An atypical language disorder as variant onset of Alzheimer's disease

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Introduction

Alzheimer's Disease (AD) is the most common neurodegenerative dementia in the elderly.
AD's clinical signature is a memory deficit of hippocampal type; however some atypical presentations, featuring early language, visuo-spatial or dysexecutive-behavioural aspects have been widely recognized, especially in not so aged individuals. Here we report on a peculiar progressive language disorder not completely satisfying any of the *Primary Progressive Aphasia (PPA)* criteria, probably due to AD pathology.

Presentation and history

Our patient is a 69-year-old woman who presented a language disorder insidiously started two years before, mainly characterized by anomia, circumlocutions, neologisms, *passepartout* words and phonemic paraphasias, with spared comprehension.
This clinical picture progressively worsened and episodic memory deficits, apathy, anhedonia and lack of insight appeared thereafter. The patient underwent a complete clinical, neuropsychological and instrumental evaluation at our ward including EEG, brain MRI, cerebral ^{18}FDG-PET and lumbar puncture with analysis of biomarkers of neurodegeneration (Aβ, tau and phospho-tau).

Neurological examination

Epstein sign

Neuropsychological profile

MMSE: 25.39/30; *FAB*: 14/18

Language assessment showed semantic more than phonological deficits, impaired written and oral naming, dyscalculia and impaired word-digit conversion. Repetition, as well as listening and reading comprehension were spared.

Labolatory values

TSH, FT3, FT4, Folic acid and B_{12}: normal
TPHA: negative

CSF analysis

Physical: clear and colorless; *Glucose:* normal
Protein: 46 mg/dl (20-50) ; *Cell count*: 1.2 cells/μl (0-3)
$Aβ_{42:}$ 399 pg/mL (>500)
Total Tau : 722 pg/mL (<500)
P181-Tau: 96 pg/mL (<61)

Neuroimaging

Brain MRI and cerebral ^{18}FDG-PET
(*see Figure 1 and 2*).

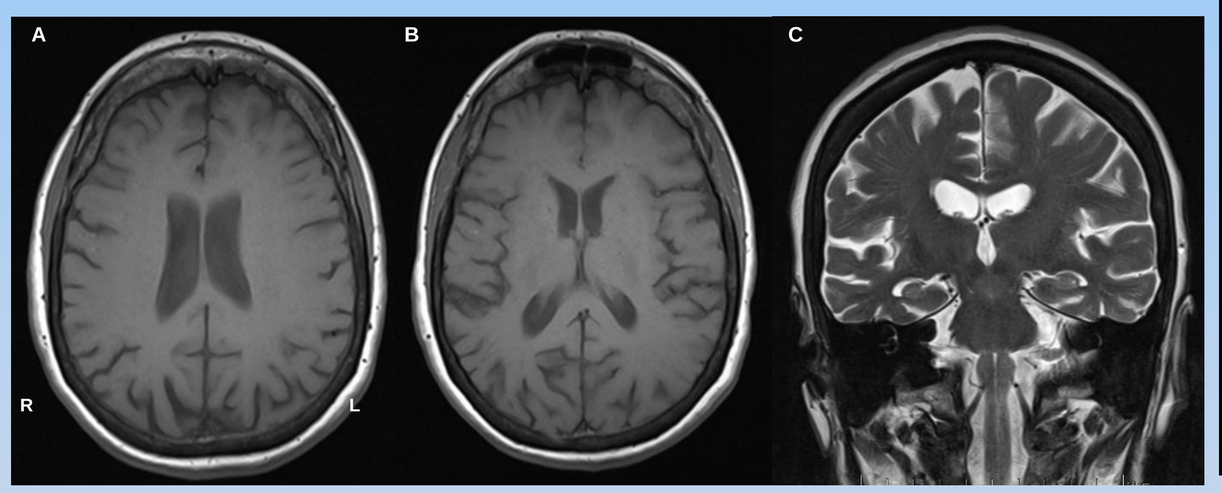

Figure 1. *Axial T1-weighted (A, B) and coronal T2-weighted (C) MRI images show asymmetric enlargement of the supratentorial ventricular system due to right prevalent cortical atrophy mainly involving occipital, parieto-occipital, lateral and medial temporal regions.*

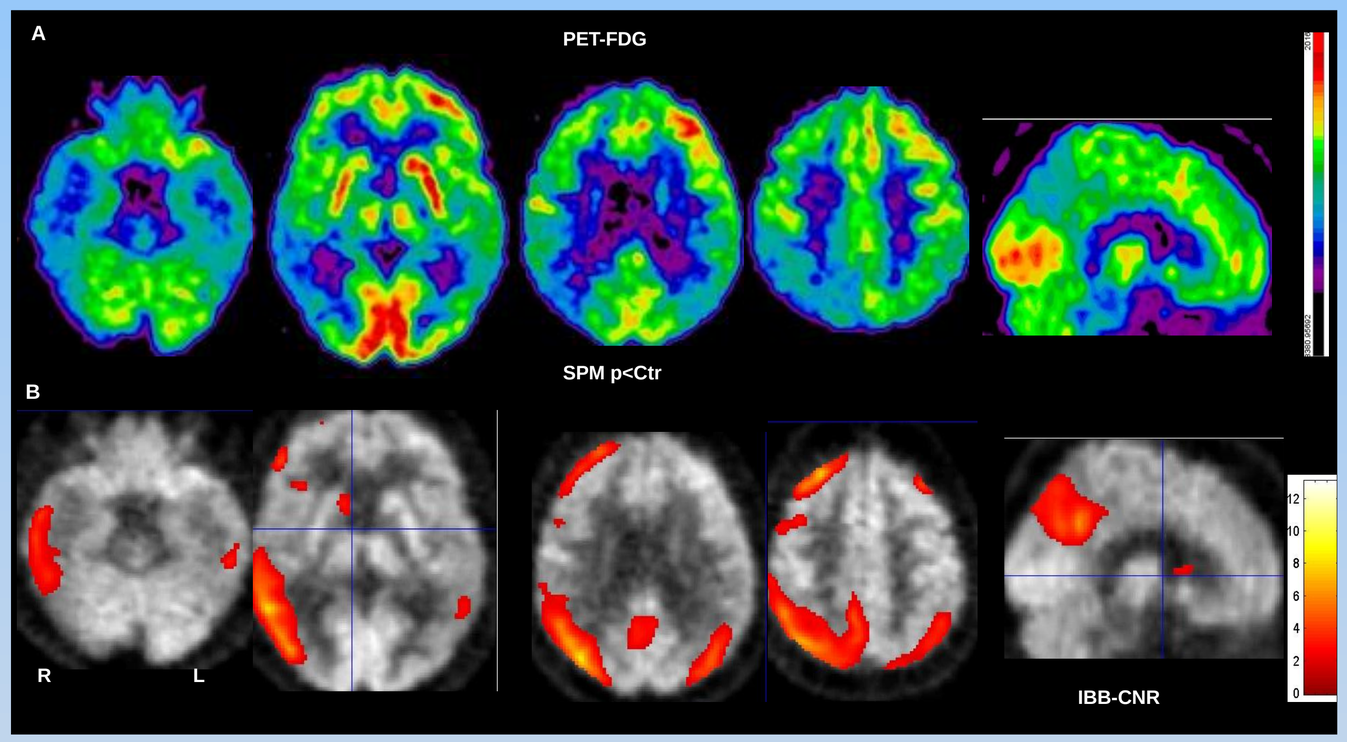

Figure 2. *A: PET scans (aquired 45-60 mins after ^{18}FDG injection) demonstrate reduction of relative glucose metabolism in temporal, temporo-parietal, parietal and, to a lesser extent, dorsolateral frontal cortex, more pronounced on the right side, where posterior cingulate and precuneus hypometabolism can be found too. B: SPM analysis, matched with control subjects, makes those alterations more evident.*

Discussion & Conclusions

PPA has been classified into three main variants: Progressive Non Fluent Aphasia (PNFA), Semantic Dementia (SD) and Logopenic-Phonological Aphasia (LPA). While it is evident that the first two entities are part of the Fronto-Temporal Lobar Degeneration (FTLD) spectrum, LPA has been recognized as an atypical AD variant, being usually associated with AD biomarkers and pathology. Our patient displays a language disorder with prevailing word-retrieval and naming defects, but the sparing of repetition doesn't allow a diagnosis of LPA. Neither SD can be the final diagnosis due to semantic deficits, as comprehension is largely unaffected. The pattern of glucose metabolism and CSF biomarkers are strongly evocative of AD. Thus we believe this case to be of particular interest as it broadens the spectrum of language disorders associated with AD, even in absence of left hemisphere prevalent alterations.

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