

Structural and Functional Images in Semantic Dementia

Yi-Chien Liu¹, Yu-Ming Fan^{2,3}, and Ping-Keung Yip^{1,3}

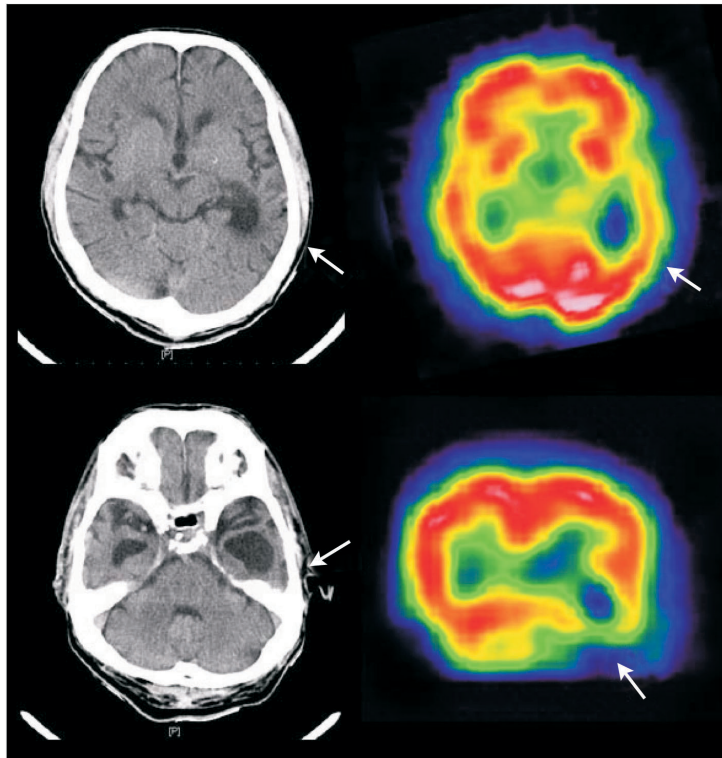


Figure. Axial CT images show relatively intact left anterior temporal lobe and significant atrophy of the left posterior temporal lobe (the arrows). [Tc99m] ECD (ethylene cysteinyl dimer) cerebral perfusion scan also reveal decreased perfusion of the left posterior temporal lobe (the arrows).

This 60-year-old man has gradually lost the ability of understanding spoken language for 2 years. He could speak only a few stereotypical sentences with empty contents and was nearly “word deaf” in speech comprehension when he visited our clinic. According to his family, he could still speak fluently even when he was

already unable to read newspaper. He still functions normally otherwise at home and is able to use objects correctly despite being unable to name them. Neurological examination revealed no other abnormalities. The result of a formal general cognitive test, CASI (cognitive abilities screening instrument), is 4/100. Other higher corti-

From the ¹The Neurological Center, Cardinal Tien Hospital, Taipei, Taiwan; ²Department of Nuclear Medicine, Cardinal Tien Hospital, Taipei, Taiwan; ³School of Medicine, Fu-Jen Catholic University, Taiwan.

Received September 30, 2008. Revised October 18, 2008.

Accepted October 23, 2008.

Reprint requests and correspondence to: Yi-Chien Liu, MD, The Neurological Center, Cardinal Tien Hospital, Taipei, Taiwan.

E-mail: mikgen@gmail.com

cal function tests showed preservation in simple calculation as well as in recognition of random words. Brain CT showed atrophy of left posterior temporal lobe with secondary dilation of the temporal horn of the lateral ventricle on the left side. SPECT also showed hypoperfusion confined to the same region.

Semantic dementia (SD) is regarded as one of the main clinical variants of frontotemporal dementia, sometimes also referred to as frontotemporal lobar degeneration⁽¹⁾. SD is commonly described as a disorder of “loss of memory for words”. In contrast to Alzheimer’s disease, orientation to time, simple calculation and drawing skills are all well preserved in SD. Patients with early-stage SD usually show bilateral, though typically asymmetrical, atrophy of the anterior temporal lobes. As the disease progresses, the degeneration extends either to the posterior temporal lobes or posterior-inferior frontal lobes, or both⁽²⁾. However, the anterior temporal lobe is relatively preserved in our patient. Whether semantic

dementia should be viewed as a disorder involving one neurocognitive network (semantics) or two (language and semantics) is still a controversial issue. Current longitudinal studies indicate that the nature of the cognitive deficits in SD is dependent entirely on the location of cortical damage which tends to vary over time among different patients⁽³⁾.

References:

1. Neary D, Snowden JS, Gustafson L, et al. Frontotemporal lobar degeneration: a consensus on clinical diagnostic criteria. *Neurology* 1998;51:1546-54.
2. Hodges JR, Patterson K. Semantic dementia: a unique clinicopathological syndrome. *Lancet Neurol* 2007;6:1004-14.
3. Bright P, Moss HE, Stamatakis EA, et al. Longitudinal studies of semantic dementia: the relationship between structural and functional changes over time. *Neuropsychologia* 2008;46:2177-88.