

Differentiating Psychosis versus Fluent Aphasia

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Abstract

Following a stroke, a patient may present with varying degrees of neurological impairment, depending on the area of the brain which is damaged. Specifically, damage to the left cortical hemisphere may result in aphasia. The characteristic speech in a patient with an aphasia caused by a stroke can be similar to the speech in some patients with schizophrenia or other psychotic disorders. In a new patient without a reliable history who presents with suspected aphasia, it is important to include psychotic disorders as part of the differential diagnosis. Failure to differentiate psychotic disorders from aphasia could result in either a lack of treatment that would improve the patient's thought process, thought content, or language, or in a delayed treatment for a stroke, respectively. While a number of psychotic disorders exist and must be differentiated from one another in accordance with *DSM-IV* guidelines, speech abnormalities in patients with schizophrenia are well described in the literature. For this reason, schizophrenia is the psychotic disorder of focus in this paper. This case report illustrates a clinical situation where a patient required both a psychiatric and neurological consultation in order to determine the etiology of his language disorder. The purpose of this paper is to emphasize the need to consider both psychiatric disorders and aphasia in patients with unknown histories who present with language abnormalities, and to help the clinician critically examine the patient's speech so that, in conjunction with other clinical data, the correct diagnosis can be made and appropriate treatment initiated.

Key Words: Psychosis, Schizophrenia, Cardiovascular Disease, Aphasia, Speech

Introduction

In patients with language impairment presenting without an available medical and psychiatric history, the task of determining whether the language impairment has a psychiatric or neurological etiology is crucial. As such, a neurological examination with possible imaging and a psychiatric evaluation to assess for the presence of positive and/or nega-

tive symptoms as described by the *DSM-IV* are warranted in conjunction with a careful analysis of the language itself. It is important to differentiate psychotic symptoms from aphasia, since the treatment for each is vastly different, and failure to treat the patient properly may have devastating long-term effects.

Following a stroke, a patient may present with varying degrees of neurological impairment depending on the area of the brain damaged. Damage to the left cortical hemisphere may result in an impairment of previously normal language skills (1). Damage to specific language areas often results in distinctive types of aphasia (2). Though there are many types of aphasia, aphasia discussed during this case report will refer only to fluent aphasia.

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Several authors note that the speech of some patients with schizophrenia can be difficult to differentiate from the speech of patients with fluent aphasia (3-5). In fact, the speech in both disorders has been described in the literature as “word salad,” or speech consisting of meaningless and unrelated words (1, 6). Still, Faber et al. and Gerson et al. could differentiate between these two groups despite some overlapping characteristics (3, 7). The following case report illustrates a situation where a patient required both a psychiatric and neurological workup in order to determine the etiology of his language disorder.

Case Report

The patient, a 54-year-old Caucasian male, was dropped off at the hospital by his girlfriend following an intentional overdose of antihypertensive medication and aspirin. Upon arrival, the patient had a heart rate of 45, a respiratory rate of 18, and a blood pressure of 94/55. Aggressive treatment was required to maintain perfusion. In the emergency department, he was initially drowsy but alert, saying “I want to die” and “just let me go.” The patient was able to move all extremities and follow commands, but displayed slurred speech. Within hours of his initial assessment, the patient became lethargic and required intubation. The patient remained in the ICU for the next twenty days and was managed on a ventilator. His psychiatric history and baseline function were unknown, as attempts to contact reliable family members proved unsuccessful during the first several weeks of hospitalization. When temporarily weaned from the ventilator, he communicated poorly with the house staff, making it difficult to assess his mental status.

The following case report illustrates a situation where a patient required both a psychiatric and neurological workup in order to determine the etiology of his language disorder.

After the patient was extubated on hospital day 21, he was transferred from the ICU to the medicine floor. The primary team noted that his speech was still disorganized and could be consistent with a psychotic disorder, so the psychiatry team was consulted to further assess the patient to see if he met *DSM-IV* criteria for a psychotic disorder. As of day 30, the patient was alert but still not oriented to person, place, situation or time. His consciousness and mentation did not fluctuate throughout the day, thus making the

psychiatry team feel that his symptoms were not related to a delirium. While he displayed appropriate gestures and facial expressions, his verbal responses were inappropriate. When asked his name, the patient stated, “. . . in that regard, I’m on the fifth day of the ninth day.” When asked about his mood, he stated, “fifth day,” showing perseveration. He was unable to repeat questions that were asked. His speech consisted mostly of neologisms, word salad, and word substitutions. His thought content did not reveal any hallucinations or delusions, though his thought processes were nonlogical with loosening of associations. Around this time, a neurology consultation was prompted when a reliable family member was contacted who reported that the patient did not have a history of psychosis. Physical exams performed by the neurology team revealed difficulty during normal and tandem gait without any other focal neurological deficits. A CT scan of the brain without contrast was obtained, which revealed evidence of a subacute stroke with hemorrhagic conversion in the distribution of the left middle cerebral artery, as well as involuntal changes of the brain cortex. These findings were consistent with anoxic brain injury secondary to drug overdose.

On hospital day 32, the patient showed some improvement in orientation, speech, and mentation. He was able to say hello and when asked how he was doing, he responded “good, how are you?” Despite these improvements, the patient continued to use neologisms and word substitutions, was unable to repeat phrases, and had difficulty following simple commands. When asked to raise his arms, the patient raised his legs. However, when the interviewer raised his own arms while asking the patient to raise his arms, the patient complied. The patient continued to improve until his discharge on day 37. By discharge, he was fully oriented, his speech had dramatically improved, and he was able to perform complex tasks such as picking up a phone, dialing, and having a conversation.

Discussion

The language areas of the brain are supplied by the left middle cerebral artery and are often classified according to their functional roles in language (1). The receptive language areas are those involved in the hearing and comprehension of language and include, among others, Wernicke’s Area located in the superior temporal gyrus (1). Damage to the superior temporal gyrus can occur following a stroke and results in fluent aphasia (1). Patients with fluent aphasia retain the ability to physically communicate, but are unable to comprehend language or construct meaningful language. Their speech is characterized by meaningless phrases and neologisms, defined as words formed from combinations of other words (4). These linguistic qualities cause the speech

of those with fluent aphasia to be similar to the speech of some patients with schizophrenia (5). Landre et al. found that the speech of both of these groups exhibits inappropriate and vague responses, poverty of content, idiosyncratic word usage, delays in responding, perseverative speech, and pragmatic and semantic disturbances (4).

Because of the similarities in speech, both a neurological and psychiatric workup need to be performed to determine the etiology of acute language impairments in patients without any known history. The neurological workup should include a detailed history, a neurological examination, and neuroimaging. On physical exam, right-sided muscle weakness, paralysis, or sensory loss is highly suggestive of an organic cause for aphasia (8). Neuroimaging should include an emergency CT scan of the head without intravenous contrast, and a diffusion weighted MRI (9-13). For the psychiatric workup, evaluation for positive and negative symptoms is needed because other criteria besides disorganized speech must be met in order to diagnose a patient with a psychotic disorder.

Though there are many similarities in the speech of those with fluent aphasia and psychosis, there are subtle differences. In contrast to aphasic patients, patients with schizophrenia or other psychotic disorders generally display a greater mastery of language, employing more complex word usage and better use of lexical rules for sentence structure (3, 14). Patients with schizophrenia may answer open-ended questions with more lengthy responses than those given by patients with stroke-induced aphasia (7). However, patients with schizophrenia display greater deficits than aphasic patients in several aspects of language. The speech of those with schizophrenia is more circumstantial, more tangential, and tends to have persistent themes, sometimes becoming bizarre or delusional (3, 7). Other less common characteristics of speech in schizophrenia are flat intonation, unusual voice quality, and stilted speech (15).

Conversely, aphasic patients show a greater deficit in auditory comprehension than those with schizophrenia (3). Their speech is filled with more paraphasic errors including literal (phonemic) errors where an incorrect sound is substituted (such as “spoon” to “shoon”) and verbal (semantic) errors where an incorrect word is substituted (such as “spoon” to “fork”) (7, 14). These substitutions seem to occur in a random and nonrepetitive manner (8). Patients with aphasia also tend to use circumlocution or the use of a phrase when a single word is sufficient (7). Other characteristics of aphasic speech include increased use of neologisms and decreased use of nouns (7).

In this case report, a neurologic condition mimicked psychotic speech resulting in a psychiatric consultation to assess for a psychotic disorder. A new onset psychotic disorder

would have been unusual given the patient’s age of fifty-four. The average age of onset for a psychotic disorder is in early adulthood (17). Still, given the scant information the teams had on the patient’s baseline function and psychiatric history, a psychotic disorder could not be ruled out without further psychiatric assessment. The patient’s language impairment included disorganized speech, poverty of speech, and perseverance—all consistent with psychosis (16). The psychiatry team conducted repeated assessments of the patient’s mental status in order to determine whether other symptoms of a psychotic disorder were present and whether DSM-IV criteria was met for a psychotic disorder. Ultimately, given the patient’s lack of delusions and hallucinations and his lack of history of disorganized behavior and overt negative symptoms, a diagnosis of a primary psychotic disorder could not be established.

This case demonstrates the inherent difficulty in diagnosing a patient with an unknown medical and psychiatric history who presents with acute language impairment.

Even from a neurological perspective, the patient’s age was atypical for an ischemic stroke. Two-thirds of all strokes occur after the age of sixty-five (18). Given the nontraditional cause of the patient’s ischemic stroke (his cerebral hypoperfusion was secondary to an acute drop in blood pressure rather than a blockage), a neurologic cause was not obvious in this setting.

Also clouding the picture was the patient’s speech. The patient had periods during his stay consisting of relatively little speech, making it difficult to diagnose him as having either aphasia or a psychotic disorder based on language alone. The patient perseverated in his speech, a phenomenon seen in both aphasia and psychosis; however, the patient made verbal (semantic) paraphasic errors, a finding more common in aphasia. There were other nonlanguage signs and symptoms, which could have aided the clinicians in making the diagnosis of aphasia before the CT exam was performed. For instance, the patient’s comprehension was impaired as evidenced by his inability to repeat phrases and follow simple commands. This finding is in accord with Faber’s argument that there is a greater deficit in auditory comprehension in aphasia compared to schizophrenia (3). Interestingly, the patient was able to follow simple commands after the examiner demonstrated how to perform these commands. This is in agreement with Benson’s statement that patients with fluent aphasia will be able to imitate

movements and carry out gestured commands (8). Also, though the patient did not show any focal neurological deficits, he did have difficulty during normal and tandem gait, which is not associated with a psychotic disorder.

This case demonstrates the inherent difficulty in diagnosing a patient with an unknown medical and psychiatric history who presents with acute language impairment. Failure to recognize psychosis in a patient with seemingly aphasic speech or, similarly, falsely attributing psychosis to aphasia caused by a stroke, will result in improper treatment of the patient. Improvement of psychosis is possible with antipsychotic pharmacological therapy, while in certain circumstances, ischemic strokes, may improve following treatment with tissue plasminogen activator (tPA). It is important to differentiate psychotic symptoms from aphasia since the treatment for each is vastly different and failure to treat the patient properly may have devastating consequences.

Summary

The speech in patients with aphasia secondary to a stroke can be similar to the speech in some patients with schizophrenia or other psychotic disorders. It is important to keep in mind, however, that psychotic disorders and aphasia are heterogeneous entities and do not have a singular presentation. Furthermore, there is no absolute way of distinguishing aphasia from a psychotic disorder based solely on one aspect of speech. Assessment of several aspects of the language, however, reveals some general trends with regard to specific language problems associated with each disorder. The use of language assessment, neurological exam, neuroimaging, and a thorough psychiatric evaluation greatly aids the examiner in determining the etiology of a patient's acute language impairment.

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