New approach to Dizziness with Clinical Method.

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Case:

- 40 years old female known case of I.H.D, HTN and DM presented with moderate dizziness which is since one month and gradually increasing , associated with nausea , vomiting and headache . She also fell down twice in this month . She doesn't use walking aids. She lives alone. On Multiple medications for her comorbids. She was at the shopping mall and suddenly felt QUITE DIZZY and became better but not settled and now in E.D.

History:
Important points: Not to be missed:

- Onset.
- Intensity.
- Duration.
- Effect of head position.
- Associated neurologic findings
- Associated Auditory findings.

History::....continue..

- History of Fall: If yes then preceding symptoms , clear cause of fall? , etc.
- Palpitation.
- Use of Medications which can cause dizziness .
- Consumption of Alcohol.
- Walking aids.
- Previous episodes.

Definition:……..Dizziness.

- Different meaning for the different patient.
- Some describe as Disequilibrium, Light headedness , etc.
- VERTIGO: Sensation of disorientation in space with the hallucination of movement.

Vertigo: history and exam

Central

- Gradual onset (except stroke)
- Persistent
- Neuro findings common
- Nystagmus any direction - changes with gaze
- Nystagmus not suppressable
- Unable to stand

Peripheral

- Sudden, severe
- Episodic
- Ear symptoms common
- Nystagmus horizontal/torsional, no change with gaze
- Nystagmus suppressed with fixation
- Able to stand, lean to lesion

Causes of Vertigo

- Peripheral
  - Benign positional vertigo
  - Vestibular neuritis
  - Herpes zoster oticus
  - Meniere's disease
  - Labyrinthine concussion
  - Cogan's syndrome
  - Acoustic neuroma
  - Aminoglycoside toxicity
  - Otitis media
- Central
  - Migrainous vertigo
  - Brainstem
    - TIA
    - Wallenberg's syndrome
    - Cerebellar infarcation or hemorrhage
    - Chiari malformation
    - MS

BPPV:

- Most commonly recognized form of vertigo.
- Attributed to calcium debris within the semicircular canal (canalithiasis).
- "I feel like the room is spinning when I turn my head"
- Lasts seconds, but pt may feel destabilized for hours after an attack.
- No ear pain, tinnitus, or hearing loss.

BPPV (cont.)

- Diagnosis usually made by history.
- Dix Hallpike maneuver
  - Positive in 50-80% of patients.
- Canalith repositioning maneuvers.
- Medical therapy usually not helpful due to transient symptoms.

Meniere's disease…

- Excess endolymphatic fluid pressure.
- **Episodic, acute vertigo**, lasts minutes to hours.
- Unilateral tinnitus, **hearing loss**, ear fullness.
- Treatment
  - Salt, caffeine, tobacco restriction.
  - Diuretics.
  - Surgical.

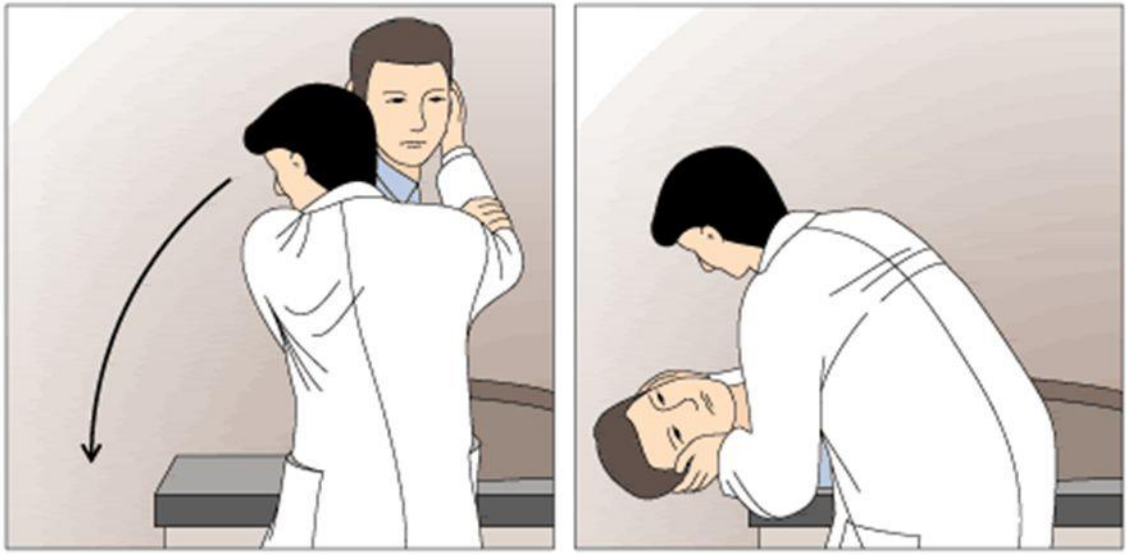
Vestibular neuritis….

- Viral or post viral inflammatory disorder.
- Rapid onset of **severe persistent** vertigo with nausea, vomiting, ataxia.
- Sometimes combined with unilateral hearing loss (labyrinthitis).
- Steroid taper.
- Dramamine, meclizine (H1 blockers), benzodiazapines.

Labryinthine concussion.

- Traumatic vestibular injury following head trauma .
- Transverse fractures of the temporal bone .

EAMINATION: Dix Hall Pike :



•**Dix-Hallpike** – examiner stands to the side of the patient, who sits upright with head turned to examiner (LEFT). The patient is positioned so that when the body is supine, the head will extend **BEYOND** end of table. Consider a shoulder roll to provide adequate head-hanging.

•The examiner holds the head and moves the patient **RAPIDLY** from sitting to head hanging position. First with the head turned to one side, then the other. Once in the head hanging position, patients with BPPV will show a burst a burst of nystagmus after a delay of 5-10 seconds. Episodes last a few seconds (fatigueability).

Epley Maneuver

- Dr. John M. Epley 1980 *
- Canalilith Repositioning
- Canalith debris → vestibule
- single treatment = 95% Remission



Otolaryngol Head Neck Surg 88:599–605, 1980.
http://www.earinfosite.org/about.htm

Epley Maneuver:

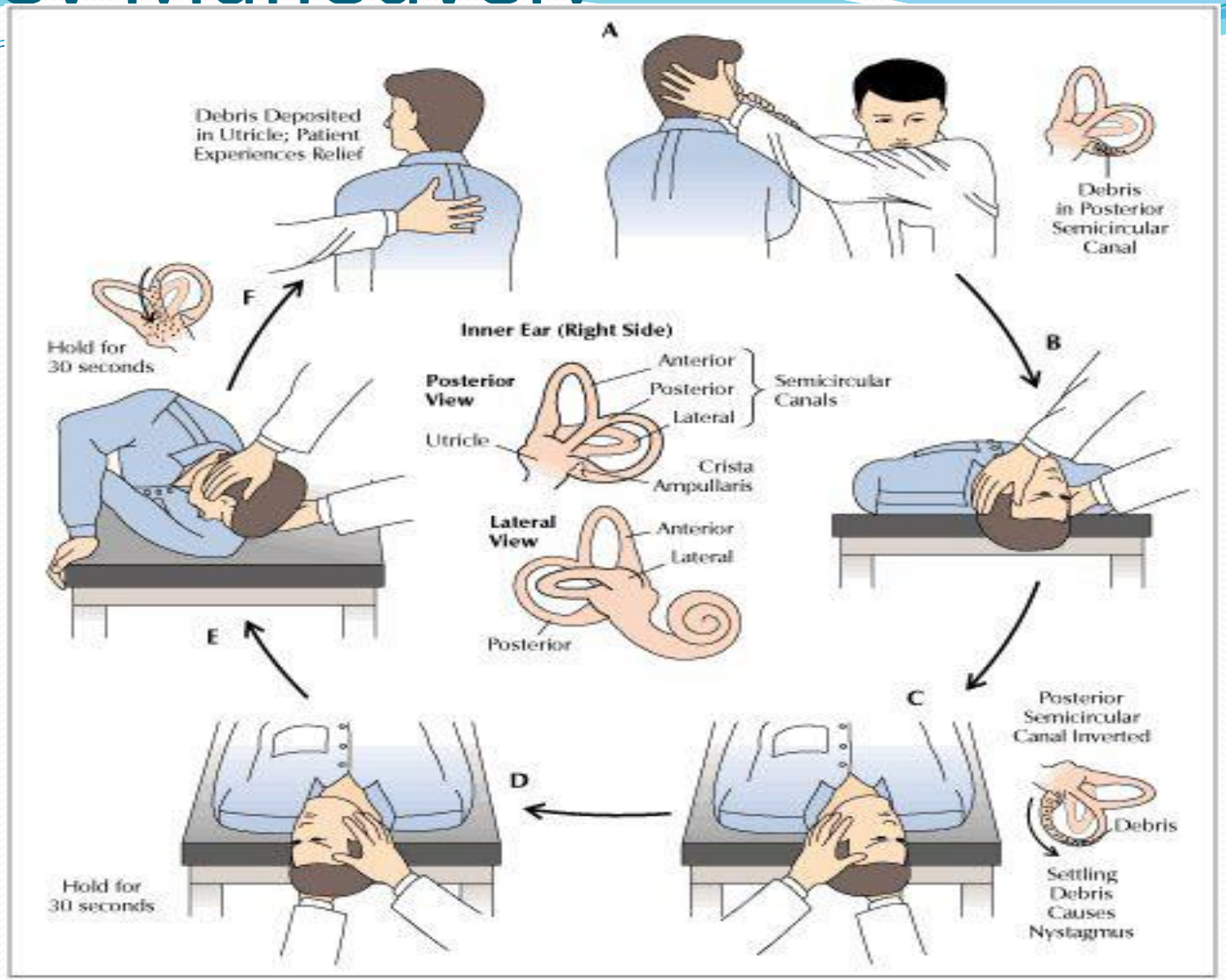


Figure 2. In the modified Epley maneuver, the patient's head is systematically rotated so that the loose particles slide out of the posterior semicircular canal and back into the utricle. The first step in the maneuver is the Dix-Hallpike test. If the vertigo affects the right ear, the patient is brought to the head-hanging position with the right ear turned downward (A-C). The physician then moves to the end of the table and rotates the patient's head to the left, with the right ear turned upward (D). The head is held in that position for 30 seconds. The patient then rolls onto the left side (E). Meanwhile, the examiner rotates the patient's head leftward until the nose points toward the floor. That position is also held for 30 seconds. Finally, the patient is lifted into the sitting position with the head facing left (F).

H.I.N.T .S.....EXAM:

- Head Impulse.
- Nystagmus.
- Test of Skew.

- **TestSensitivity::** 100% Specificity: 96 %.
- MRI (24hrs)68.40%[1]
- MRI (48hrs)81%[1]
- CT non con26%[2]

Newman-Toker DE, Hsieh YH, Camargo CA Jr, Pelletier AJ, Butchy GT, Edlow JA. Spectrum of dizziness visits to US emergency departments: cross-sectional analysis from a nationally representative sample. Mayo Clin Proc. 2008;83:765–775

ACUTE VESTIBULAR SYNDROME:

- Acute vestibular syndrome (AVS) is characterized by the rapid onset (over seconds to hours) of vertigo, nausea/ vomiting, and gait unsteadiness in association with head motion intolerance and nystagmus lasting days to weeks.
- Of the 2.6 million emergency department visits for dizziness or vertigo annually in the United States, APV is diagnosed in nearly 150 000.

Ref:#Newman-Toker DE, Hsieh YH, Camargo CA Jr, Pelletier AJ, Butchy GT, Edlow JA. Spectrum of dizziness visits to US emergency departments: cross-sectional analysis from a nationally representative sample. Mayo Clin Proc. 2008;83:765–775

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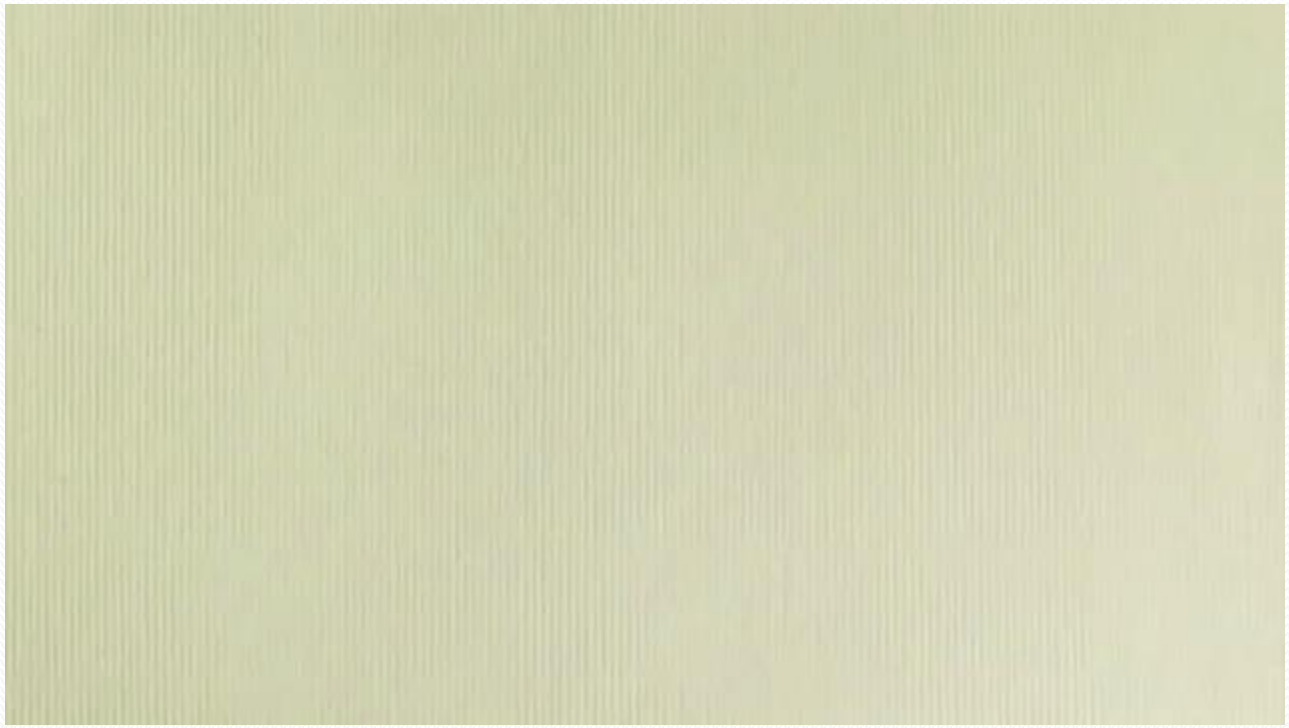
- Small observational studies suggest perhaps 25% of acute vestibular syndrome presentations to the emergency department represent posterior circulation infarctions.

- CT scans have low sensitivity (approximately 16%) for acute infarction, particularly in the posterior fossa, and brain MRI is not always readily available. Studies also suggest that false-negative MRI can occur with acute vertebrobasilar strokes.

- Norrving B, Magnusson M, Holtas S. Isolated acute vertigo in the elderly; vestibular or vascular disease? Acta Neurol Scand. 1995;91:43– 48.
- Newman-Toker DE, Kattah JC, Alvernia JE, Wang DZ. Normal head impulse test differentiates acute cerebellar strokes from vestibular neuritis. Neurology. 2008;70:2378 –2385.
- . Chalela JA, Kidwell CS, Nentwich LM, Luby M, Butman JA, Demchuk AM, Hill MD, Patronas N, Latour L, Warach S. Magnetic resonance imaging and computed tomography in emergency assessment of patients with suspected acute stroke: a prospective comparison. Lancet. 2007;369:293–298. 8. Edlow JA, Newman-Toker DE, Savitz SI. Diagnosis and initial management of cerebellar infarction. Lancet Neurol. 2008;7:951–964. 9. Oppenheim C, Stanescu R, Dormont D, Crozier S, Marro B, Samson Y, Rancurel G, Marsault C. False-negative diffusion-weighted MR findings in acute ischemic stroke. AJNR Am J Neuroradiol. 2000;21: 1434 –1440. 10. Marx JJ, Thoemke F, Mika-Gruettner A, Fitzek S, Vucurevic G, Urban PP, Stoeter P, Dieterich M, Hopf HC. Diffusion-weighted MRT in vertebrobasilar ischemia. Application, sensitivity, and prognostic value [in German]. Nervenarzt. 2004;75:341–346.

Head Impulse Test.

- VIDEO.



VIDEO OF H.I.N.T.S exam.

- NYSTAGMUS.



TEST OF SKEW:

- VIDEO



Back to the CASE:

- Likely Central cause of Vertigo…
- Needs evaluation and admission.

الحمد لله

Alhamdulillah

All Praise belongs to Allah

