Willful or Neurovascular? A Case of Visual Disturbances and Nonadherence in an Elderly Woman with Reversal of Vision Metamorphopsia (RVM)

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Background

Visual hallucinations, illusions & misperceptions are difficult to differentiate, carrying a risk of misguided antipsychotic use[1]. CL psychiatrists, often consulted on these phenomena, are vital to augmenting the organic differential.

Reversal of vision metamorphopsia (RVM) is one of the many causes of visual misperceptions. There are no cases of RVM reported in the psychiatric literature.

Case Highlights

- Ms. A is an 89 y/o female with history of anxiety and vasculopathy (TAA, CHF, TIA)
- 3rd admission in 6 wks for CHF exacerbation due to diuretic non-adherence
- Psychiatric consultation for “visual hallucinations and non-adherence”
- On interview:
  - Pt described **“They turn the room on its side”**
  - Room would turn 90 or 180 degrees
  - Symptoms were intermittent
  - Always and only with diuretics
  - With ALL diuretics trialed
  - Resolved spontaneously in minutes or hours
  - No objects superimposed on reality
  - No proprioceptive disturbances

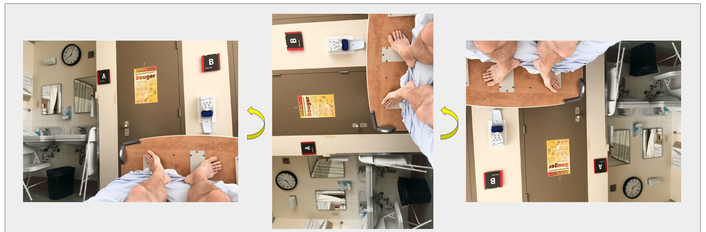

Figure 1 How a hospital room looked to the pt during an episode (center and R)
From iStock.com/Marc Dufresne

- Objective findings:
  - Positive: Diastolic BP frequently in the 50s
  - Labs non-revealing. No infection or metabolic derangements.
  - Mental Status: Patient is organized, well-spoken, frustrated, mood congruent with good insight and judgement
  - Cognitive Exam: No alterations in arousal, attention, orientation, memory, fluency, visuospatial or executive functioning. CLOCK drawing: INTACT
- Assessment: There are NO visual hallucinations.
- Plan: Lit review unrevealing of link between diuretics and this visual disturbance
  - Recommendation: NEURO CONSULT
- Neuro exam was WNL
- Neuro workup including LTM EEG, and head CT were unremarkable
- Neurology consult diagnosis: **Reversal of Vision Metamorphopsia**

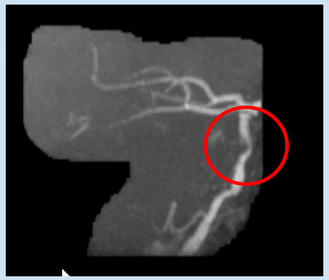

Figure 2 Pt’s MRA head w/o contrast. Severe mid basilar artery stenosis circled. Used with pt consent.

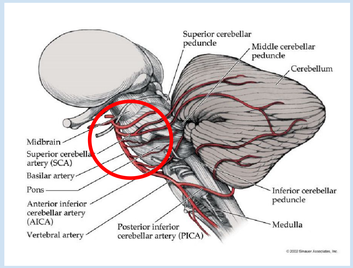

Figure 3 Posterior Cerebral Circulation[2].Copyright Sinauer Associates, Inc.

Reversal of Vision Metamorphopsia (RVM), or “room tilt illusion” caused by reversible posterior circulation ischemia due to diuretics, was mistaken for visual hallucinations and resulted in non-adherence with poor CHF control, multiple admissions and patient distress.

References:

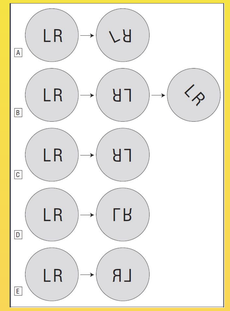

Figure 4 Possible variations of RVM
L = left visual field, R = right visual field[5]

Postulated Mechanism of RVM

Images are projected onto the retina in an inverted manner. It is possible that the brain creates multiple, simultaneous frames of reference from different sensory perspectives to create “right side up” vision[3]. Interruption to one of these associated areas in the brain may cause temporary inversion of vision, but the brain is able to compensate given probable redundancy in this system[4]

Discussion

- Metamorphopsia refers to visual illusions that can distort the **shape**, **size**, or **inclination** of an object[6]
- RVM is a sudden and transient rotation in vision
- Often by 180° but there’s variation in degree & orientation of rotation (Fig 4)
- Characteristics of RVM episodes:
  - Transient (minutes to hours) - though very rare cases can last days[5]
  - Self terminating[5]
  - The egocentric frame remains upright with rare exceptions[5,6]
- Most common presenting sx is vertigo or dizziness (48%)[4]
- Symptoms include nausea (23%), vomiting (25%) more common with ischemic etiologies[4]
- Physical exam is often normal although may include nystagmus (32.7%) or ataxia (23.1%)[4]
- MRI and MRA brain indicated to look for underlying pathology[4]
- Variable etiologies - usually a unifocal injury, but some reports of multifocal insults[4]:
  - Vascular insult to the posterior circulation
  - Interruption to the vestibular system: Meniere’s disease and cupolithiasis
  - MS, migraine, and seizures among other causes[4]
- Location of the lesions[4]:
  - Most commonly in the brainstem and cerebellum
  - Also reported: thalamus, caudate nucleus, parieto-occipital junction, parietal lobes, occipital lobe, one case of frontal involvement