

Broca's Aphasia Caused by Hemorrhagic Stroke in a Young Patient: A Case Report

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Abstract

Broca aphasia is a non-fluent aphasia in which spontaneous speech output is markedly diminished, and normal grammatical structure is lost. We report a case of aphasia presenting different features of aphasia following cerebral hemorrhage in the left frontoparietal lobe, which includes Broca's area. A 25-year-old man presented to our emergency department with a headache, Broca aphasia, and difficulty in vision that started two days ago. Bilateral hemorrhagic areas were seen in dilated fundus examination. A CT scan was performed and showed multiple intracranial hemorrhages. Although stroke is considered a disease of the elderly, it can also be present among young people. An underlying malignancy may be the trigger for hemorrhagic ischemia. Injury to the frontal regions of the left hemisphere impacts how words are strung together to form complete sentences. This can lead to Broca's Aphasia.

Keywords: Broca's aphasia, Stroke, Hemorrhage

Introduction

Stroke is an acute neurological condition resulting from impaired cerebral perfusion due to ischemia (ischemic strokes) or bleeding (hemorrhagic strokes). Hemorrhagic strokes are further classified as intracerebral or subarachnoid. Clinically, strokes are characterized by acute-onset focal neurological deficits, including hemiparesis, paresthesia, and hemianopsia. Systemic hypertension and other cardiovascular diseases are common risk factors for both ischemic and hemorrhagic strokes. Age is the most important non-modifiable risk factor for both ischemic and hemorrhagic strokes, and arterial hypertension is the most important modifiable risk factor. (1).

Broca aphasia is a non-fluent aphasia in which the output of spontaneous speech is markedly diminished, and there is a loss of normal grammatical structure. The most common cause of Broca aphasia is a stroke involving the dominant inferior frontal lobe or Broca area (2). We report a case of aphasia presenting different features of aphasia following cerebral hemorrhage in the left frontoparietal lobe, which includes Broca's area.

Case report

A 25-year-old man presented to our emergency department with a headache, Broca aphasia, and difficulty in vision that

started two days ago. The patient stated to have blurry eyes in the morning for a month. However, aphasia had just started before he came to the Emergency room. The patient has had no known past medical history and no medication use. The general situation was bad. Glasgow was 10. He was conscious but was disoriented and non-cooperated, with no verbal response. Blood pressure was 149/82, Pulse was 113, spO2 was 95%, and body temperature was 36 °C. Ophthalmologic examination showed that visual acuity of the right eye was 2 MPS, 0.1 MPS of the left eye. Intraocular pressures were normal bilaterally. DIIIR +/+, no RAPD. Movements of globes were normal and without pain. (Figure 1). Bilateral corneas were lucent, and the anterior chambers were quiet. Bilateral hemorrhagic areas were

Hb (g/dL)	7.7	AST (U/L)	72
WBC ($\times 10^3/\mu\text{L}$)	532	ALT (U/L)	46
Neutrophils (%)	8.27	LDH (U/L)	1968
Monocytes (%)	305	CRP	28
Lymphocytes (%)	216	Blood culture	Staph. epidermidis
Eosinophils (%)	0.07		Micrococcus luteus
Basophils (%)	0.3	D dimer	31540
PLTS ($\times 10^3/\mu\text{L}$)	45	Thrombocytes	45
Prothrombin (s)	>180	Hemoglobin	7.7
INR	>20		

Figure 1: Lab results

seen in dilated fundus examination. A CT scan was performed and showed multiple intracranial hemorrhages. Hematomas were recognized in the left frontoparietal, left internal capsule, anterior corpus callosum, and the left temporal area. According to the patient’s clinical course, the evaluation of the CT scan, low platelet, and increased INR value, surgical procedures were not considered by neurosurgery. The patient was followed in ICU for a while (Figure 2,3).

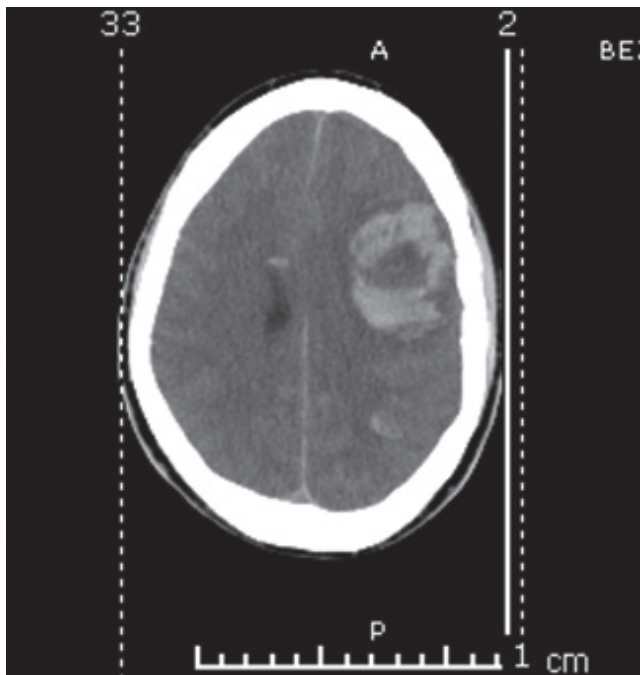


Figure 2: Tomographic image

Conclusion

Although stroke is considered a disease of the elderly, it can also be present among young people. An underlying malignancy may be the trigger for hemorrhagic ischemia. Injury to the frontal regions of the left hemisphere impacts

how words are strung together to form complete sentences. This can lead to Broca’s Aphasia. As a result of a lesion in the Broca area, there is a breakdown between one’s thoughts and one’s language abilities. Thus, patients often feel that they know what they wish to say but cannot produce the words. They cannot translate their mental images and representations into words. People with Broca’s aphasia have damage that primarily affects the brain’s frontal lobe. They often have right-sided weakness or paralysis of the arm and leg because the frontal lobe is also important for motor movements. Stroke is the most common cause of aphasia. When either ischemic or hemorrhagic stroke results in brain tissue damage in areas of the brain that are particularly important to speech and language, a person may develop aphasia (3,4). For most people, these areas are on the left side of the brain, although the right side of the brain is also involved in aspects of speech and language production. Depending on the size of brain tissue damaged during stroke, the loss of speech and language abilities may be temporary or long-term. The size of brain damage also affects how quickly and successfully a person can improve with speech therapy.

References

1. Shiber JR, Fontane E, Adewale A. Stroke registry: hemorrhagic vs ischemic strokes. *Am J Emerg Med.* 2010 Mar;28(3):331-3. doi: 10.1016/j.ajem.2008.10.026.
2. Pearce JM. Broca’s aphasics. *Eur Neurol.* 2009;61(3):183-9. doi: 10.1159/000189272.
3. Ochfeld E, Newhart M, Molitoris J, Leigh R, Cloutman L, Davis C, Crinion J, Hillis AE. Ischemia in broca area is associated with broca aphasia more reliably in acute than in chronic stroke. *Stroke.* 2010 Feb;41(2):325-30.
4. Hiraoka C, Maeshima S, Osawa A, Kanai N, Kohyama S, Yamane F, Ishihara S. Different types of aphasia caused by cerebral hemorrhage in the left frontal lobe: Broca’s aphasia and Broca area’s aphasia. *No Shinkei Geka.* 2009 Oct;37(10):987-93.

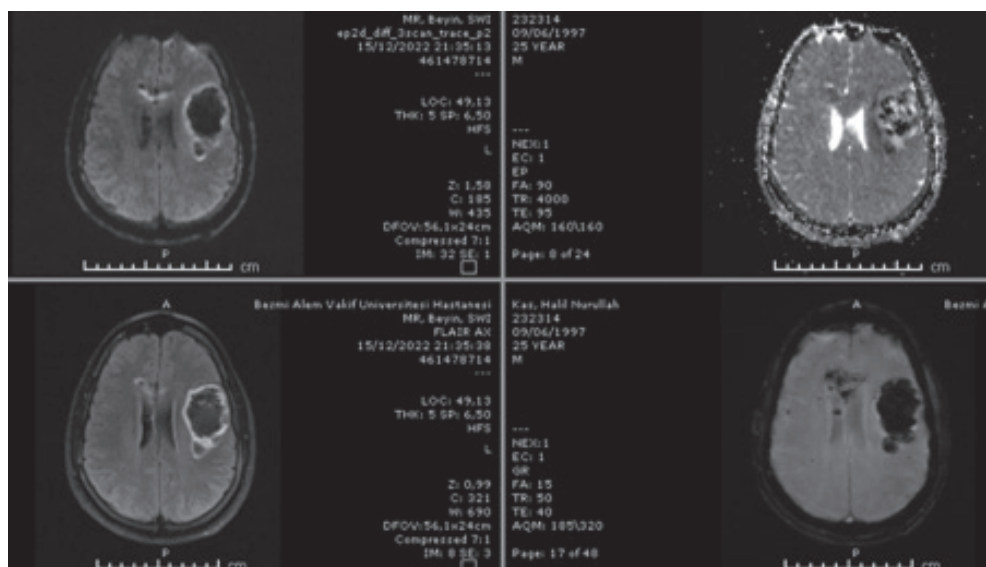


Figure 3: Diffusion MR image