APTA DC & Maryland 2023 Annual Conference

Physical Therapy Management of Older Adults with Ramsay Hunt Syndrome

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Howard Community College Health Sciences Building

Disclosures

Linda B. Horn, PT, DScPT, MHS has no conflicts of interest to disclose.

Jodi Maron Barth is Co-Owner of The Center for Facial and Functional Recovery.

Jodi Maron Barth is an author of "Fix My Face" but receives no royalties related to the sale of the book.

Learning Objectives

After this presentation, the learner will be able to:

1. Understand the medical management of Ramsay Hunt Syndrome.
2. Select the appropriate examination components for a patient with Ramsay Hunt Syndrome.
3. Interpret the examination results to create an appropriate plan of care for a patient with Ramsay Hunt Syndrome.
4. Explain the rationale for the interventions selected for a patient with Ramsay Hunt Syndrome.

Agenda

9:00-9:20	Signs & Symptoms of Ramsay Hunt Syndrome
9:20-9:40	Medical management of Ramsay Hunt Syndrome
9:40-10:25	Examination of Ramsay Hunt Syndrome
10:25-11:10	Rehabilitation of Ramsay Hunt Syndrome including facial rehab and vestibular rehabilitation
11:10-12:00	Case reports of older adults with Ramsay Hunt Syndrome with facial paralysis and vestibular symptoms (small group and large group discussions)

James Ramsay Hunt (1874-1973): An American Neurologist

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THE

Journal

OF

Nervous and Mental Disease

Original Articles

ON HERPETIC INFLAMMATIONS OF THE GENICULATE GANGLION. A NEW SYNDROME AND ITS COMPLICATIONS.*

By J. RAMSAY HUNT, M.D.,

OF NEW YORK.

CHIEF OF THE NEUROLOGICAL CLINIC AND INSTRUCTOR IN NERVOUS DISEASES IN THE CORNELL UNIVERSITY MEDICAL COLLEGE.

(FROM THE PATHOLOGICAL LABORATORY OF THE CORNELL UNIVERSITY MEDICAL COLLEGE.)

- *James Ramsay Hunt (1872–1937) received his MD from the University of Pennsylvania School of Medicine in 1893.*
- *His first academic appointment was Instructor at Cornell University School of Medicine.*
- *In 1924, he became a full professor at Columbia University School of Medicine.*
- *Hunt described three discrete syndromes, the best known of which is zosteroticus with peripheral facial palsy*

Signs & Symptoms of Ramsay Hunt Syndrome

Common Diagnoses of Facial Paralysis

May & Schaitkin* identified 113 different causes of facial paralysis in a literature review (1900-1996).

The majority of these causes are extremely rare.

(The Facial Nerve, May's 2nd Edition, Thieme, 2000.)

Differential Diagnosis

- Bell's palsy (BP)
- Zoster sine herpete
- Herpes zoster oticus (Ramsay-Hunt)
- Lyme disease
- Acoustic neuroma
- Cancer – parotid, nasopharynx, ear
- Otitis media (ear infection)
- Herpes zoster oticus (Ramsay-Hunt)
- Stroke
- Other tumors – meningioma, facial nerve schwannoma
- Trauma – external, temporal bone fx
- Iatrogenic
- Congenital
- Guillain-Barre syndrome
- Diabetes mellitus

The Incidence of Acute Peripheral Facial Palsy

The distribution of new cases of acute peripheral facial palsy are as follows:

- Approximately 1 in 60-70 lifetime risk of developing this condition
- 15% Ramsay Hunt Syndrome
  - This is from Herpes Zoster reactivation with the hallmark vesicular rash of shingles infection occurring in the ear canal and auricle
- 25% Zoster Sine Herpete (ZSH)
  - This is from Herpes Zoster reactivation without the hallmark rash. ZSH patients experience pain and weakness in a dermatomal distribution without visible signs of cutaneous vesicles. Like typical herpes zoster (shingles), ZSH tends to be preceded by dysesthesias.
- 57% Herpes Simplex reactivation
  - This is from Herpes Simplex 1 (the virus that causes oral canker sores).
- 3% Lyme Disease
  - This is from infection with Borrelia burgdorferi bacteria, which is transmitted most commonly by deer ticks to humans.

IDIOPATHIC:

Bell's palsy is the most common cause of FNP and is a diagnosis of exclusion

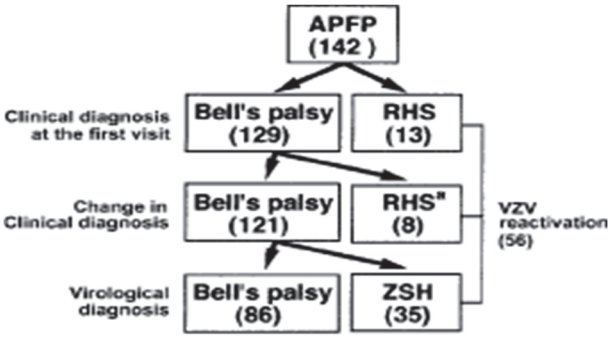
- Characteristic findings include an abrupt onset of unilateral facial paresis that progresses within one to three days, history of a recent viral illness and involvement of both the upper and lower parts of the face.
- True Bell's palsy involves all five branches of the facial nerve, causing paresis from hairline to the clavicle.
- Additional symptoms include ipsilateral earache, numbness of the face, tongue and ear; and, more rarely, hyperacusis, tinnitus, altered taste and reduced lacrimation.
- In rare occurrences, a neoplastic etiology can masquerade as Bell's palsy, but the defining feature of Bell's palsy is spontaneous improvement within three to four weeks, with complete resolution around six months from onset.

Ramsay Hunt Syndrome

- The strict definition of the Ramsay Hunt syndrome is peripheral facial nerve palsy accompanied by an erythematous vesicular rash on the ear (zoster oticus) or in the mouth.
- J Ramsay Hunt, who described various clinical presentations of facial paralysis and rash, also recognized other frequent symptoms and signs such as tinnitus, hearing loss, nausea, vomiting, vertigo, and nystagmus.
- He explained these eighth nerve features by the close proximity of the geniculate ganglion to the vestibulocochlear nerve within the bony facial canal. Hunt's analysis of clinical variations of the syndrome now bearing his name led to his recognition of the general somatic sensory function of the facial nerve and his defining of the geniculate zone of the ear. It is now known that varicella zoster virus (VZV) causes Ramsay Hunt syndrome.

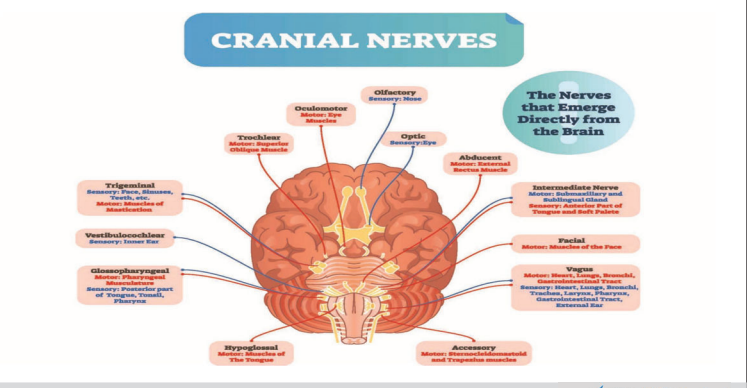
Ramsay Hunt Syndrome vs Zoster Sine Herpete

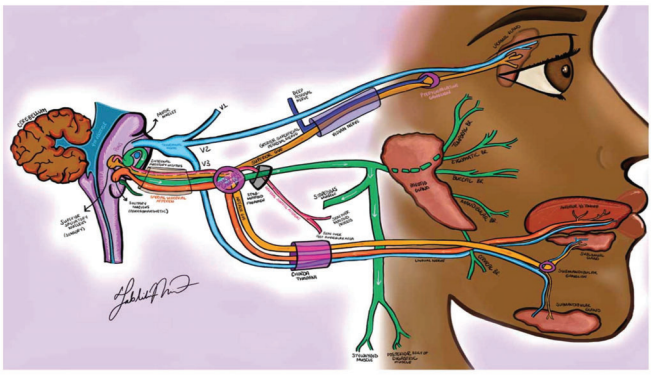
- A unilateral inability to close the eye, smile, wrinkle the forehead, and whistle.
- Severe pain around the head, ear, or neck.
- Loss of taste, unusual taste, and/or dryness in the mouth.
- Paralysis of the stapedius muscle.
- Papillitis of the fungiform papillae on the affected side.
- Painful, herpes-type skin eruptions on the pinna of the ear.
- Small, painful blisters in the mouth.
- Vestibulo-cochlear disturbances.
- Vertigo.

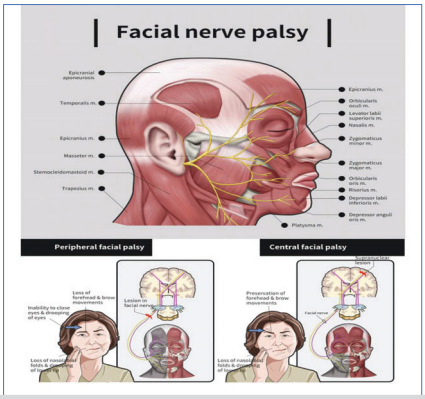


- Figure 1. Flowchart of the clinical and virological diagnoses for 142 patients with acute peripheral facial palsy (APFP). Nos. of patients with indicated diagnoses are shown in parentheses. RHS, Ramsay Hunt syndrome; VZV, varicella-zoster virus; ZSH, zoster sine herpete; RHSa, zoster lesions appeared after the first clinic visit.

(Furuta et al, 2000)

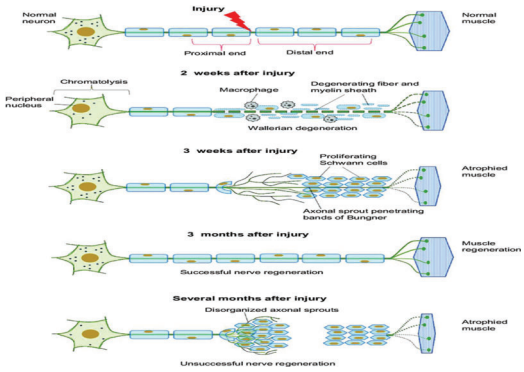






Medical Management of Ramsay Hunt Syndrome

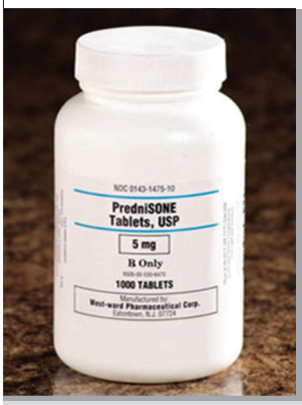
- Traditional management of acute peripheral facial palsy has been a 10-day course of steroids and 7-day course of antivirals followed by watchful waiting.
- The large studies on this condition have demonstrated that more than 25% of patients have incomplete recovery with long-lasting effects of chronic facial deformity and dysfunction.
- It has been shown that irreversible nerve damage is likely to occur within 3 weeks of the onset of the condition, and earlier recovery of function portends a much better prognosis for patients with this condition.



Arslantunali D, Dursun T, Yucel D, Hasirci N, Hasirci V. Peripheral nerve conduits: technology update. Med Devices (Auckl). 2014 Dec 1;7:405-24. doi: 10.2147/MDER.S59124. PMID: 25489251; PMCID: PMC4257109.

RHS Recovery Guidelines

- Patients with Ramsay Hunt Syndrome (herpes zoster reactivation) have been shown to have a poorer prognosis than those with other sources of acute peripheral facial palsy. In conjunction with the knowledge that approximately two-thirds of patients with herpes zoster as the source of sudden facial palsy do not have the hallmark rash (Zoster Sine Herpete).
- Our clinical research shows the need for a more aggressive treatment regimen is indicated for acute peripheral facial palsy patients to mitigate the risks of a poor outcome.



STEROIDS

Anti-inflammatory treatment to minimize swelling around the nerve causing disruption of nerve signal: High dose steroid taper for 3 weeks total. This is consistent with what is known about irreversible nerve damage beginning as early as 3 weeks after nerve injury and is consistent with the established dosing regimen for sudden sensorineural hearing loss, which is the most similar sudden cranial neuropathy.

Anti-Viral Treatment

Anti-viral treatment to maximize the suppression of the reactivation of either the herpes simplex or herpes zoster virus:

- Based on vaccine studies, the immune system is not able to generate maximal response to herpes zoster until 6 weeks or more.
- Previous large-scale clinical trials have proven the benefits of 12 months of antiviral therapy in minimizing the sequelae of herpes simplex reactivation in the eye (Herpes Simplex Opthalmicus), another similar sudden cranial neuropathy

Calcium Channel Blocker

Calcium channel blocker medication to optimize the nerve recovery and propagation of nerve signal along the damaged facial nerve: nimodipine 60mg QID approximately 12 weeks from the date of onset of the paralysis.

- There has been a meta-analysis (2019) looking at the effect of nimodipine on recovery of facial nerve and recurrent laryngeal nerve function after injury.
- Given the limited armamentarium for improving outcomes in patients suffering from paralysis and the potentially irreversible damage that can occur during the acute period, the use of calcium channel blockers has shown good success.

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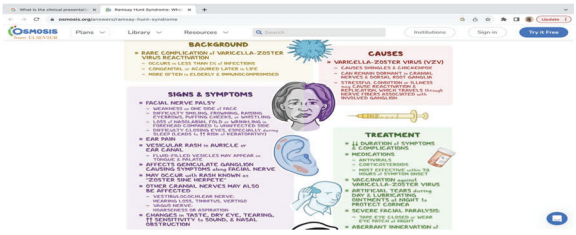
Examination of RHS



History

Co-Morbidity:

1. Pregnancy
2. Diabetes
3. Thyroid condition

Symptoms 1 week prior to onset:

1. Flu like symptoms
2. Covid
3. Covid Vaccine
4. Stress
5. Surgical Intervention

Symptoms at Onset

- Unilateral facial weakness
- Inability to blink/close eye
- Pain
- Numbness/Tingling
- Loss or change in taste
- Vestibular symptoms
- Change in hearing
- Rash or eruptions in ear, on tongue in mouth or redness of ear

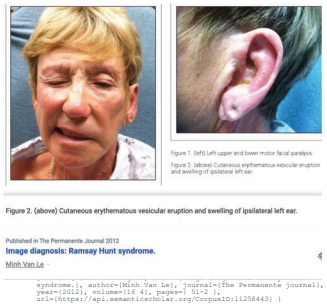


Figure 2. (above) Cutaneous erythematous vesicular eruption and swelling of ipsilateral left ear.

Published in The Permanente Journal 2012

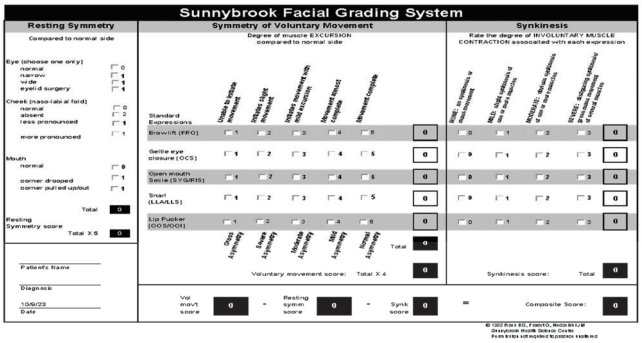
Image diagnosis: Ramsay Hunt syndrome.

Minh Van Le

syndrome.}, author={Minh Van Le}, journal={The Permanente journal}, year={2012}, volume={16 4}, pages={ 51-2 }, url={https://api.semanticscholar.org/CorpusID:11258443} }

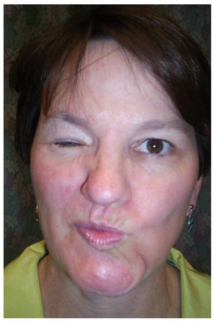
Questionnaires

- FaCE Instrument
- House Brackman Scale
- Facial Disability Index
- Synkinesis Assessment Questionnaire
- Functional Assessment
- Testing of Facial Palsy



Synkinesis

- An involuntary movement that occurs at the same time as an ipsilateral voluntary movement (the right eye closes when the patient moves the right side of her mouth).
- Caused by a miswiring of nerves after trauma, such as surgical procedures, nerve inflammation, neuroma, and physical injury.

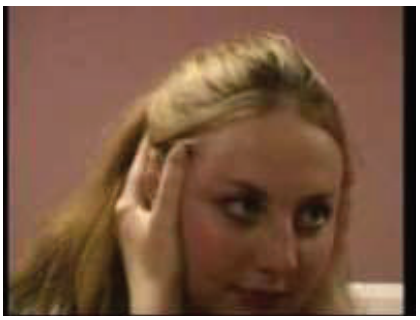


Diagnostic Ultrasound

Vestibular Examination

1. Degree of dizziness/vertigo
2. Falls/fear of falling
3. Audiological testing (ENG/VNG, rotary chair, etc)
4. Oculomotor exam - with visual fixation (room light)
   a. Saccades
   b. Smooth pursuit
   c. Nystagmus
   d. VOR (Vestibulo-ocular reflex)
      i. Slow
      ii. Head Impulse Test (HIT)
   e. Dynamic Visual Acuity
5. Oculomotor exam - without visual fixation (goggles)
   a. Nystagmus
   b. Head Shake Nystagmus

Vestibular Examination



Vestibular Examination

Vestibular Examination

6. Questionnaires
   a. Dizziness Handicap Inventory
   b. Activities-specific Balance Confidence (ABC) Scale
7. Motion Sensitivity Test/Modified Motion Sensitivity Test
8. Balance
   a. Modified CTSIB (Clinical Test of Sensory Interaction and Balance)
   b. Berg Balance Scale
9. Gait
   a. Timed Up and Go (TUG)
   b. Gait speed
   c. Functional Gait Assessment (FGA)

Rehabilitation of Ramsay Hunt Syndrome: Facial and Vestibular Rehabilitation

DO NOT: XXXXXXXXXXX!!!!!!!!!!

Gross Exercises

Gross exercises are non-specific. They can recruit excessive and unnecessary motor units that produce expressions not characteristic of normal facial patterns.

Traditional Therapy Techniques

Electrical Stimulation

- There is mounting evidence of contraindication.
- Several studies in animal models indicate that electrical stimulation disrupts reinervation, may interfere with the neural regeneration in post-peripheral nerve injuries, and may increase synkinesis and mass action.
- It is difficult to produce isolated contractions with electrical stimulation because the muscles of the face are small and close together.

Bells Palsy Information Site

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When to start treatment?

Advantages of Early Intervention:

Being able to educate the patient in eye care and the disease process, decrease dizziness, improve balance, decrease fall risk, and start home exercise program.

Early intervention empowers the patient and has significant positive psychological effects.

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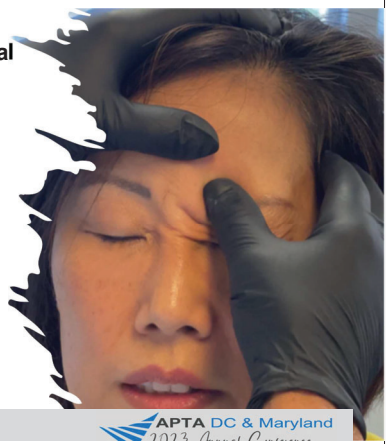
Harnessing the Power of Physical Therapy

Physical therapy to optimize muscle mobility and minimize tissue contracture during period of paralysis

Research has shown the benefits of physical therapy in maintaining the pliability and elasticity of muscle tissue and facial soft tissue to prevent contracture and fibrosis that may occur from prolonged muscle inactivity while the nerve signal is interrupted.



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Tailored Approach

- Limit repetitions to avoid fatigue
- Stress symmetry of movement
- Use resistance only to isolated movements
- Avoid mass action (synkinesis)
- Emphasize quality not quantity

MASSAGE, STRETCH & NEURO REEDUCATION

1. Always start with warming face before each session
   a. Each session should be done once a day
   b. Pattern of each session should be 1) massage, 2) stretch and 3) mobilize/ neuro re-education
2. MASSAGE- Repeat massage movements 10X
3. STRETCH – Hold 10 Seconds and repeat 5X
4. NEURO RE- EDUCATION- Hold for 5 seconds and repeat 10X.
   a. These are gentle movements without force and no synkinetic movements
   b. If you feel synkinetic movements – back down intensity and may need to add more assistance with movement

STRETCH Hold 10 Seconds and repeat 5X

1. Focus Zygomatic Area
2. Stretch-upward with movement going diagonal direction. Just like in a smile

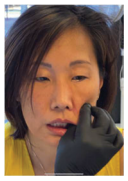
MASSAGE Repeat massage movements 10X

1. Press under the cheek bone
2. Sliding movement to go up and down on a diagonal

NEURO RE- EDUCATION Hold for 5 seconds and repeat 10X

1. Palpate and feel the activation of muscle with smile

Smile



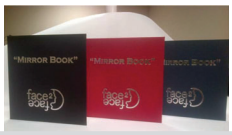
Kinesio-Taping

Reduction of synkinesis
Platysma

Increase Frontalis
Decrease eye closure
Assist smile and reduce facial droop

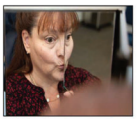
Mirror Book Therapy

Mirror book therapy is a technique adapted by Barth and Stezar. In mirror book therapy, a bi-fold mirror is used to twice reflect the unaffected half of a patient's face, such that the patient sees a full, unaffected face. The patient then proceeds to perform a number of facial expression exercises. Upon seeing the unaffected face appear to perform the exercises in a normal manner, increased activity of motor command pathways and pathways from the unaffected region are utilized to supplement the damaged region. It is also the first time patients see "their normal face". Psychologically this makes it easier for them to perform their home exercise program because of positive feedback seen in the mirror.




3. Snarl, holding for 5 seconds, repeating 10x.


4. Smile, holding for 5 seconds, repeating 10x.


5. Pucker lips, holding for 5 seconds, repeating 10x.


6. Show lower teeth, holding for 5 seconds, repeating 10x.

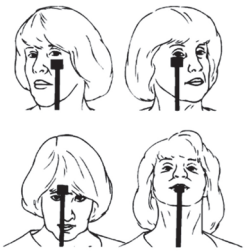
the center for facial recovery

Vestibular Intervention

1. Gaze stabilization exercises
2. Balance & gait training exercises
3. Habituation exercises

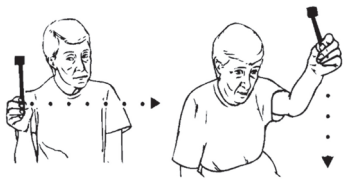
Vestibular Intervention - Gaze Stabilization

- x1 viewing exercise
  - Move head as fast as possible & keep target in clear vision
  - Both near (arm length) & far distance (8-10 ft)
  - 2 minutes each
  - Vertical & horizontal



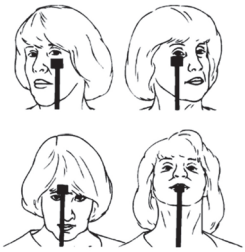
Vestibular Intervention - Gaze Stabilization

- x2 viewing exercise
  - Head and target move in opposite directions
  - Move head as fast as possible & keep target in clear vision
  - 2 minutes each
  - Vertical & horizontal



Vestibular Intervention - Gaze Stabilization

- Progression
  - Sit → Stand
  - Feet apart →Feet closer together → Feet together → Semi tandem → tandem → Single limb stance
  - Firm surface → compliant surface & alternate surfaces
  - Plain background → Complex background
  - Increase speed of head movement
  - Progress to 2 minutes each



Vestibular Intervention - Habituation

- Based on MST/Modified MST or activities that provoke dizziness/vertigo
  - Choose activities that produce mild to moderate dizziness
  - Choose 3-5 activities, perform 3-4 times each
  - Wait between trials for symptoms to return to baseline before continuing

Vestibular Intervention - Gait & Balance

- Gait
  - Head movement
  - Backwards
  - Sideways
  - Different surfaces (compliant, uneven)
  - Turns
  - Circles
  - Obstacles
  - Figure 8
  - Tandem
- Balance
  - Stand with feet together → tandem → single limb stance
  - Stand on foam eyes closed or with eyes open with head movement
  - Gaze stabilization exercises in standing

Vestibular Intervention - Home Exercise Program

- Combination of gaze stabilization, habituation, balance, and gait
  - APTA ANPT Clinical Guideline for Peripheral Vestibular Hypofunction
    - Weekly clinic visits with HEP
    - Acute (up to 2 weeks)/Subacute (2 weeks to 3 mos)
      - Gaze stabilization: 3x/day, at least 12 min/day total
      - Balance exercises: 20 min/day
      - Walking: 30 min/day
    - Chronic (longer than 3 mos)
      - Gaze stabilization: 2-5 x/day, at least 20 min/day total
      - Balance exercises: 20 min/day
      - Walking: 30 min/day

Case Study

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