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Foreign Accent Syndrome Secondary to Medication Withdrawal: A Case Report

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Abstract

Objective: The purpose of this case report is to demonstrate a possible alternative etiology related to dopamine may exist for foreign accent syndrome (FAS).

Methods: A 79-year-old, 205 pound, Caucasian woman originally presented to the department of Neurology for treatment and subsequently to the pharmacist pharmacotherapy service for evaluation of bilateral upper extremity tremor of high amplitude but was found to also exhibit FAS.

Discussion: This case report contributes to the limited literature regarding foreign accent syndrome and adds to the few case reports of psychogenic origin, as opposed to the majority, which are of neurogenic origin. This also represents the first case that seems related to withdrawal of medication rather than psychotic exacerbation and ranks a six on the Naranjo algorithm.

Conclusion: FAS is a rare disorder and little is understood about it. This case presentation also suggests that chronic use of high-dose dopamine and/or anticholinergic agents may alter pathways in the brain, which in this case, may have potentially contributed to the development of FAS. There remain many unanswered questions regarding FAS, but hopefully more clarity may be found as more cases are discovered and published.

Key words: foreign accent syndrome, FAS, medication therapy management, MTM, dopamine agonist, pharmacotherapy

Introduction

Foreign accent syndrome (FAS) is a rare speech disorder characterized by the development of an accent that is perceived as foreign by native speakers of the language. Perhaps the most well-known case of FAS is the Norwegian woman who was struck by a bomb fragment during World War II and developed a German accent upon recovery, causing her to be ostracized in her home country.^{1,2} While some are perceived to develop foreign accents, other cases have been reported in which the accent developed is a different dialect of the same nation.³⁻⁵ In FAS, the listener perceives the speaker as being a non-native speaker. However, it has been shown that the output pattern of the speaker does not correspond to a specific language or dialect.⁶ In fact, a particular speaker may be perceived as being a native speaker of many different languages by different listeners, or even by the same listener at different times.⁶ For example, one patient who was a monolingual American English speaker developed FAS and was perceived as having a Swedish, Russian, or "Eastern European" accent by different listeners.⁷ Therefore, those with FAS have not acquired a true foreign accent, but speak in such a way as to be perceived as foreign by native speakers of the language.

Some common speech changes among those with FAS that contribute to the speaker sounding foreign include changes in vowel length and tenseness, and inappropriate word and sentence stress.⁸ FAS differs from other speech disorders such as aphasia and dysarthria in that the speech produced is within the realm of natural variation in language so that patients are still comprehensible and simply perceived as foreign.^{9,10} The following is a case of FAS that likely developed secondary to the discontinuation of the patient's inappropriately prescribed Parkinson's medications. A similar case has not been found in the medical literature.

Case

A 79-year-old, 205 pound, Caucasian woman presented to the department of neurology for treatment and subsequently to the pharmacist pharmacotherapy service for evaluation of bilateral upper extremity tremor of high amplitude, present for greater than 20 years that was grossly interfering with daily activities. Neurology referred the patient for evaluation of her medications and to obtain a medication history. Patient labs at the time of the pharmacy consult were mostly unremarkable. Notably, ferritin was high at 522 mcg/L and the patient had impaired renal function with a serum creatinine of 1.7 mg/dL, and sed rate of 109 mm/hr. In addition, though she was born in Georgia and previously spoke with a strong southern Georgia accent, she now spoke with an Irish accent. One listener identified it as a Cajun accent. Upon neurologic examination, she had no facial or limb weakness.

Speech therapy was consulted and determined that her speech was fluent and functionally normal, though it was

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marked by an Irish-sounding accent. No swallowing or speech deficits, oral apraxia, or apraxia of speech was found. She scored a 50/60 on the Boston Naming Test (50 without cues, 6 with phonemic cues). The patient stated that she enjoyed the accent, so no attempts were made to modify it or to re-challenge the patient with dopamine agonists.

Previously, the patient states that she was “in a fog” for about ten years while being treated with dopamine agonists for Parkinson’s disease. During this time she was confused in conversation, unable to perform tasks, sedated, fatigued, and experienced visual and auditory hallucinations. It was determined after 14 years of treatment that her tremor was not due to Parkinson’s disease. Several modifications were made to her medications, including discontinuing carbidopa/levodopa, carbamazepine, entacapone, and benzotropine five years ago. After these adjustments, the patient had return of mental clarity and developed the foreign accent. She is amnesic for events that occurred during this ten-year time frame while taking the Parkinson’s medications, and she has had no hallucinations since the medications were discontinued. The patient has no known psychiatric history, other than the medication-induced hallucinations. It was determined the development of the foreign accent correlated with discontinuation of the medications.

Discussion

Most cases of FAS are associated with stroke, primarily located in the left hemisphere.^{4,11-13} However, there are currently three reports of FAS associated with right hemisphere lesions, though it has been suggested that these patients have anomalous dominance for language.^{6,11} FAS has resulted from head trauma, and three cases have been reported with multiple sclerosis.^{2,9,14-17} Cases have also been associated with conversion disorder, tumors, and developmental origin.^{10,18-20} Due to the variety of etiologies and lack of common features, it has been suggested that FAS is not the result of any single underlying mechanism.⁷

A few cases of FAS have been reported in the literature secondary to psychogenic, rather than neurogenic causes. Reeves and Norton report a case of a 65 year-old man with a history of schizophrenia who developed a British accent during psychotic exacerbations, which subsequently resolved as the psychosis resolved with risperidone.²¹ Reeves, Burke, and Parker report three cases of FAS during psychotic exacerbations, with the third case having multiple recurrences.²² Two of those patients had a history of schizophrenia, and one had a history of bipolar disorder.²² In each case, the foreign accent resolved with treatment and improvement of the psychotic exacerbation.²² Finally, Poulin and colleagues report a case of FAS that developed in a 74 year-old bipolar patient shortly after being discharged from the hospital where he was treated for a manic exacerbation.⁸ Of note, this patient, who spoke Quebec French, developed an

English-sounding accent and had an English-speaking mother, but never learned English.⁸ However, it is concluded in this report that the patient’s FAS was more likely the result of an infarct rather than a result of his bipolar disorder.⁸

In the present case, the patient developed FAS after being withdrawn from medications she had been receiving at high doses for 14 years, including high dose carbidopa/levodopa, carbamazepine, entacapone, and benzotropine. This case, ranking six on the Naranjo algorithm, differs from previous reports of FAS secondary to psychogenic causes in that the patient has no known history of psychiatric illness. In addition, previous cases developed an accent with psychotic exacerbation upon withdrawal of their medications, which were dopamine antagonists. This patient developed her accent without an associated psychotic episode upon discontinuation of some medications, including a dopamine agonist, dopamine agonist “booster” (entacapone) and an anticholinergic medication. Though this represents a different etiology of FAS than those previously reported in the literature, a recent publication suggests the involvement of dopamine and acetylcholine in the development of FAS.¹¹ Specifically, it states that the areas of the brain where lesions are often found in FAS are innervated with cholinergic neurons, and that recent studies have shown improvement of communication deficits with donepezil, which increases cholinergic activity through inhibition of acetylcholinesterase.¹¹ One caveat to these studies is that they were performed in stroke patients, not those with FAS.¹¹

Complicating the current case presentation is the finding of a chronic lacunar infarct on the CT scan. However, it seems that the patient never developed symptoms from this area of infarction since it was determined to have happened long before the onset of FAS symptoms, and the development of her accent directly correlates to the withdrawal of her Parkinson’s medications she had been taking for fourteen years. Though it cannot be totally ruled out that the infarct contributed to her accent, it is unlikely due to the timing of symptom onset.

Conclusion

In conclusion, FAS is a rare disorder and little is understood about it. This case adds to those already published suggesting psychogenic causes of FAS in addition to the previously reported neurogenic causes. The current case presentation also suggests that chronic use of high-dose dopamine and/or anticholinergic agents may alter pathways in the brain, which in this case, may have potentially contributed to the development of FAS. There remain many unanswered questions regarding FAS, but hopefully some clarity may be found as more cases are discovered and published.

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