

Differential Diagnosis of Psychosis in a Deaf Inpatient with Language Dysfluency: A Case Report

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Abstract

This case report demonstrates challenges diagnosing psychosis in language dysfluent deaf patients. Treatment of a 34-year-old deaf man on an inpatient psychiatric unit is described. He had a history of physical aggression and possible symptoms of paranoia and thought disorganization, in addition to learning difficulties and minimal language skills. The patient was placed on a combined hearing/deaf inpatient unit, received specialized programming for deaf patients and was prescribed risperidone and divalproex sodium to treat his aggressive behavior and possible psychosis. Uncertainty if the patient were having psychotic symptoms remained throughout his hospitalization, although he improved behaviorally and was discharged after 13 months of treatment. The patient's pre-existing language deficits made accurate diagnosis and appropriate treatment challenging. It is important for clinicians to be aware of the frequency of language dysfluency in the deaf inpatient population and have a strategy for evaluating and treating this complex subgroup of deaf people.

Key Words: Deafness, Psychotic Disorders, Differential Diagnosis, Language, Communication Barriers

Introduction

There are approximately eleven million deaf and hard-of-hearing (HOH) individuals in the United States (1). The prevalence of mental illness within the deaf community is equivalent to the hearing population or perhaps higher due to adjustment issues and vulnerability to abuse (2).

Knowledge of deaf culture and American Sign Language (ASL) is crucial to accurate diagnosis of psychosis in this population. Even for experienced clinicians, there is a subset of "language dysfluent" deaf patients that present extreme diagnostic challenges. Language deficits are easily

misconstrued for thought disorder and/or mental retardation. In a 2006 study, 75% of the inpatients on a specialized unit for the deaf and hard-of-hearing were language dysfluent (3). In a follow-up study, 66% of 94 deaf inpatients lacked fluency in any language (4).

Early studies revealed these individuals were diagnosed as psychotic or mentally deficient at higher rates than hearing inpatients (5). Recent research conducted by culturally competent and ASL-fluent clinicians demonstrated the same rates of psychotic disorders in the deaf and hearing populations. Care is needed to differentiate psychosis from language dysfluency (4). Clinicians need an awareness of the potential for misdiagnosis because deaf people with language dysfluency display communication issues which mimic a thought disorder (6). Recent studies suggest that deaf inpatients are more likely to present with developmental, mood, impulse control, or personality disorders (3, 7), although these findings may relate to categorical models of psychiatric illness which may create arbitrary distinctions between clinical phenomena. A dimensional approach may be particularly useful for identifying conditions in atypical populations due to subclinical presentation or cultural variability (8-10).

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This paper reviews the case of a 34-year-old culturally deaf man with possible symptoms of psychosis. The patient has a long history of socialization deficits, self-care deficits, somatization and highly aggressive behavior that led to multiple institutional placements and a broad range of diagnoses. Recommendations for assessment of deaf inpatients are provided.

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Case Presentation

Demographic and other potentially identifying information was altered for confidentiality purposes. D.S. is a 34-year-old, profoundly deaf man with a history of aggressive behavior dating back to childhood. D.S. was hospitalized due to outbursts toward peers, staff and parents. D.S. threatened his father with a knife, destroyed rooms in his group home and physically assaulted staff.

D.S. was born with bilateral, profound deafness due to prenatal rubella. His parents and siblings were hearing. No information about ASL skills of D.S.'s parents is available. D.S. was born premature with a partial cleft palate and a patent ductus arteriosus. He reached developmental milestones late and was socially "immature" compared to same-age peers.

D.S. was placed in a deaf residential school and educated on a "special unit for learning problems" until age 14 when he was removed due to reports of sexually inappropriate behavior with male peers. Thereafter, he was mainstreamed into public school, but expelled because of aggression toward staff and other students. D.S. was then enrolled in a center for the deaf where he stayed four years. D.S. has an average Performance IQ score on the Wechsler Adult Intelligence Scale-III. Verbal IQ could not be assessed; however, reports indicated language deficiencies. His vocabulary at age 17 consisted of approximately fifty words.

D.S.'s behaviors started at age 6. He threw a lit match into a gas can, receiving second degree burns. His parents witnessed him signing to walls and paintings. D.S. had no history of substance abuse or arrests. He had placements in group homes serving deaf patients, but was usually removed because of violent behavior.

Diagnoses given to D.S. over the years illustrate diagnostic uncertainty. They include Impulse-Control Disorder Not Otherwise Specified (NOS), Intermittent Explosive

Disorder, Learning Disorder NOS, Mixed Receptive-Expressive Language Disorder, Dysthymic Disorder, Adjustment Disorder with Disturbance of Conduct, Personality Disorder NOS, Narcissistic Personality Disorder, Dependent Personality Disorder and Borderline Personality Disorder. Past medications included haloperidol, fluphenazine, divalproex sodium, and paroxetine.

Hospital Course

D.S. was admitted to a state psychiatric hospital with diagnoses of Intermittent Explosive Disorder and Personality Disorder NOS. His chief complaint was that he "got upset at the group home ... they were picking on me and I didn't like it." D.S. demonstrated no insight into his aggressive behavior. Admission medications included paroxetine 20 mg and divalproex sodium 500 mg.

Within two weeks, D.S. displayed aggressive and threatening behavior toward staff and patients. When angered by limit setting or otherwise frustrated, D.S. demanded to be sent to jail. In hopes of this, D.S. would destroy property and activate fire alarms. With intervention, D.S. became combative, leading to two incidents of physical restraint.

Clinical notes suggest the possibility of psychotic symptoms: loosening of associations and paranoia. Nevertheless, physicians were unclear if his disorganized communication was due to psychosis or pre-existing communication deficits. D.S. wrote notes to staff that were difficult to comprehend. An excerpt from one note is as follows: "I was mad past almost. I am saw wierd [*sic*] people mad. I knew. I think Black Ago face on fact Mad. I know born way problem Black Crazy people war fight longer Stop Mad."

Due to suspected psychosis, olanzapine 5 mg nightly was started but discontinued due to gastrointestinal side effects. One week later, the patient required one restraint and two seclusions over a three-day period due to combative behavior. Risperidone 1 mg was started and increased to 2 mg. Divalproex sodium was increased to 750 mg. A provisional diagnosis of Psychotic Disorder NOS was made. D.S. had intermittent aggression precipitated by limit setting by unit staff over the next two months resulting in three additional episodes of seclusion and one of restraint. Risperidone was increased to 6 mg and divalproex sodium increased to 1,250 mg. D.S.'s aggressive behavior declined. He had two additional episodes of restraint throughout the remainder of his hospitalization. D.S. had periodic episodes of agitation but better control of aggression and used more adaptive means of getting needs met. After 13 months of treatment, D.S. was discharged to a group home specializing in the mental health treatment of the deaf. D.S.'s discharge diagnoses were: Psychotic Disorder NOS, Learning Disorder NOS and Mixed Receptive-Expressive Language Disorder.

Discussion

This case exemplifies challenges involved in the differential diagnosis of psychotic disorders in deaf patients with language dysfluency. D.S.'s history of signing to walls and pictures, reports of staff "picking on" him and his disorganized written communications may have reflected psychosis. Alternatively, D.S.'s behaviors might have derived from misunderstandings related to language and social deficits. Accurate assessment of language dysfluent deaf patients requires detailed analysis of the patient's language ability and deafness history by a culturally informed clinician who is fluent in ASL or who works with an experienced, qualified ASL mental health interpreter. Clinicians experienced with this population suggest that multiple indicators of psychosis must be present (6, 11).

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Literature on hallucinations in deaf patients is inconclusive, yet researchers who have examined the perceptual experiences of deaf people have found that auditorially based hallucinations are not present in prelingually deaf people ("prelingual" refers to deafness acquired before age 3) (12). Instead, deaf patients report perceptions of a person signing to them in their mind, or "feel" another person communicating to them. D.S.'s signing to walls and pictures could have been related to his impaired social development rather than hallucinations. Deaf people with language dysfluency demonstrate marked impairment in social skills and may behave in developmentally inappropriate ways for their age. Secondly, the manner in which hearing-based, English concepts such as "hallucinations" are introduced is crucial. The question "do you hear voices?" involves concepts of hearing and sound unknown to prelinguistically, profoundly deaf people (6). The concepts of "hallucination" or "hearing voices" are difficult to interpret into ASL. Therefore, the interpreter would need to act out the experience of a person hearing voices by conveying the idea of responding to a stimulus that is imaginative (6). This concept is difficult for even experienced interpreters to convey and introduces potential for patient misunderstanding and "leading" on the part of the interpreter.

D.S. also exhibited disorganized thinking. Evidence of this came primarily from D.S.'s written communications to staff. All signed languages (e.g., American Sign Language [ASL], British Sign Language [BSL], Australian Sign Lan-

guage [AUSLAN]) differ markedly from verbal/written languages due to their spatial properties and grammatical rules. Previous authors have described the ease with which deaf people's written communication can be misconstrued as thought disorder: "... the written language of many deaf adults appears fragmented, confused and primitive to the clinician unfamiliar with this form of expression" (13, p. 789). Similarly, others warn: "the risk of overpathologizing is very great, even when writing samples appear to be severely limited or disorganized" (14, p. 176). Therefore, written English communication of a deaf person should not be used or interpreted as evidence of a thought disorder but only to judge fluency in English (15).

Recent work elucidates errors language-dysfluent deaf patients make that can be misattributed to psychosis (6). Language-deprived patients demonstrate limited vocabularies, with many signs used incorrectly or repeatedly. Time referents are generally absent from stories. The storyline may jump from past to future and back again. ASL grammar and spatial organization is used incorrectly or not at all. Formal signs are combined with gesture and "acting out" concepts. Nonpsychotic language dysfluent deaf patients do not demonstrate incongruent emotional expression, bizarre behavior or a lack of "connectedness" with others. Communications are organized around a theme, while psychotic communications are loosely associated or nonsensical.

Research in cognitive neuropsychiatry may provide clues for the differentiation of language abnormalities arising from psychosis from those arising from deprivation (16-18). Investigations of language deficits in hearing psychotic patients support a hypothesized pattern of executive and/or semantic dysfunction underlying formal thought disorder. Notably, the presence of syntactic deficits is less clear and naming ability in patients with thought disorder appears to be well preserved. In contrast, deaf people with language deprivation demonstrate marked syntactical errors and naming deficits due to their limited vocabularies (6). Their language is difficult to follow due to ungrammatical word order, repetition (used to "fill in" for lack of vocabulary) and lack of subject and time referents in contrast to the language of psychotic patients whose language is difficult to comprehend due to lack of meaning (e.g., semantics) and irrelevant information. The dysexecutive syndrome and semantic dysfunction hypotheses have yet to be examined in deaf populations, but may have substantial utility for differentiating deaf people whose language impairments are due to psychosis from those whose impairments are due to language deprivation.

Psychiatric assessment of deaf patients should include a detailed communication and deafness history but was not done in D.S.'s case. Language delay or deprivation is common in this population, as 90% of deaf children are born

to hearing parents (11). Lack of consistent exposure to sign language has been shown to result in impairment in language development (19), understanding emotions and understanding cause and effect sequences (20). In comparison, deaf children born to deaf parents and exposed to sign language from birth develop language at rates similar to hearing children (21).

In summary, assessment of deaf, language dysfluent patients is complex and requires specialized cultural and linguistic knowledge. Clinicians need to be cautious when diagnosing and treating deaf patients with communication difficulties and suspected psychosis.

Despite modality differences between spoken and signed languages, research with deaf adults has found that signed languages activate the same neural pathways in the inferior frontal regions of the left hemisphere as spoken languages (22, 23). Thus, information about the etiology of deafness is valuable to rule out language deficits due to brain injury. D.S.'s deafness was attributable to prenatal rubella. Thus, his impaired communication and developmental delays may reflect organic impairment such as aphasia or specific language impairment (SLI). SLI, which is not attributable to lack of language exposure or low cognitive ability, has been documented in deaf children at rates comparable to hearing children and needs to be ruled out as a possible etiology of disordered language (24).

In summary, assessment of deaf, language dysfluent patients is complex and requires specialized cultural and linguistic knowledge. Clinicians need to be cautious when diagnosing and treating deaf patients with communication difficulties and suspected psychosis. Additional research describing appropriate assessment of this population is needed.

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