Breakout Session: Evaluation for FTLD

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Why is it so difficult to diagnose dementia due to frontotemporal lobar degeneration (FTLD)?

1. There are no tests (biomarkers) for FTLD in blood or other tissue
2. Many diseases can cause the same dementia- no one-to-one relationship between symptoms disease
3. To date, the only ***definitive*** test for presence of a particular disease is post mortem brain autopsy to show the specific cellular abnormality

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DEFINITIONS

1. **Frontotemporal Lobar Degeneration (FTLD)**

A group of diseases in the brain that cause neurodegeneration (loss of brain cells):

- Tauopathy (Pick's disease, corticobasal degeneration, progressive supranuclear palsy)
- TDP-43 proteinopathy
- FUS-opathy (rare)

2. **Frontotemporal Dementia (Disorder)**

The deterioration of personality and/or language and/or motor functions caused by FTLDs

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EVALUATIONS TO DEFINE THE DEMENTIA SYMPTOMS

Clinical Neuropsychology Evaluation: What abilities are abnormal and by how much ?	Cognitive Neurology Evaluation: What other motor and sensory symptoms are there? What do the medical tests mean?	Psychiatry Evaluation: Are symptoms psychiatric in nature? Can symptoms be controlled with medications?

PROCEDURES TO IDENTIFY THE DEMENTIA CAUSE

Blood Tests
Structural Neuroimaging (CT, MRI scans)
Functional Neuroimaging (FGD-PET scans)
Biomarker imaging (Amyoid PET, tau PET scans)
Electroencephalography (EEG)
Electromyography (EMG)
Cerebrospinal fluid analysis
Genetic tests

DIFFERENTIAL DIAGNOSIS
What is possibly causing the dementia ?

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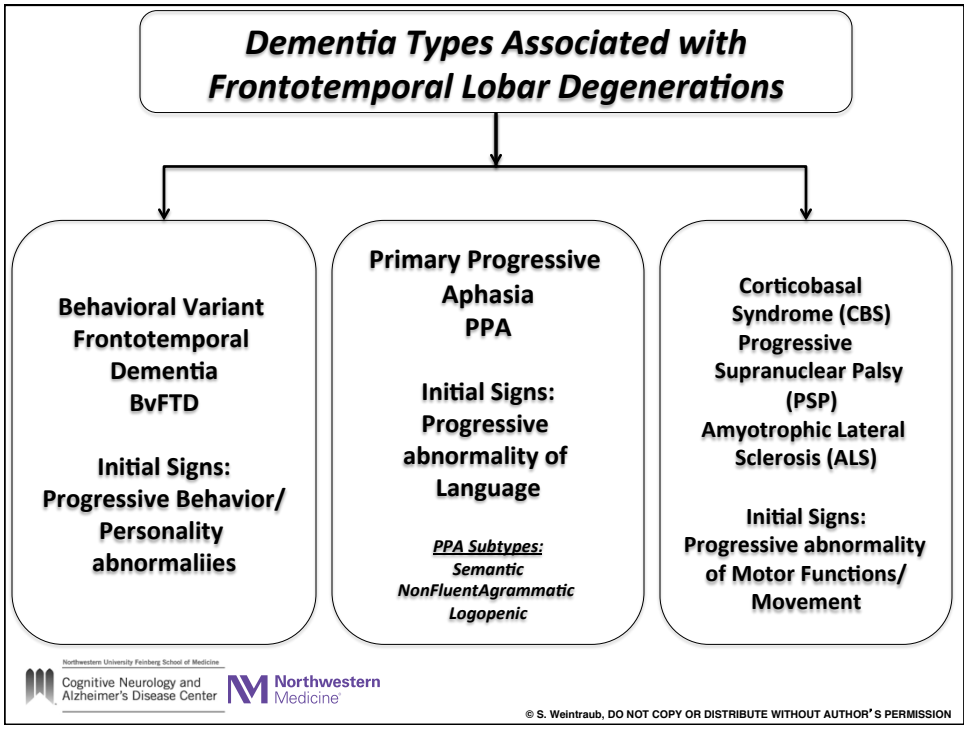

DEFINE THE DEMENTIA TYPE

1. Clinical Neuropsychological Evaluation

Clinical Neuropsychologist (PhD):

- Administers and interprets objective tests of thinking abilities and behavior in comparison to standards for age and education
  - Is there decline? How much?
  - *What is the dementia type (aphasia, memory, language?)*
  - Recommendations for care based on assessment

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DEFINE THE DEMENTIA TYPE

2. Cognitive Neurology Examination

Cognitive Neurologist (MD)

- Examines visual, auditory, somatosensory and motor symptoms to identify related neurological deficits
- Interprets findings of medical tests and combines them with results of neurological examination.
- Recommends medications, other treatment

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DEFINE THE DEMENTIA TYPE

3. Psychiatric Examination

- Psychiatrist (MD) clarifies the diagnosis of symptoms that can be psychiatric in origin (e.g., bvFTD symptoms are sometimes diagnosed as a "mid-life crisis.")
- Recommend medications to manage symptoms (e.g., depression, delusions, hallucinations, paranoia, obsessive compulsive behaviors, insomnia, agitation)

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IDENTIFY THE CAUSE OF THE DEMENTIA

4. Laboratory Tests:

- **Blood Tests:** are there abnormalities in the blood that can cause the brain to malfunction?
- **Structural Neuroimaging** (CT, MRI): Exclude other causes of dysfunction: strokes, brain tumors. FTLD is not visible but patterns of brain shrinkage (atrophy) can help diagnosis.
- **Functional Neuroimaging** (FGD-PET): measures brain activity/metabolism.
- **Biomarker imaging available for Alzheimer's disease:** Amyoid PET shows amyloid in the brain; tau PET is under development

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IDENTIFY THE CAUSE OF THE DEMENTIA

4. Laboratory Tests:

- Electroencephalography (EEG): exclude seizures as a cause a dementia. "Mad cow" disease is associated with a specific wave disturbance on EEG.
- Electromyography (EMG): detect abnormal electrical signals in the muscles associated with ALS (Lou Gehrig's disease)
- CSF tests to exclude infection, cancer, other; amyloid and tau test for Alzheimer's disease

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IDENTIFY THE CAUSE OF THE DEMENTIA

5. GENETICS/INHERITABILITY

- 30-50% report family history; the rest are "sporadic"

Genetic Mutations:

- MAPT, chromosome 17 (Tauopathy)
- GRN (progranulin) (TDP-43 proteinopathy)
- C9orf72(TDP-43 proteinopathy)
- TBK1, VCP, CHMP2B less common

Genetic Risk Factors

- TMEM106B

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A Case Example :

Sally was 48 when her family first noticed that she was behaving oddly.

- Obsessively talking about her mother who had been institutionalized when she was 16 and had died in her 60's.
- Brought to a psychiatrist who initially diagnosed depression due to the early loss of her mother.

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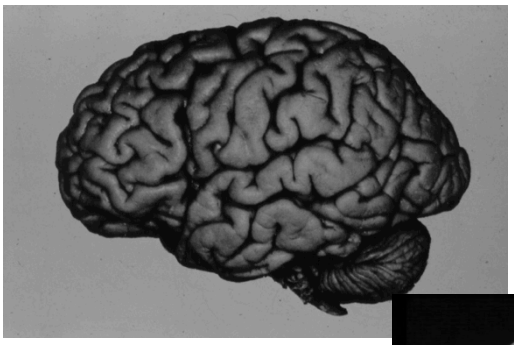
Symptoms progressed over the next 2 years:

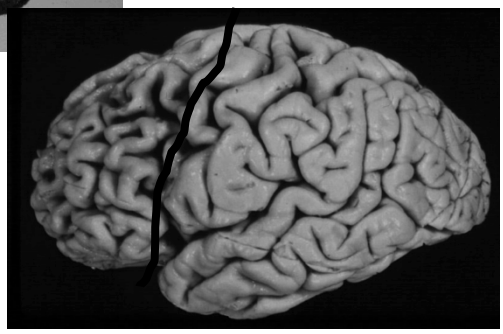
- Worked on assembly line and let items slip past without doing her job
- Started abusing alcohol and walking about town drunk (extremely uncharacteristic)
- Wasn't interested in her children and didn't talk to them when they came home from school (extremely uncharacteristic)
- Stopped managing usual household tasks

Neuropsychological assessment showed normal memory test scores! BUT

- Unable to focus her attention: got up from her chair often, without purpose, and wandered about the office
- Unable to reason about simple problems
- Diagnosed with bvFTD, predicted to be caused by one of the FTLDs

Behavioral Variant Frontotemporal Dementia (BvFTD)





Pathology:

NON ALZHEIMER-
"non specific" (1980)

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QUESTIONS & ANSWERS

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