



A CASE OF DEMENTIA

ADRIANNA MITCHELL, MD PGY-2 PSYCHIATRY RESIDENT

DISCLOSURE STATEMENT

- Relevant to the content of this educational activity, I do not have any relevant financial conflicts with commercial interest companies to disclose.

LEARNING OBJECTIVES

- Knowledge of differential diagnosis for psychotic symptoms in the elderly
- Knowledge of reversible causes of dementia
- Knowledge of the major risks and benefits of the antipsychotic medications in the elderly



Case

HPI

- 77-year-old male veteran with no past psych history was brought to the ED after his neighbor called the sheriff's department after being concerned that the veteran had been experiencing hallucinations.
- Veteran stated that for the past 3 months he had been seeing disfigured people in his home all day long. He stated they were in every room in the house. He stated they did not talk to him but only looked at him and crowd the front doorway.
- He noted a little girl with a nutcracker that stood by his coffee table and one that would lay on his living room floor. He stated these were consistent hallucinations and there were several more figures that would move about the house.
- Patient stated that when he would go outside of his house, the figures did not follow him.

HPI

- He denied any recent stressors but stated he had been a little more forgetful than usual over the last month.
- 3 months prior to the veteran's ED visit he had a fall and hit the left side of his head. He could not remember if he lost consciousness
- He stated his sleep had been decreased because of these hallucinations
- He stated he had been eating and drinking normally
- He denied any suicidal ideations and his Columbia Screen was negative

MOLD IN THE HOUSE

- The patient himself felt that the mold in his house was causing his hallucinations.
- House build in 1988 and the patient stated his house was infested with mold. It was in his shower, vents, drains, walls and in his entire basement
- Fun fact: The mycotoxins produced by black mold are neurotoxins, which lead to varying neurological symptoms. Feelings of brain fog, dizziness, mood swings, hallucinations, anxiety, depression, seizures, and numbness are just a few of the nervous system effects. The mycotoxins can also cause eye inflammation and vision problems.
- Mold induced psychosis could not be fully ruled out

COLLATERAL

- Collateral was limited. Patient had been living alone for many years. He had no family in the area and his only close friend was a woman who would sometimes assist him with getting groceries and taking him to appointments.
- Patient had a nephew living in Florida who he had not spoken to in several years

DELIRIUM VS DEMENTIA

Delirium vs. Dementia		
	Delirium	Dementia
Onset	Abrupt	Insidious
Course	Fluctuates	Slow decline
Duration	Hours to weeks	Months to years
Attention	Impaired	Intact early; impaired late
Sleep-wake	Disrupted	Usually normal
Alertness	Impaired	Normal
Orientation	Impaired	Intact early; impaired late
Behavior	Agitated, withdrawn or depressed	Intact early
Speech	Incoherent, rapid/slowed	Word-finding problems
Thoughts	Disorganized, delusions	Impoverished
Perceptions	Hallucinations/illusions	Intact early

REVERSIBLE CAUSES OF COGNITIVE IMPAIRMENT

Dementia

D: drugs (anticholinergics)

E: emotional (depression)

M: metabolic or endocrine

E: eyes and ears declining

N: normal pressure hydrocephalus

T: tumor or other space-occupying lesion

I: infection (syphilis, HIV)

A: anemia (Vitamin B12 or folate deficiency)

Make sure your labs and imaging reflect this

PERTINENT LABS

- UA insignificant
- TSH: 0.67 (wnl)
- Vitamin B12 439 (wnl)
- Folate 13 (wnl)
- Vitamin D 27 (slightly low)
- HIV nonreactive
- Syphilis nonreactive
- Ammonia <10
- UDS negative

VITAL SIGNS: outside of an elevated BP other VS WNL

IMAGING

- CT scan
 - Cerebral atrophy
 - Suspected microvascular ischemic disease in the periventricular white matter
 - No acute intracranial process identified

PSYCH REVIEW OF SYSTEMS

- Not notable for depression, mania, anxiety, PTSD
- Significant for visual hallucinations. Denied auditory hallucinations or paranoia

PAST MEDICAL

- Dry eye syndrome
- Vision problems (new glasses June 2021)
- Rhinitis
- Arthritis
- Coronary artery disease
- COPD
- Benign essential hypertension
- Hyperlipidemia
- Obesity
- Impaired memory
- No family hx of dementia

MEDICATION LIST

- Albuterol as needed
- Artificial tears
- Atorvastatin
- HTCZ 12.5/Lisinopril 20 mg
- Baby aspirin

SOCIAL HISTORY

- Born in New York, served in the Navy for 6 years now living alone in a home that he purchased.
- Siblings: one sister who is deceased
- 3 children: no contact with children in many years
- Divorced x 4
- Does not drink
- Quit smoking cigarettes 16 years ago
- No illicit drug use

PAST PSYCH HISTORY

- No past psych history
- No psychiatrist/therapist
- No psychiatric medications
- No hx of previous self harm or suicide attempts

MENTAL STATUS EXAM

- General: cooperative, polite, oriented to person and place but does have difficulty with time. Patient thought it was 2020
- Attention and orientation: alert and attentive
- Psychomotor activity: normal rate with no abnormal movements present
- Grooming: Clean
- Eye contact: good
- Speech: normal latency rate and volume
- Language: intact
- Mood: pleasant
- Affect: blunted
- Perceptual disturbances: admits to visual hallucination denies auditory. No visual hallucinations endorsed since admission
- Thought process: linear and goal-directed
- Thought content: no evidence of SI/HI
- Insight: Fair
- Judgement: fair
- Memory: impairment of short-term memory
- Fund of knowledge: average

DIFFERENTIALS FOR PSYCHOSIS IN THE ELDERLY

- delirium
- Very late onset schizophrenia
- delusional disorder
- mood disorders
- dementia
- substance abuse
- Polypharmacy
- medical-neurologic conditions
- Charles bonnet syndrome: loss of vision leading to hallucination

- ~~Delirium~~: no fluctuation in course. Attention, alertness and orientation were not impaired at any point. No identifiable source of infection, no lab abnormalities that would indicate end organ failure, dehydration etc.
- ~~Very late onset schizophrenia~~ : rare
- ~~delusional disorder~~: usually persecutory beliefs rather than hallucinations. If hallucinations are prominent less likely delusional disorder
- ~~mood disorders~~: Columbia screen negative, no hx of mania
 - dementia
- ~~substance abuse~~: patient denied any drug use, UDS negative
- ~~Polypharmacy~~: no anticholinergic medications, not many medications the patient was taking in general
 - medical-neurologic conditions
 - Charles bonnet syndrome: loss of vision leading to hallucination

HIGH DIFFERENTIALS

- Dementia – Lewy body (Fluctuating mental status specifically in attention and alertness can also be seen in LBD. Although not seen in our patient this could make it more difficult to differentiate delirium from LBD)
- Neurological condition associated with mold exposure
- Charles bonnet syndrome (information obtained for patient's last eye exam did not show significant impairment in vision)

It's important to not get tunnel vision because important information can be bypassed, and diagnoses missed

POLL QUESTION

- When suspecting Lewy body dementia in a patient, what is a potential historical observation or physical exam findings that would be pertinent and support your diagnosis of LBD?
- A. positive glabellar sign
- B. personality/behavioral changes
- C. Cogwheel rigidity
- D. muscle weakness/atrophy

Correct answer: C-parkinsonism are a cluster of physical exam findings that would help support your diagnosis of Lewy body dementia. Other physical exam findings can include tremors, falls, bradykinesias or a shuffling gait. This is because in LBD the depletion of dopamine occurs just like what occurs in Parkinson's disease which results in movement issues.

LEWY BODY DEMENTIA

- DLB is the second most common cause of dementia, accounting for 15% to 20% of all cases.
- Caused by build up of alpha-synuclein(AS)-positive inclusions in the brain
- Fluctuating cognition, visual hallucinations (sometimes the first symptom), and lowered attention span often precede memory loss; this contrasts with AD, in which prominent and progressive memory loss often precedes neuropsychiatric features.
- Patients with DLB may also demonstrate Parkinsonian-like symptoms.

LEWY BODY DEMENTIA DIAGNOSTIC CRITERIA

Central characteristic	Dementia with impairments in daily functioning (may have intact memory function at onset)
Core characteristics	Fluctuation cognition/attention and alertness Visual hallucinations Parkinsonism
Suggestive characteristics	REM sleep behavior disorder Neuroleptic sensitivity Reduced dopaminergic activity in the basal ganglia demonstrated by SPECT or PET imaging
Probable DLB	Central characteristic <u>and</u> At least 2 core characteristics or 1 core and 1 suggestive characteristic
Possible DLB	Central characteristic <u>and</u> 1 core characteristic or 1 or more suggestive characteristic
Supporting characteristics	Repeated falls or syncope, transient impairments in consciousness, autonomic dysfunction (i.e., in the form of orthostatic hypotension or urinary incontinence), hallucinations in nonvisual modalities, systematic delusions, depression, intact medial temporal lobe on anatomic imaging, reduced (particularly occipital lobe) metabolism on metabolic imaging (SPECT or PET), pathologic MIBG-SPECT scan of the myocardium, EEG showing slow activity with intermittent temporal sharp waves

Abbreviations: DLB, dementia with Lewy bodies; EEG, electroencephalogram; MIBG, [I-123] myocardial scintigraphy; PET, positron emission tomography; REM, rapid eye movement; SPECT, single photon emission computed tomography.

Source: Adapted from McKeith et al¹⁵.

COMPLICATION

- Unfortunately, but also fortunately our patient did not show any physical exam findings of parkinsonism and so our diagnosis could not be supported through parkinsonism physical exam findings .

ASSESSMENT AND PLAN

- Diagnosis: suspected Lewy body dementia without behavioral disturbances
- Plan
 - Moca
 - Neurology consult
 - OT/PT assessment
 - No antipsychotic to be prescribed

MOCA SCORE

- MOCA Score: 17/30 (highest level of education =high school)
- 18-25 = mild cognitive impairment
- 10-17= moderate cognitive impairment
- less than 10= severe cognitive

NEUROPSYCH CONSULT

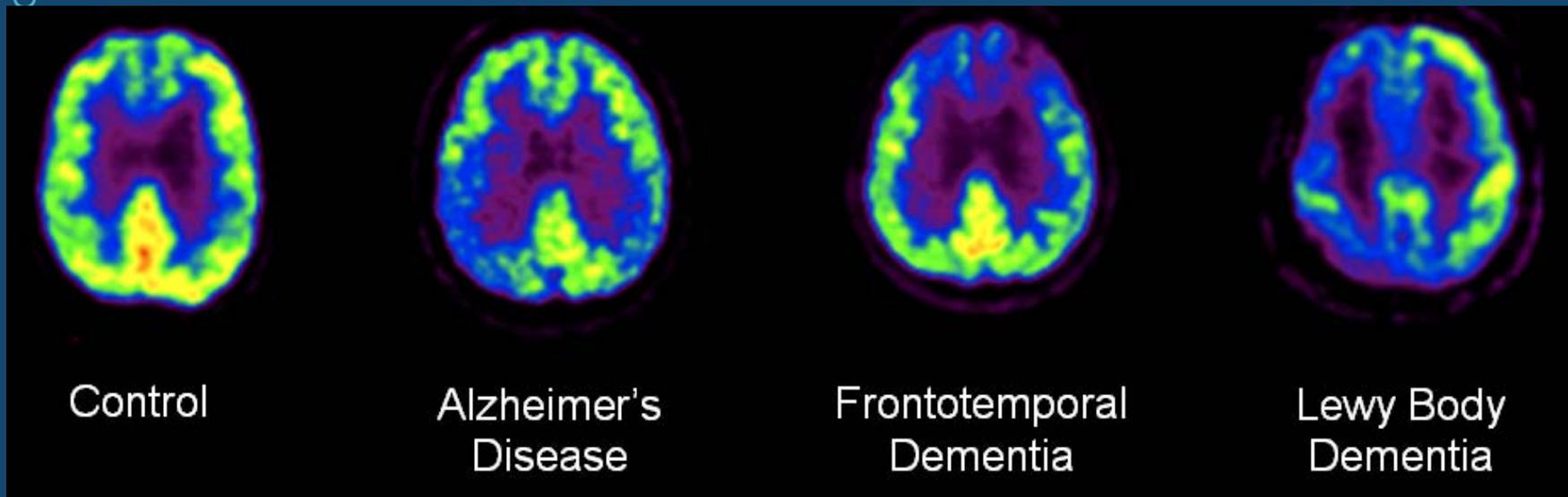
- Full evaluation completed
- Diagnosis: suspicion for Lewy Body Disease
- Recommended a FDG-PET (Fluorodeoxyglucose positron emission tomography) scan
- Recommended DAT (dopamine transport) scan

OT/PT ASSESSMENT

- OT/PT assessment was planned after patient's PET SCAN
- It was later discontinued after attempts were made by staff to assess the patient, but the patient had difficulty remaining awake throughout
- OT/PT consult was canceled just prior to patient's discharge

ROLE OF FDG-PET SCAN IN DEMENTIA

- FDG-PET has been shown to provide important prognostic information in dementia. A negative PET scan is indicative of unlikely progression of cognitive impairment for a mean follow-up of 3 years in those patients who initially present with cognitive symptoms of dementia
- The pattern of FDG metabolism in DLB differs from AD; in contrast to the classic appearance of bilateral temporal-parietal reductions in FDG metabolism with AD, DLB commonly appears as globally reduced cortical metabolism, most notably in the visual association cortex of the occipital lobe. The reduction in occipital glucose metabolism in DLB can differentiate DLB from AD with a sensitivity of 86% to 90%



Alzheimer's FDG-PET: bilateral temporal-parietal reductions in FDG metabolism

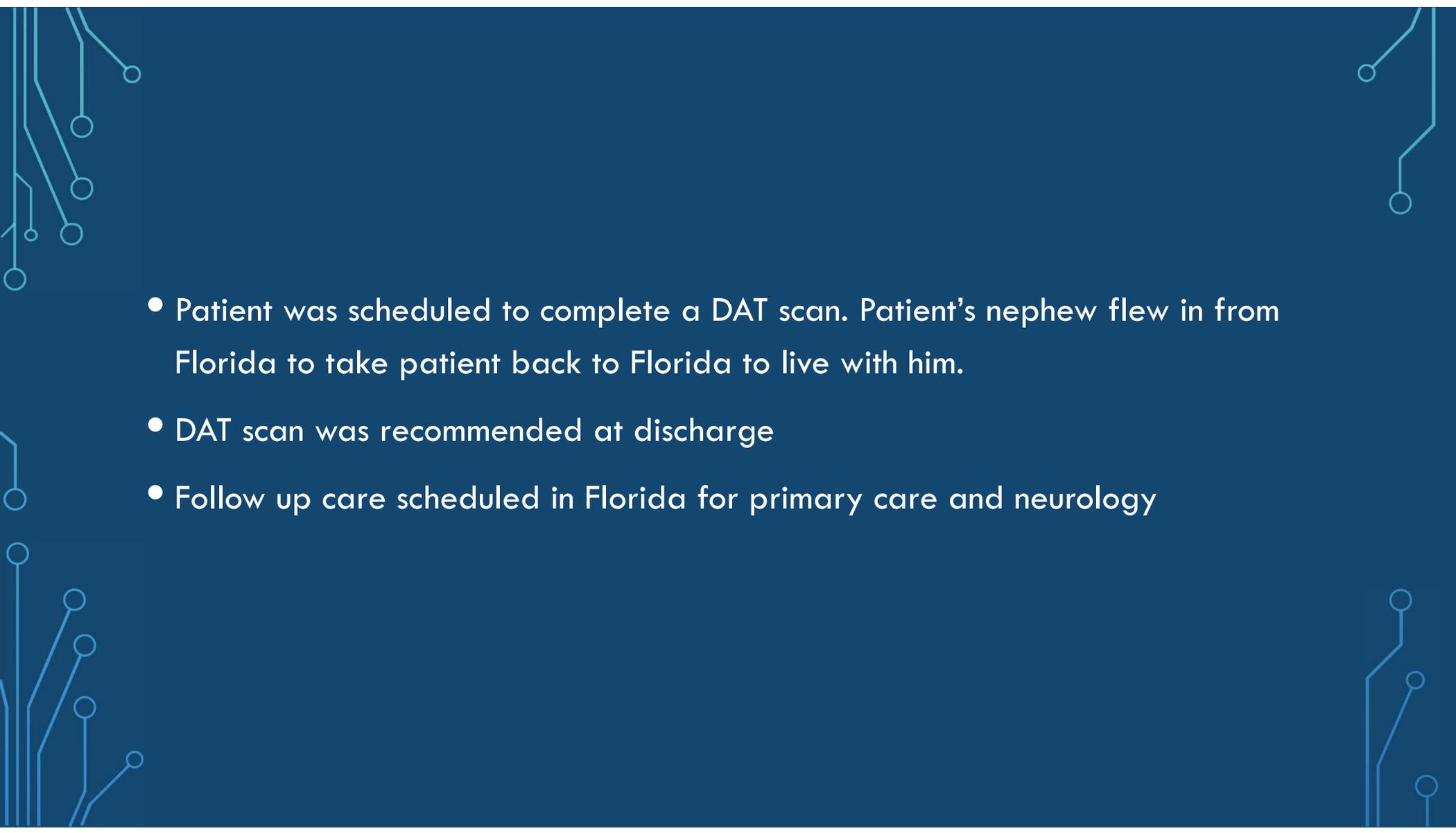
Lewy Body FDG PET: globally reduced cortical metabolism, most notably in the visual association cortex of the occipital lobe

PATIENT'S FDG-PET SCAN RESULTS

- Results: Normal FDG uptake throughout the brain without suggestion of Alzheimer type dementia
- Unfortunately, globally reduced cortical metabolism, most notably in the visual association cortex of the occipital lobe was also not shown

ROLE OF DAT SCAN IN DEMENTIA

- DatSCAN shows deficient dopaminergic presynaptic transport in substantia nigra and striatum. This finding is typical for Lewy body disease not for Alzheimer's disease. DatSCAN neuroimaging is a suitable method for differentiating Lewy body disease from Alzheimer's disease.

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- Patient was scheduled to complete a DAT scan. Patient's nephew flew in from Florida to take patient back to Florida to live with him.
 - DAT scan was recommended at discharge
 - Follow up care scheduled in Florida for primary care and neurology

WEIGHING THE RISK AND BENEFITS OF STARTING AN ANTIPSYCHOTIC IN THE ELDERLY

- Is the patient a danger to them selves or others
- How distressing are the hallucinations to the patient
- Are there behavioral disturbances ? How significant are they?
- Don't forget black box warning for psychotics in elderly
 - Increased risk for mortality in elderly patients with dementia-related psychosis

In this case no antipsychotics were prescribed because of the absence of the above and the risk associated with use in a patient suspected to have LBD

DISCUSSION AND QUESTIONS

- Could the mold have played a part in the patient's hallucinations?
- If the FGD-Pet scan did not show globally reduced cortical metabolism, most notably in the visual association cortex of the occipital lobe , could it still be Lewy Body? Was it just too early to show changes?

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