Case 5: When amyloid imaging isn’t enough

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Speakers Bureau / Honoraria: None

Other: Travel, National Multiple Sclerosis Society
Clinical background

• A 73-year old cognitively normal, health woman presented for routine neuroimaging as part of an ongoing research study

• She had been a participant in longitudinal studies of memory and aging at our institution for 6 years, with serial imaging, CSF, and PET scans

• Clinical visit 12/2011:
  – Clinical dementia rating (CDR) 0.0, MMSE 26

• Imaging visits
  – 12/2012 MMSE 21
  – 9/2013 MMSE 14
  • Radiologist contacted to evaluate patient
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Longitudinal volumetric MRI results

Hippocampal Volume

Lat. Ventricle Volume

Normalized Volume (mm³)

Normalized Volume (mm³)

Age

Age

55 60 65 70 75

55 60 65 70 75
Liang, Refined Cortical Signature

Putative regions of cortical thinning in primary progressive aphasias

**RED** non-fluent progressive aphasia (NFPA)

**GREEN** semantic dementia (SD)

**BLUE** logopenic progressive aphasia (LPA)
Resting state fMRI language network
Clinical and CSF data

- **2007** clinical: MMSE 28, CDR 0, sum of boxes 0
- **2008** clinical: MMSE 25, CDR 0, sum of boxes 0.5 (judgment)
- **2008** CSF: Tau=410, p-Tau=58, AB42=372
- **2009** clinical: MMSE 29, CDR 0, sum of boxes 0
- **1/2011** clinical: MMSE 25, CDR 0, sum of boxes 0
- **2011** CSF: Tau=1604, p-Tau=22, AB42=307
- **12/2011** clinical: MMSE 26, CDR 0, sum of boxes 0
- **12/2012** MMSE 21 (at imaging)
- **1/2013** clinical: MMSE 19, CDR 0.5, Sum of boxes 1.0
- **9/2013** MMSE 14 (at imaging)
Clinical consensus conference

• 1/2013 Clinical Assessment
  – Recent initiation of Aricept by the primary physician
  – Difficult with spelling and names of things began 1 year ago, with progression the last 6-9 months to difficulty with common words
  – Language difficulties are worst during stressful situations.
  – No difficulty recalling recent events, keeping appointments, paying bills, or with visuospatial tasks.
  – No sleep, movement, or mood symptoms
  – CDR 0.5, primarily due to language
  – Clinical diagnosis: primary progressive aphasia
Primary progressive aphasia

• DDx
  – Alzheimer’s disease (AD)
  – Frontotemporal lobar degeneration (FTLD)
  – Corticobasal degeneration
• Disability isolated to language
• Subtypes
  – Nonfluent progressive aphasia
  – Semantic dementia
  – Logopenic progressive aphasia
• Associated pathologies
  – AD
  – FTLD
  – Tau
References


Research Imaging (KARI)

- **Faculty**
  - Beau Ances, MD, PhD
  - Dave Balota, PhD
  - Brian Gordon, PhD
  - Nupur Ghoshal, MD
  - Denise Head, PhD
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