

Alzheimer's Disease

Differential Diagnosis

73-year-old male complains of increased memory loss since 2000, especially since retirement in 2004. Reports difficulty finding words and blocked train of thought. Has noticed his handwriting becoming smaller.

Neurological Exam and Findings

Patient walks with a stoop and a decreased swing of his right arm. No falling or problems with balance. Patient unable to spell backwards and recall three out of three words in five minutes. All blood work normal. MRI showed brain atrophy and non-specific chronic small vessel ischemic changes.

Recommendations

1. Neuropsychological testing
2. PET/CT Scan

Neuropsychological Exam and Conclusions

Mini-Mental Status Exam was 26: mild to moderate impairment. Low averages in all testing: memory, language, and executive functions. No symptoms of depression. Findings are consistent with a diagnosis of progressive dementia, probably of the Alzheimer's type. PET/CT scan ordered to confirm Alzheimer's diagnosis.

CLINICAL QUESTION

Is this more likely early Parkinsonism versus Parkinsonia plus syndrome? Can Alzheimer's Disease be ruled out?

PET/CT Findings – Multi-Infarct Dementia

Abnormal FDG uptake in the left lobe is present focally. Decreased activity is present in the left parietal, left frontal, left posterior parietal, and left temporal lobes. This pattern is

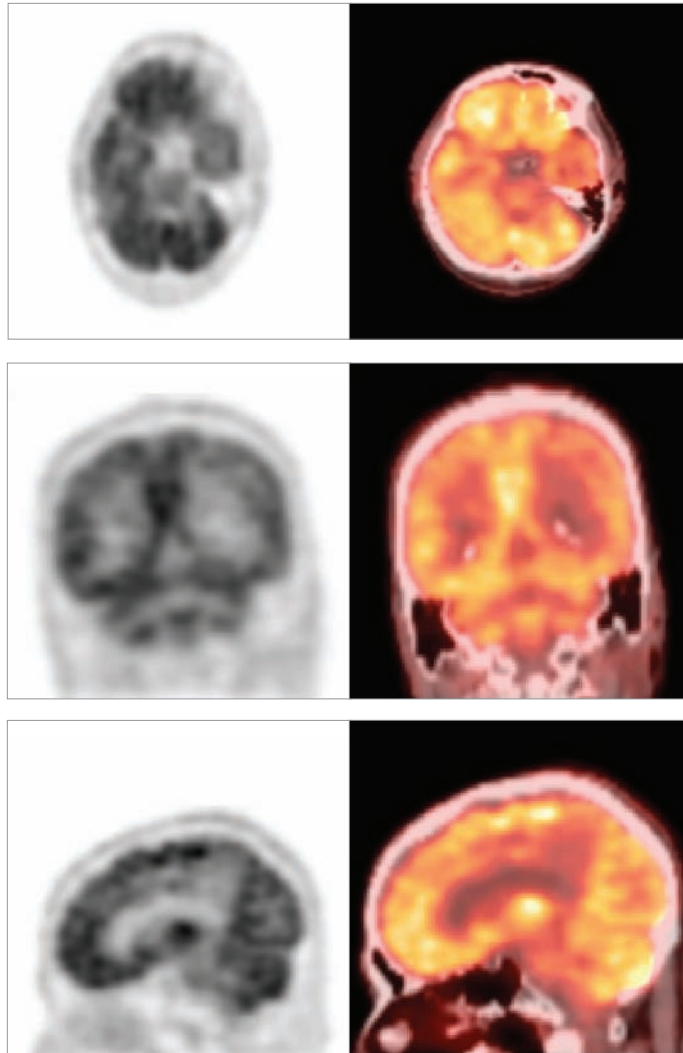


Fig. 1: PET scan of the brain.

Fig. 2: PET/CT scan demonstrating multi-infarct dementia.

not typical of Alzheimer's Disease, but rather suggestive of multi-vessel ischemia/infarct. The CT reveals some underlying areas of atrophy and no findings of edema.

PET/CT scan suggested multi-vessel ischemia/infarct, the patient instead was referred for further testing to find the extent of the multi-vessel disease.

PET IMPACT ON PATIENT MANAGEMENT

Without PET/CT, this patient would have received medication designed to treat Alzheimer's Disease, which would not have helped his prognosis. Because the



The Standard of Care.

Alzheimer's Disease

Positron Emission Tomography in Evaluation of Dementia

*Silverman et al. UCLA
JAMA
November, 2001*

284 patients in this study:

The results for sensitivity and specificity are as follows.

Progressive dementia detected by PET:

- ▲ Sensitivity: 93% (191/206)
- ▲ Specificity: 76% (59/78)

PET identified patients with AD:

- ▲ Sensitivity: 94% (91/97)
- ▲ Specificity: 73% (30/41)

"The use of FDG PET for evaluation of patients presenting with cognitive symptoms of dementia permits sensitive identification of future decline associated with Alzheimer's Disease and other neurodegenerative disease. A negative PET scan indicated that pathologic progression of cognitive impairment during the mean 3-year follow-up was unlikely to occur."

One of the nation's leading providers of PET and PET/CT services, Integral PET is committed to delivering a superior level of patient care and service to physicians, and to advancing the science of PET through partnerships with leading medical and educational institutions.



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