

# Fluent Aphasia From Herpes Simplex Encephalitis

Fariba Yadegari , MS

Speech Therapy Department  
University of Social Welfare & Rehabilitation Sciences, Tehran - Iran

## Abstract

The present case report introduces a patient with fluent aphasia , anterograde amnesia and anosmia due to herpes simplex encephalitis after her first delivery. The left medial temporal lobe was one of the main areas involved . On aphasia testing she showed severe anomia on both confrontation and free recall, agraphia , alexia , repetition disorder and some auditory comprehension impairments.

Therapy was focused on the following issues : phonological output lexicon , using graphemes as a source of reestablishing phonological representation ; describing pictures to reinforce free recall and self - cuing word retrieval strategies ; sequencing the events for language memory reinforcement , etc. Results showed improvement in confrontational naming , free recall , correct responses without priming , writing on dictation , spontaneous writing and reading comprehension .

### Key words :

Fluent aphasia , anomia , herpes simplex encephalitis .

## Introduction

Herpes Simplex Encephalitis ( HSE ) is a rare neurological condition characterized by inflammation of the brain . HSE is the most common cause of sporadic lethal encephalitis occurring in about 1 person per 250 , 000 - 500,000 population per year in the US (1) . The most common symptoms include headache and fever , seizures , aphasia , memory loss and paresthesia . Whitley , et al ( 1982 ) collected data from 113 patients in whom the diagnosis was proved by viral isolation . The patients had behavioral changes , fever , confusion , speech disturbances and less frequently , seizures (2) . Ku, Lachmaun and Nagler ( 1996 ) reported a case of 16 year - old right handed chinese - English bilingual patient who developed HSE involving the left temporal lobe with an aphasia . The aphasia was much more prominent in his English in comparison to his native language . After intensive bilingual speech therapy he recovered his aphasia in English (3) .

Hippocampus is one of the regions usually cited to be damaged selectively from HSE which result in amnesia , but

here is an argue that HSE brain damage may sometimes be limited to Hippocampus and in other patients may disturb a large area of medial temporal lobe (4) . So we can not consider an etiology - specific brain damage from HSE . The patient presented here suffers from a brain damage including mainly the left medial temporal lobe. She had developed an anterograde amnesia , fluent aphasia and anosmia . The therapy method which was based theoretically on phonological treatment as should be , which is cited by Howard et al ( 1985 ) , is discussed .

### **Case Characteristics**

The patient ( A. N. H ) was a 27 years old, right handed Farsi speaking woman . She was married , had diploma and worked as an accountant . She was attacked by a sudden convulsion with severe fever, delirium and disorientation , 40 days after her first delivery . The results of MRI showed abnormal changes in basal ganglia , left thalamus , left temporal lobe , left inferior frontal lobe and involvement of both gray and white matter . The second MRI ( 7 days later ) showed evidences of abnormal signals in left temporal lobe, left opercular area and Insula . She was an in - patient for 18 days at ICU with the diagnosis of Herpes Simplex Encephalitis . She was mute for 22 days . The patient had NG tube for 21 days and had regular intake of anticonvulsant drugs. Two months after the accident an EEG was performed

which showed a moderately abnormal multifocal discharges . An EEG , 15 days later showed no definite epileptic activity , but altered sleep waves and brief runs of slowing .

A. N. H was referred for speech therapy at Saba Rehabilitation Centre 1 year and 7 months later . In history taking and clinical examination it was revealed that she had lost her smell ( anosmia ) . Also recall of the events occurred after brain damage was exactly deficient and recent information storage was problematic (anterograde amnesia) , also longterm memory of premorbid events was somewhat disordered (Retrograde amnesia) . Farsi Aphasia Test (Nilipour , 1994 ) and Farsi Aphasia Naming Test (Nilipour , 2004 ) were administered (5, 6) . Results of the assessment are shown on figures 1 and 2. As is seen on figure 1 the speech was quite fluent with good type/ token ratio scores . Auditory comprehension was moderately impaired and when it was dependent to nouns , the disorder was more severe . Poor automatic speech and repetition was evident . Although both confrontational naming and word generativity were severely disordered but verbs were retrieved much better than nouns . Letter recognition was intact but word reading and reading comprehension were impaired . Writing by copy was good but writing on dictation for letters , words and sentences was the most difficult task for her . Spontaneous writing was also highly affected . On Naming Test it was revealed that

semantic system is fairly intact as the semantic priming applied by herself had no effect on word retrieval . When the patient did not remember the phonological form of the word , even greatest phonemic aids could not help on her word representation .

Figure 1 : Profile of Farsi aphasia test

4	4	10	
3	1	3.3	
10	5	5	
10	2	2	
10	1	2	
10	2	1	
25	9	3.8	
5	0	0	
10	0	0	
10	10	10	
8	6	7.5	
10	0	0	
10	0	0	
5	5	10	
10	0	0	
5	0	0	
	0	0	

(Nilipour , 1994 )

Kind of response	Number of responses	Score on the basis of 10	profile
Correct responses without priming	10	2	
Correct responses with semantic priming	1	0.2	
Correct responses with phonemic priming	21	4	
Wrong responses	3	0.6	
Without response	17	3.2	

### Therapy method

We saw A.N.H for one hour sessions twice a week for 9 months. The therapy was focused on reestablishing phonological word representations . It seemed that the main deficit of naming was in phonological output lexicon . The patient's attempts of words either spoken or written was led to jargon productions , although she knew the concept and could circumlocute about it , sometimes her amnesia influenced the auditory comprehension tasks and deteriorated the phonological input lexicon, though test proved it to be fairly intact. For example , when asked , " Do you like carrot ? " she answered , " what is carrot ? I don't know it , I cannot remember " . After explaining and drawing the picture , she would say " , Oh, yes . I rememberd , I use it for cooking and salad . " While phonological priming even offering the whole word could not help for word retrieval , we found that the letters and graphemes are good way of facilitating phonology . So we decided to achieve phonology through grapheme - phoneme representation. We wrote a letter and asked for its name . When the patient pronounced it correctly , we asked for a word which was initiated with that letter . Also we applied key word approach for writing and reading , which worked out well . The other methods we employed were describing the action pictures

focusing on nouns ; trying to find words by writing , semantic priming , gestures and so on ; job procedures discourse ( for sequencing and rcalling ) ; and cook instructions ( she had forgotten cooking ).

### **Results :**

The results of our therapy are summarized as follows : On Naming Test, correct responses without priming 12% improved , wrong responses 18% increased ( possibly due to increasing the patients self - confidence to response) and without any responses 20% decreased. On Aphasia Test, confrontation naming 28%, free recall 20% , reading single words 20% and picture - word matching 70% improved . We also tried to reinforce her smelling by introducing sharply differentiated smells to be discriminated by her on several sessions with no progress.

At present she is using speech efficiently with better self - confidence but there are still some errors and word retrieval difficulties which is much influenced by listeners stressors . She is preparing herself as mother of a preschool child to become so skilled in reading , writing and speaking that could help for future school homeworks of her child .

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