

Case Presentation

HISTORY OF PRESENT ILLNESS

- Mr. T was a 49 year old RHAA male who presented to the neurology clinic with worsening visual acuity and dementia progressing over approximately one year. History was primarily from family - patient had been performing most of his adl's (required a wheelchair for walking long distances due to lower extremity pain after a motor vehicle collision) until a slow progression in cognitive decline ensued. Cognitive decline described as forgetting recent events, paying bills, remembering phone numbers.

HPI con't

- Per family, patient had not been exposed to any toxins, heavy metals, or ticks/spiders.
- Mr. T had used IV drugs in the distant past, as well as heavy ETOH use, but none in past 10 years.
- Past medical history also notable for hepatitis C and a motor vehicle collision 6 years prior causing b/l femur fractures. Approx 9 years ago, severe headaches, ?tumor on imaging, biopsy with demyelination
- Medication list included narcotics for lower extremity pain.
- Family history was notable for a healthy mother, father, brother, and 2 daughters (ages 18, 25). History of grandparents was also unremarkable. No known history of MS, demyelinating disorders, or other genetic disorders was reported.

PHYSICAL EXAM

- General Medical Exam: unremarkable, of note, skin exam showed no rashes, hyperpigmentation. Vitals signs were normal
- Neurologic Exam: awake, alert, oriented to person and place -incorrectly named the year, month. Registration intact, however poor recall, with a mild/moderate amount of word finding difficulty. Speech was dysarthric, scanning.
- Visual acuity was hand motion bilaterally. Pupils were symmetric, and equally reactive, no relative afferent papillary defect.

PHYSICAL EXAM con't

- Motor examination was 5/5 throughout upper extremity, however lower extremity fine testing was difficult due to marked pain in the lower extremity. Patient was able to hold b/l lower extremity against gravity. Tone was increased in all extremities lower extremity much greater than upper extremity.
- Sensory exam was intact.
- Reflexes were brisk throughout, with non- sustained clonus noted in bilateral achilles. Initial plantar response was flexor.
- Gait was wide based, spastic.

DIFFERENTIAL DX.

- multiple sclerosis
- lupus
- sjogren syndrome
- lyme disease
- adult onset leukodystrophy
- vasculitis
- vitamin deficiency.

HOSPITAL WORK-UP

- Brain MRI - diffuse white matter disease, more prominent in bilateral occipital/post. parietal lobes, as well as left frontal lobe. Increased signal intensity also noted in splenium of corpus callosum. Mild contrast enhancement noted, esp in corpus
- MRI of the cervical/thoracic/lumbar spine with and without contrast showed no evidence of demyelination or abnormal enhancement.
- CSF: 1 wbc (lymph), 1 rbc, protein 39, glucose 72, lactate 1.3, VDRL- nonreactive, IgG 3.22 (1.7-3.4), MBP 0.9 (0-0.5), no oligoclonal banding was present, gram stain negative, mycobacterium negative

HOSPITAL WORK-UP

- Serum: normal tsh, b12, folate, cortisol (random/fasting), lactate, ace, esr, afp, cpk; RPR- nonreactive; cholesterol panel- total-218, ldl 144, hdl 54, triglycerides 103.
- Additional testing: serum very long chain fatty acid (VLCFA): CD 26:0 --3.11 (<1.3). Adrenal MRI essentially normal.

FINAL DIAGNOSIS

- **x linked adrenoleukodystrophy (adrenomyeloneuropathy)**
- a peroxisomal disorder causing deficient B-oxidation of VLCFA.
- **Adrenomyeloneuropathy has a mean age of onset of 27 years, with slow progression over decades. Some patients may live into their 70's. Typically, there is progressive spastic paraparesis, sphincter disturbance, cognitive impairment, and possible development of seizures**

CLINICAL QUESTION

- Are there any treatment/therapeutic options to symptomatically help those with advancing leukodystrophy?
- multiple therapies have been tested: cobratoxin (affecting nmj), arginine (producing peroxisomal proliferation), lorenzo's oil (a mixture of glyceryl trioleate and glyceryl trierucate-to reduce conc of vlcf a)
 - levels of vlcf a have been reduced, but no effect on clinical progression

FUTURE OPTIONS

- Recent literature (moser et al, 2003) found that early diagnosis and intervention with lorenzo's oil, may in fact delay the onset of symptoms
- Further research with bone marrow transplant, statins, coenzyme Q, as well as butyrates in currently underway through the NIH