Diverse and Uncommon Etiologies of Acute Aphasia: A Systematic Review

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Learning Outcomes

1. At the culmination of the session the participant will demonstrate an increased awareness of patient populations who may require aphasia screening at hospital admission, even when symptoms arise from non-stroke or unexpected medical conditions.
2. At the culmination of the session the participant will be able to recognize the breadth of uncommon etiologies associated with acute aphasia.
3. At the culmination of the session the participant will be able to emphasize the critical role of speech-language pathologists in the diagnostic process, particularly for patients who unexpectedly present with aphasia as a symptom or secondary feature of uncommon medical conditions.

Background & Aims

There has been a growing trend in the identification of ‘uncommon etiologies’ associated with acute aphasia. It is widely recognized that etiology determines recovery (Curtis & de Bode, 2001; Hoffman, Schmitt, & Bromley 2009). The current study is the first of its kind to provide a comprehensive, up-to-date review of the uncommon etiologies of acute aphasia found in articles published during 1961-2025. This review offers easy access to information for the benefit of health care professionals.

Method

A systematic review of publications related to the topic was undertaken. A total number of ten databases were consulted: Nursing and Allied Health Database, CINAHL Database, PubMed, Cochrane, ABI/INFORM GLOBAL, PsychARTICLES, PsychINFO, Social Science Database, Science Direct, Scopus. Publications pertinent to uncommon etiologies were found in over 110 journals. Inclusion criteria: publication should provide adequate description of etiology and aphasia characteristics.

Results

The current study identified well over 100 etiologies associated with acute aphasia. Different classes of etiologies include the following: metabolic disorders (e.g., hyponatremic encephalopathy and nonketotic hyperglycemia), infectious diseases (e.g., typhoid fever, and cat scratch disease), neurological conditions (e.g., MS, MELAS, CADASIL, and cortical spreading depression). Additional etiologies such as toxicity, seizure disorders, and autoimmune conditions were also found in cases with acute aphasia. Nearly all classical aphasia syndromes and variants were found in the analysis. Subjects in all studies were tested with both neuro imaging/ neurophysiological, as well as aphasia tests.

Conclusion

This review highlights the complexity and diversity of aphasia presentations with uncommon etiologies.

Example Case #1

- **Authors**: Demirkiran, M., Özeren, A., Sönmezler, A., & Bozdemir, H. (2006)
  Patient Information: 26-year-old RH female with known history of relapsing-remitting multiple sclerosis experienced sudden onset of speech difficulties.
- **Uncommon Etiology:** Multiple Sclerosis
- **Neuroimaging Details**: Brain MRI revealed multiple hyperintense lesions involving the brainstem, right inferior cerebellar peduncle, right thalamus, right lentiform nucleus, right centrum semiovale, and the left lateral ventricular corpus. None of these showed contrast enhancement. Also revealed large right temporoparietal lesion extending across adjacent gyri which demonstrated partial contrast enhancement and was considered clinically significant. Technetium-99m HMPAO SPECT demonstrated hypoperfusion restricted to the right temporoparietal region. Gulhane Aphasia Test (GAT) and Boston Diagnostic Aphasia Examination assessed language abilities with no results indicated.
- **Aphasia Details:** Crossed aphasia. Symptoms included spontaneous speech and overall fluency moderately reduced and occasionally agrammatical, inability to generate spontaneous sentences longer than three words, significantly impaired naming, frequent semantic paraphasias, severely impaired verbal comprehension with occasional responses to commands with echolalia, ability to follow only very simple instructions, intact repetition, errors in simple calculations, non visual field deficits/neglect present, and constructional apraxia evidenced by impaired cube drawing.
- **Co-Occurring Speech, Reading, and Writing Deficits:** Dysarthria, Demonstrated occasional production of letter omissions or perseverations during written dictation. No specific type of dysgraphia identified.

Example Case #2

- **Authors**: Gonçalves, A. S., Monteleone, F., Machado, E., & Pereira, M. E. (2022).
- **Patient Information**: 37-year-old RH male, presented with persistent difficulty recalling the name of objects and people in his daily life, which he first noticed ten weeks ago following SARS-CoV-2 infection.
- **Uncommon Etiology**: COVID-19
- **Neuroimaging Details**: MRI was unremarkable. Aphasia battery included naming exercises in speech and writing, which revealed difficulty in immediate naming. Mini Mental State Examination revealed only difficulty with naming and received a score of 28 points.
- **Aphasia Details**: Anomic aphasia. Symptoms included difficulty naming in spontaneous speech and writing. Patient retained comprehension, repetition, and fluent speech. Four weeks later, aphasia symptoms resolved.
- **Co-Occurring Speech, Reading, and Writing Deficits**: Patient tested poorly on writing names of common objects. No specific type of dysgraphia identified.

Example Case #3

- **Authors**: Hart, R. P., Rosner, M. J., & Muizelaar, P. (1985)
- **Patient Information:** 71-year-old right-handed female presenting with sudden onset of speech difficulties along with reduced vision in her left eye. Her ocular symptoms and hemispheric signs, including visual loss, aphasia, and apraxia, were variable at first but showed a progressively worsening pattern. Further evaluation revealed multivessel occlusive disease, significantly limiting cerebral oxygenation within the vascular borderzone regions.
- **Uncommon Etiology**: Multivessel Occlusive Disease
- **Neuroimaging Details**: CT scan revealed a small infarct in the left periventricular area. Cerebral angiography showed 90% stenosis of right internal carotid artery and both external carotid arteries at their bifurcations, along with the complete occlusion of the left internal carotid artery. Boston Diagnostic Examination and the Memory Span for Objects Test were used to assess language.
- **Aphasia Details**: Severe transcortical aphasia. Symptoms include impaired language in all aspects prior to surgery, comprehension more severely affected than expressive abilities, word-finding problems, echolalia, paraphasic errors, repetition of single words and high-frequency phrases remained relatively preserved.
- **Co-Occurring Speech, Reading, and Writing Deficits**: Apraxia of speech, Impaired reading and writing that improved over time. No specific type of dyslexia and dysgraphia identified.

Example Case #4

- **Authors**: Ingles, J., Mate-Kole, C., & Connolly, J. (1996)
- **Patient Information:** 24-year-old right-handed female hospitalized after developing right-sided numbness and experiencing 10 days of flu-like symptoms. While being transported to the hospital, she had a generalized seizure, followed by another several hours later. After the second seizure, she became aphasic and showed a reduced level of consciousness.
- **Uncommon Etiology:** Herpes Simplex Virus Type 1
- **Neuroimaging Details:** EEG demonstrated diffuse, nonspecific abnormalities across both hemispheres. CT showed large low-attenuation area involving the left temporal lobe, insular cortex, basal ganglia, and frontal operculum with additional gliotic changes noted in the right insular region. Language and cognitive evaluation included Weigl Comprehension Test, Semantic Processing Test, Peabody Picture Vocabulary Test, WAS-R-N1, Quick Cognitive Screening Test, Cookie Theft picture description (BDAE), Boston Naming Test, Western Aphasia Battery, Modified Syntax Test, Battery of Adult Reading Function, and Johns Hopkins Dysgraphia Battery.
- **Aphasia Details:** Fluent aphasia. Symptoms include frequent paraphasias such as neologisms, phonemic errors, and circumlocutions early in recovery, severe impairment in oral reading, repetition, and naming with improvements later on, and better reading comprehension than auditory comprehension.
- **Co-Occurring Speech, Reading, and Writing Deficits:** Writing impairments included errors in sentence production, visual spelling errors, and inability to write letters or words to dictation. Dysgraphia worsened during more complex written tasks. No specific type of dysgraphia identified.

Example Case #5

- **Authors**: Krishnan, P., & Chowdhury, S. R. (2015)
- **Patient Information**: 60-year-old male underwent decompressive craniotomy for an acute subdural hematoma. Initially, his postoperative course was uneventful. However, he subsequently developed urinary incontinence, irrelevant speech, and ataxia. Imaging revealed hydrocephalus, for which a ventriculoperitoneal shunt was placed, resulting in resolution of these symptoms. Three weeks later, the patient exhibited a pronounced sinking of the cranial flap, with non-pinchable overlying skin, accompanied by headaches, vomiting, and retching when sitting upright. Additionally, he developed aphasia in the seated position, which resolved upon lying down.
- **Uncommon Etiology**: Sinking Scalp Syndrome
- **Neuroimaging Details**: CT scan revealed a concave depression of the scalp and underlying brain at the craniotomy site, with effacement of cortical sulci. The shunt tip was correctly positioned in the right frontal horn, with a midline shift to the right. EEG demonstrated diffuse slowing along with epileptiform activity. Postoperative CT confirmed full expansion of the brain.
- **Aphasia Details:** Posture-dependent aphasia. Symptoms included inability to speak when upright but regained speech within minutes of lying down, ability to read and understand language in both upright and supine positions, impaired repetition and writing while seated, and ability to write name and address when in supine position.
- **Co-Occurring Speech, Reading, and Writing Deficits**: Writing ability was impaired in the upright position and regained in the supine position. No specific type of dysgraphia identified.

Example Case #6

- **Authors**: Marienfeld, C. B., DiCapua, D. B., Sze, G. K., & Goldstein, J. M. (2010)
- **Patient Information**: 59-year-old male with history of prior stroke developed sudden speech difficulties.
- **Uncommon Etiology:** Cat Scratch Disease
- **Neuroimaging Details**: Head CT revealed a low-density lesion in the left insular region with well-defined borders and no mass effect. Brain MRI showed evidence of the previous stroke but no acute ischemic changes. EEG initially demonstrated moderate generalized slowing without epileptiform activity. Repeated test showed non-focal findings, including moderate generalized slowing and frontal intermittent polymorphic delta activity, also without epileptiform discharges.
- **Aphasia Details:** Expressive aphasia. Symptoms include sudden-onset, word substitution errors, impaired repetition, paraphasic errors, and confusion with resolution of symptoms following antibiotic treatment
- **Co-Occurring Speech, Reading, and Writing Deficits**: None reported.

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