

Clinical Lycanthropy: Delusional Misidentification of the "Self"

To the Editor: Delusional misidentification syndrome (DMS) consists of a number of pathological conditions in which a person has a belief involving misidentification of a person, place, or object; this belief is adhered to in spite of clear evidence refuting it.¹ It includes Capgras syndrome, Fregoli syndrome, reduplicative paramnesia, and inter-metamorphosis. Reverse inter-metamorphosis is a variant of inter-metamorphosis in which patients believe that they themselves are being or have been transformed into another entity. Clinical lycanthropy is a rare form of reverse inter-metamorphosis wherein patients believe that they are undergoing transformation or have transformed into a non-human animal. A case of such a delusional misidentification involving the Self is presented here.

Case Report

A 20-year-old man was admitted after he became increasingly agitated and showed erratic behaviors at home, starting about 5 weeks before his admission. On initial evaluation, he seemed guarded and internally preoccupied; he gave brief responses and had prolonged latency of speech. His thought process was disrupted apparently due to lack of attention. He had no significant previous psychiatric history. He had been using alcohol and marijuana occasionally. A family history of bipolar disorder was present.

He was started on risperidone for new onset of psychosis. Subsequent laboratory testing showed moderate

neutropenia, and risperidone had to be discontinued. Over the next few days, the patient displayed increasingly psychotic, animal-like behaviors—he howled loudly in his room; he broke into a run abruptly in the hallway; at times, he crawled on the floor on all four limbs. He also appeared to be internally stimulated; his affect changed without any apparent external triggers; sometimes, he smiled to himself, and, at other times, he scowled with an intense look on his face. When asked about these abnormal behaviors, he gave evasive responses. Eventually, he revealed that he believed he was a werewolf and that he periodically transformed into a wolf. He said that he started believing that he was a special person after he had visions of "the Devil" several years ago. He also reported hearing "random" voices. His family later reported that he had recently been preoccupied with books and movies involving werewolves.

He was started on ziprasidone, and the dose was gradually increased up to 80 mg twice daily. CBC and ANC were closely monitored. His symptoms gradually responded to ziprasidone; he reported that the voices had diminished; his thought process became more organized, and he appeared less internally stimulated. His belief about being a werewolf gradually dissipated. His animal-like behaviors (howling, crawling) also diminished in frequency and eventually ceased altogether.

Discussion

Beliefs are likely formed through complex associative learning and serve the purpose of creating an internal model of the environment that creates expectancies and predictions. Normally, this model is

dynamically modified by comparing experience with expectancy.² In this framework, delusions form as a result of aberrant neural learning. Impairment at any level within the complex process of neural learning (including electrochemical signaling, synaptic plasticity, synchrony of electrical activity, and multiscale hierarchical connectivity) could potentially lead to such aberrant learning. This might explain the heterogeneous conditions in which delusions are seen.³

DMS is seen in association with a number of neurological and psychiatric conditions, including primary psychotic and affective disorders, drug intoxication and withdrawal, cerebrovascular disease, traumatic brain injury, dementia, delirium, and seizures.¹ Capgras delusion—a relatively common DMS in which a person holds a belief that an acquaintance has been replaced by an imposter—has provided a useful model in understanding the underlying process involved in formation of delusions.^{4,5} One major neuropsychological explanation of Capgras delusion implicates a cognitive dissociation arising from mismatch between the information conveyed through the dorsal and ventral visual pathways while processing a familiar face; this then leads to the search for an alternate explanation. A "two-factor theory" has also been proposed in which the aforementioned mismatch is considered to be the first factor and provides the basis for the content of the delusion; the second factor is considered to be impairment in the belief-evaluation system that prevents the delusional explanation from being rejected.⁶ The predominance of right hemispheric lesions in DMS has been described, with right

frontal damage implicated in the failure to reject delusional explanations.^{1,6}

The aforementioned explanation for Capgras delusion may be extended to other types of DMS. Clinical lycanthropy is a rare delusional disorder, seen mostly in schizophrenia or affective disorders, and is best classified as a DMS. The initial trigger for delusion-formation in this disorder likely involves a mismatch in the person's neural representation of his "Self." Localizing the Self has been attempted within different explanatory frameworks, and the neurobiological approach has gained significant ground recently.⁷ An integrated neural representation of the Self in the brain involves a dynamic synthesis of multimodal informational inputs and involves multiple spatial and temporal scales. It can therefore be speculated that localizing a focal brain lesion responsible for impairment of the global sense of Self would be unlikely. Localized lesions that affect areas contributing to representation of Self likely result in partial misidentification disorders, like somatoparaphrenia (a disorder in which the person misidentifies a body part as non-self). A global misidentification of Self as seen in clinical lycanthropy and in other conditions involving reverse inter-metamorphosis—such as when someone believes that he/she is Jesus Christ or another

prominent entity—would more likely be a result of a diffuse neurological or psychiatric disorder that causes widespread disruption in processing or integration of neural information. Functional neuroimaging and electrophysiological studies especially designed to analyze functional connectivity, and with higher spatial and temporal resolution than are currently available, could better elucidate the neural substrates of such aberrant belief formation.

It is unclear why one particular narrative would be favored as an explanation and then strictly adhered to. Perhaps emotionally salient and temporally proximate elements in one's memory are utilized to form the explicative narrative. In the case described above, the content of the patient's delusion could have its origin in his recent preoccupation with movies and books involving werewolves. It is noted, however, that it could not be established whether his delusion or his preoccupation with werewolves was antecedent.

Conclusion

A case of clinical lycanthropy, a rare form of DMS, was presented. DMS can be a particularly useful model for understanding the cognitive bases for delusion formation. This model can serve as a guide for research into the neural substrates of delusions

and potentially in exploration of novel treatment strategies.

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