDA approved but frequently used again)
- These patients need management and counseling
- Use extreme caution with any ablative techniques

Superior Canal Dehiscence

- The bone above the superior semicircular canal is thin or a hole exists
- More common than realized
- Dizziness with exertion (lifting), loud sounds, or when patient is yelling or screaming (sporting events)
- VEMP testing is an excellent tool and can help us avoid overuse of CT
- CT of temporal bone very useful when indicated
- Surgical intervention very useful

BPPV

- Very common but now overdiagnosed
- Home treatment **DOES NOT** work very well and often worsens the situation, don't give that over 55 year old patient home exercises
- All six canals can be involved
- Treat most symptomatic canal first
- Versions of the Epley maneuver still most successful but I AM biased

Labyrinthitis

- Appears to be an inflammatory, and rarely ischemic, issue with inner ear
- Causes severe vertigo (hours to days), one-sided hearing loss, tinnitus, pressure
- Mimicks Meniere's Disease but is a "one and done" problem for most patients whereas MD is recurrent
- 60mg Prednisone taper as soon as possible, time matters. I have not seen significant changes with adding an antiviral in most patients.
- Sometimes the ear is injected, thru the eardrum, with steroids but the jury is still out on success rate. A good option for severely diabetic patients. Otherwise, use oral prednisone taper.
- These patients usually need Vestibular rehab to fully recover. Every patient is different.

Vestibular Neuritis

- Inner ear inflammatory issue that impacts the vestibular nerve but spares the cochlea
- Severe, violent vertigo (hours to days) with usually an ER visit
- 30 Mg prednisone tapers (30,20,10mg each for 3 days) seems to work very well with good patient compliance
- Always need counseling and vestibular rehab
- This recovery often takes months and many patients never truly return to baseline
- We are logging information about the more frequent recurrence in patients that carry a herpetic virus (recurrence rate seems significantly higher in those patients)

Vestibular Migraine

- Very common and under diagnosed
- Dizziness ranges from lightheaded to true vertigo
- Higher prevalence in female population
- Frequent light sensitivity and occipital pressure
- Common anxiety component
- Effexor XR 37.5 mg can really help, Aimovig was first injectable therapy marketed in USA for VM, I have not seen common migraine meds (such as Topomax) offer much benefit
- I defer to Dr. Fosters expertise and frequently give his name and number for these type issues

Multifactorial Imbalance

- So common in 55 and older population
- Remember the balance system is eyes, ear, proprioception with central management
- I always use the "Airplane explanation" with patients.
Eyes=headlights. Ears=engines. Legs=Landing gears.
Brain=pilot
- Balance therapy can really help these patients IF diagnoses is solid.

I made 20 slides

- Of course, any of these items is a talk all by themselves
- If uncertain, the Vestibular workup is quick, painless, and mostly covered by insurances, including Medicare. The VHit tests are pending Medicare codes but cost patient \$75.00 and we don't do this test unless indicated.
- Again, not sure?? Contact me, I truly enjoy the interaction.

2026 APP Educational Summit Dates

June 25, 2026 *Chief Complaint of Back Pain*

October 22, 2026 *Chief Complaint of Rash*

*Registration & details will be available soon on
stormontvail.eeds.com*