

# Neuroanatomy Case

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1

## Jim

- Patient is a 78 year-old male- lives at home with his wife, his son lives next door and assists with care
- Past medical history:
  - TIA (6-7 years ago), OA, seizures, anemia, stroke, afib, cataracts B eyes, multiple compression fractures thoracic spine, dementia (possible mixed type vascular and Alzheimer's), watchman device implant (failed), cardiac stents
- Retired factory worker, was driving and walking with cane prior to recent seizures and stroke

2

Result Date: 4/8/2020

Parkview Health Diagnostic Imaging Report EXAM INFORMATION: Examination: MRI BRAIN WITHOUT CONTRAST  
 Date of Exam: 4/8/2020 Diagnosis/Reason for Exam: Left Sided Paresis Additional History: increase in seizure activity, hx of partial complex sz, hx of prior stroke w/residual left side weakness Contrast: none Sedation: None. Comparison: CT - CTA Head With/Without Contrast dated 4/7/2020; CT - Head Without Contrast dated 4/7/2020 Technique: Multisequence, multiplanar MR images of the head are acquired. DISCUSSION: Brain parenchyma: There is a large area of encephalomalacia in the right frontotemporal lobe, with surrounding gliosis, compatible with old right MCA territory infarct. There is also mild abnormal hyperintense signal on FLAIR and T2 weighted sequences in the left periventricular white matter, nonspecific, although likely representing chronic small vessel ischemic changes. There is no abnormal diffusion restriction at these locations or elsewhere to suggest acute ischemia. No evidence of intraparenchymal hemorrhage. Ventricles / CSF: At least mild generalized cerebral volume loss with commensurate enlargement of the ventricles and extra-axial spaces. In addition, there is mild ex vacuo dilatation of the right lateral ventricle, associated with the old right MCA territory infarct. No midline shift or mass effect. No abnormal extra-axial fluid collections are identified. Vessels: Question mild attenuation of the M1 segment of the left MCA flow void (series 4, image 11), although this could also be due to partial volume averaging. The other visualized flow voids at the base of the brain are grossly unremarkable, as well as can be seen. Sinuses: Mild mucosal thickening of the ethmoid air cells bilaterally. Mastoid air cells: Grossly clear. Bones: Unremarkable.

IMPRESSION: 1. Old right MCA territory infarct. At least mild generalized cerebral volume loss and chronic small vessel ischemic changes also noted. See above for details. No evidence of acute ischemia. 2. Mild mucosal thickening in the ethmoid air cells bilaterally. Reading Workstation: PHRAD01

3

Jim

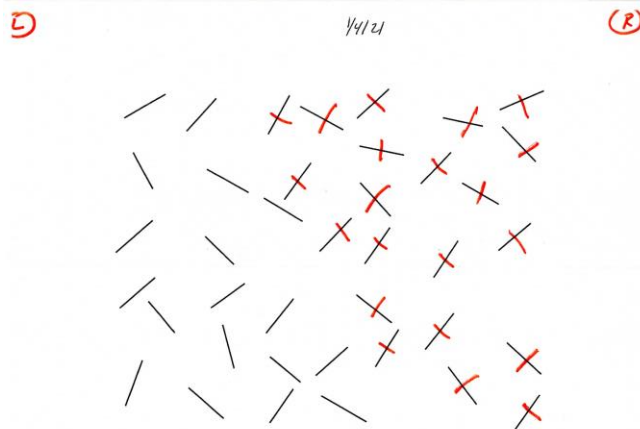
- What deficits may we see with Jim?
- What areas are you going to want to check closely?
- What kind of testing would you want to perform on evaluation?

4

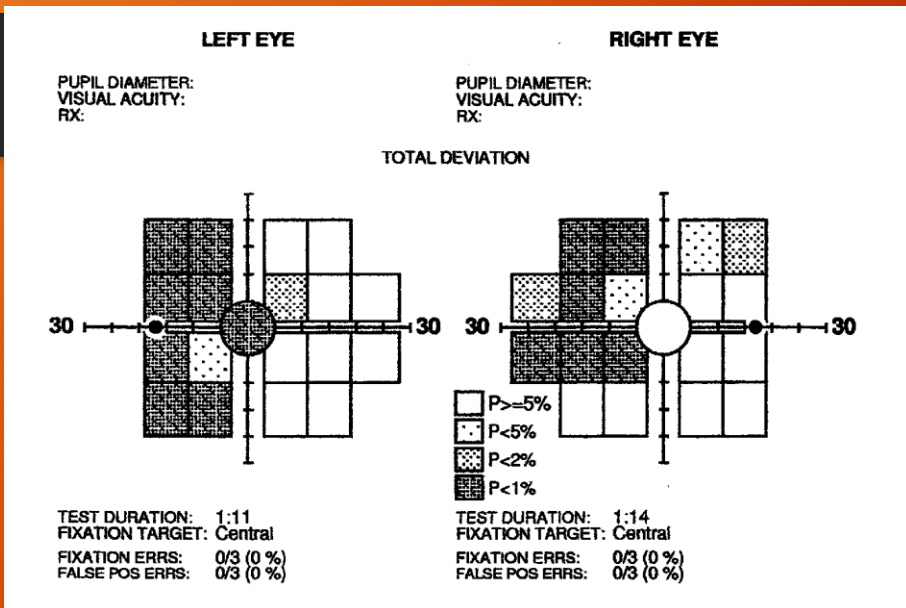
## What he looks like:

- Max assist for all functional mobility tasks
- Requires CGA to sit on edge of mat table
- Motor deficits and spasticity in LUE and LLE
- Poor attention to the left
- Left visual field cut
- Significant attention and cognitive deficits

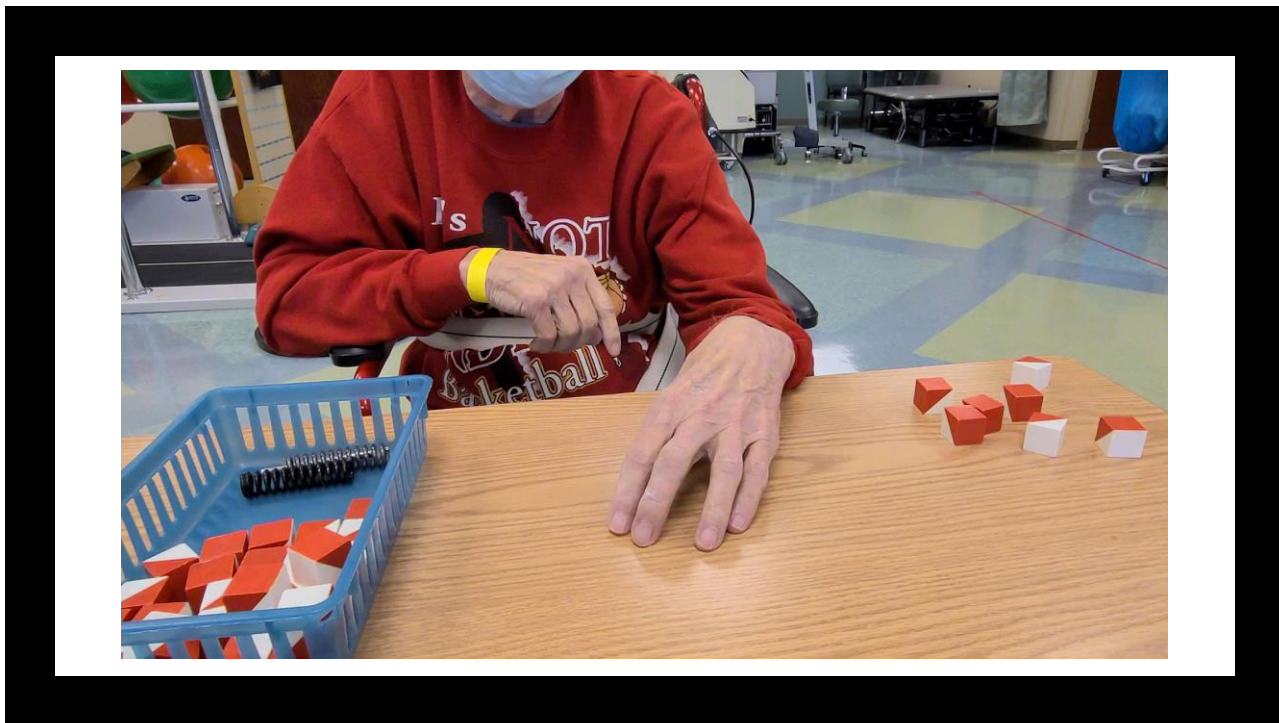
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8

- A 77-year-old woman was cooking in the kitchen when she collapsed onto the floor. Her daughter called an ambulance and the woman was taken to the emergency room. She had suffered a stroke, and slowly regained consciousness over the next two days. However, when she woke up, she had the following signs and symptoms:
  - paralysis of the right face and arm
  - loss of sensation to touch on the skin of the right face and arm
  - inability to answer questions but ability to understand what was said to her
  - ability to write down her thoughts more easily than to speak them

9

The woman suffered damage to the lateral portions of her left frontal and parietal lobes

The single most likely event causing her illness is blockage of the left middle cerebral artery.

10

## Common Stroke Syndromes

### Middle Cerebral Artery Syndrome

- Contralateral weakness & sensory loss in face, arm>leg
- Aphasia
- Perceptual Problems
- Homonymous hemianopsia
- Conjugate gaze impairment
- Ataxia of contralateral limb

### Anterior Cerebral Artery Syndrome

- Unilateral: Contralateral weakness & sensory loss
- Mental Impairment
  - Bilateral: Frontal lobes involved “akinetic mutism”
  - Indifferent, movement initiation problems, not speaking
- Urinary Incontinence

### Posterior Cerebral Artery Syndrome

- Homonymous hemianopsia
- Difficulty naming familiar people on sight
- Dyslexia but able to write; difficulty with color discrimination
- Difficulty with memory
- Involuntary movements
- Thalamic Syndrome
- CN 3 palsy; ptosis, impaired pupillary light response

### Basilar Artery Syndrome

- Weakness in all extremities & cranial nerve innervations
- Diplopia, loss of conjugate & vertical gaze, nystagmus
- Blindness, impaired vision or visual field deficits
- Cerebellar ataxia
- Coma
- Thalamic pain syndrome

### Posterior Inferior Cerebellar Syndrome (Medulla)

- CN 9&10: dysphagia, ipsilateral paralysis of vocal cord, hoarseness; loss of pharyngeal reflex; posterior tongue loss of taste
- Vestibular Nuclei: Vertigo, nystagmus
- Trigeminal nerve: facial sensory loss
- Ataxia of limbs

### Anterior Inferior Cerebellar Syndrome (pons)

- CN 7: ipsilateral facial weakness
- Solitary nucleus (CN 9) & cochlear nuclei: posterior tongue loss of taste & deafness, ringing in the ear, nystagmus
- Conjugate gaze-impairment to pontine center for lateral gaze
- Ataxia