

NON-THALAMIC Subcortical APHASIA Due TO Left Centrum Semiovalis AND BASAL GANGLIA Infarct

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Abstract: Recently, some theoretical issues have been raised regarding the language functions of subcortical structures such as globus pallidus and thalamus. A variety of fluent and nonfluent aphasias have been reported after left basal ganglia stroke. We report the case of a 59-year-old right handed, quadrilingual man (his languages consisted of Persian, French, English ,Hebrew) with right hemiplegia, recovered mild dysarthria and no verbal apraxia, who 22 months post-onset of his CVA showed a nonfluent aphasia with moderate anomia. Regarding his quadrilinguality we should mention that his first language was Persian until adulthood. English and French were learnt formally at youth and were mastered gradually during the patient's business travels to Europe and USA. He learned Hebrew just as his religious language, not at his natural communicative settings through childhood. The patient reported that after stroke he had difficulty communicating in all languages but received speech therapy only in Persian. The patient became aphasic suddenly upon a discrete infarction in the left centrum semiovalis and basal ganglia as revealed by MRI. His cognitive status on Persian version of Mini-Mental State Examination (MMSE) was nearly normal (score=25) at 22 months post-onset time. Examining his language functions using Persian version of Boston diagnostic aphasia examination(BDAE), Boston naming test(BNT) and Persian version of Bilingual aphasia test(BAT)(parts A & B) revealed a mild-to-moderate Broca-type aphasia which was characterized by fairly well performance in tasks of verbal auditory discrimination, auditory and reading comprehension, verbal and nonverbal fluency, oral reading ,letter and word dictation, lexical decision and repetition. Nevertheless the patient showed some deficits in auditory and reading comprehension of slightly complex sentences. Concerning semantic abilities, the patient demonstrated little difficulty in judging semantic categories, synonyms, antonyms and producing word antonyms. Yet, on oral confrontation naming task, the participant's errors based on Kohn and Goodglass (1985) naming error categorization were as follows: no response, negated responses which comprised negation of semantic paraphasias (for example for "bed", the patient said, "chair, no it is not a chair"), semantic paraphasias and circumlocutions. The anomia in his spontaneous speech was evidenced by slow rate, frequent filled pauses (e.g., "e" "um"), repetitions and reformulations .Seemingly, this case is consistent with Crosson (1985), Wallesch (1997,1999) who considered a possible neuroregulatory or neuromodulatory linguistic role for subcortical structures via a cortico-striato-pallido-thalamocortical loop. They hypothesized that the basal ganglia system and thalamus might influence language output and damage to these systems may result in fluent or nonfluent aphasia with erroneous responses predominated by semantic paraphasia.This case report seems to approve this assumption because a brain damage confined to subcortical areas resulted in language impairments with semantic paraphasia.

Learning outcomes: the participant will be able to: 1. understand the role of subcortical areas such as basal ganglia in language processing; 2. Know the symptoms of subcortical aphasia; 3. Define naming errors following subcortical aphasia representative of underlying deficit