APHASIA

Aphasia in single-language and bilingual individuals

Amanda Miller Amberber

Senior Speech Pathologist, Prince of Wales Hospital, Sydney, Australia Brain and Ageing Research Program, School of Psychiatry, University of New South Wales, Sydney, Australia Department of Cognitive Science and ARC Centre of Excellence in Cognition and its Disorders, Macquarie University, Sydney, Australia

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Aphasia refers to language and communication impairment acquired as a result of cerebrovascular accident (stroke), trauma, tumours and other neurological disease, and in neurodegenerative conditions such as dementia. Aphasia, also sometimes referred to as *dysphasia*, occurs when there is impairment or disruption of the language centres of the brain and their connections.

The key language centres are located in the left hemisphere (half) of the brain in most people, including most of those who are left-handed (see diagram). As the left hemisphere controls movement in the right side of the body, aphasia following stroke is often associated with weakness or paralysis of the right side. Very rarely, aphasia is found following a right hemisphere stroke. Important brain regions for language are Broca's area in the left frontal region (particularly for grammar and sentence structure); the left temporal region (especially for vocabulary and word meanings); and the left parietal region (especially for high-level language and verbal reasoning). The left subcortical regions of the basal ganglia are also involved in language sequencing. The right hemisphere contributes to understanding humour, social conversational aspects of language and tone of voice (prosody).

Aphasia can affect spoken language (*expressive aphasia*), comprehension (*receptive aphasia*), reading (*alexia*) and writing (*agraphia*). Often spoken and written expression are similarly affected, however specific deficits of reading writing, or of reading and writing can occur. Aphasia can affect vocabulary, leading to wordfinding problems (*anomia*), or grammar and sentence structure (*agrammatism*), or both. High-level language skills involved in verbal reasoning and problem solving can also be affected by aphasia. As the motor speech areas are very close to some of the language centres in the left hemsiphere, aphasia can often be accompanied by speech disorders such as *dysarthria*, affecting the clarity of speech, and *verbal apraxia*, affecting the planning of speech movements. In addition, there may be an impaired ability to swallow (*dysphagia*). People with aphasia often have a combination of impairments, as the affected brain region may cover various language centres and connections. This can be particularly the case in the early stages after a stroke or trauma, or as a tumour or condition progresses.

Expressive aphasia affects the individual's ability to express their thoughts, feelings and intentions. Usually people with aphasia have a clear idea of what they want to say but are unable to communicate the message clearly. This may be because of:

• *wordfinding problems (anomia)*, leading to difficulty finding the words to say or selecting the wrong words (e.g. saying the wrong name of people, places, days, months and years or saying "tea" when they mean "coffee" and "tomorrow" when they mean "yesterday")

- *grammatical problems (agrammatism, Broca's aphasia)*, leading to difficulty forming sentences and expressing complex ideas, often referred to as "telegraphic speech", and affecting the grammatical words and endings such as "can, will, not, but, -ing, -ed" (e.g. saying "I ... shop ... book" when they mean to say "I want to go to the shops to buy a book")

: similar problems often are found in both writing and speech.

Receptive aphasia affects the individual's ability to comprehend conversation. The brain regions that process sounds are usually intact so people with aphasia can hear the conversation but it doesn't make sense, rather like listening to a foreign language that is not understood or can only partly be understood. This can affect:

- comprehension of words and word meanings (*Wernicke's aphasia*), leading to mis-understanding even common words such as "lemon" for "orange" and "pen" for "paper"
- comprehension of sentence meanings (often occuring with Broca's aphasia), leading to misunderstanding of longer and grammatically more complex sentences (e.g. "the cat was bitten by the dog" can be misunderstood as "the cat bit the dog")
- similar difficulties are usually found in the comprehension of conversation (auditory comprehension) and reading comprehension.

Global aphasia is the term used when an individual has both severe receptive aphasia and severe expressive aphasia. Communication is severely limited. Individuals with global aphasia may gradually recover some receptive and expressive langauge abilities.

Bilingual people with aphasia who speak two or more languages may find each language is similarly affected or that one language is more affected than the others. The best-recovered language may be the first language (mother tongue) or can be the language most frequently used. For individuals who were less proficient in their second language, aphasia may lead to apparent loss of the second language. Aphasia can cause alternating difficulties between languages or difficulty in translating between languages. Sometimes aphasia causes difficulty in selecting the appropriate language, and leads to use of the non-target language e.g. speaking Italian with English speakers or switching between Italian and English where normally only one language is spoken. Bilingual individuals with aphasia who usually switch languages with other bilinguals may find this harder to do or may do so incorrectly because of the aphasia. Often these patterns change over time and may be most acute in the early stages after a stroke or trauma. For other bilinguals with aphasia there are difficulties in each language but selecting the right language and switching between languages is unaffected. Because of the differences that often occur after aphasia, it is important to have speech-language assessment in each of the languages that are used, even if English is the language that has previously been spoken the most.

Strategies to assist communication for people with aphasia

The most important aspect is to understand that aphasia does not change the individual's identity, feelings, knowledge, habits, likes and dislikes. Usually people with aphasia are acutely aware of their difficulties in communicating and are confused and frustrated by the changes. The speech pathologist can advise on specific strategies to assist and improve language and communication skills. Some general strategies to assist communication are:

- speak slowly and clearly, but in a natural manner
- don't rush -allow extra time for people with aphasia to express themselves
- repeat key words and information

• use simpler, shorter sentences to assist comprehension

e.g. say "I'm going to eat lunch now. Then I will go shopping" rather than "I'm going to go shopping after I eat lunch"

- use gestures and pointing and visual cues to assist comprehension
- encourage people with aphasia to use gestures, descriptions, pointing, drawing/diagrams or other visual cues to assist expression
- encourage bilingual people with aphasia to communicate in whichever language is better recovered or to use both languages unless there are problems with involuntary language switching
- avoid shouting or talking louder to get a point across - hearing is not usually the problem
- be aware that body language, facial expressions, eye gaze, touch and tone of voice are also important means of communication

Diagram of language areas in the brain