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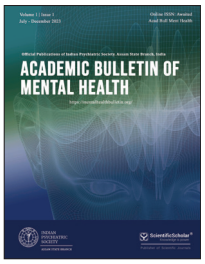

Case Report

Anomalous Presentation of Capgras Syndrome in an Adolescent: A Case Report and Literature Review

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ABSTRACT

Capgras syndrome is a rare delusional disorder characterized by the belief that a close family member or acquaintance has been replaced by an identical impostor. Although it is typically associated with psychiatric disorders such as schizophrenia or neurological conditions like dementia, this syndrome usually presents in adults. We report a case of an adolescent female presenting with Capgras syndrome, which was not associated with any primary psychiatric or neurological disorder. This report aims to explore the rarity of this presentation, the diagnostic challenges it poses, and the implications for treatment. Additionally, this case highlights the importance of considering atypical presentations of psychiatric syndromes in young patients. The report concludes with a discussion on the existing literature, methodological considerations in psychiatric case studies, and directions for future research.

Keywords: Capgras syndrome, Delusional disorder, Adolescents, Psychiatry, Atypical presentation

INTRODUCTION

Capgras syndrome, a form of delusional misidentification, is characterized by the belief that a familiar individual, usually a close relative or partner, has been replaced by an identical impostor. This syndrome was first described by French psychiatrist Joseph Capgras in 1923, and has since been associated primarily with adults suffering from a variety of psychiatric disorders, including schizophrenia, schizoaffective disorder, and severe mood disorders, as well as neurological conditions such as Alzheimer's disease and other dementias.[1]

The psychopathology of Capgras syndrome is complex and multifactorial. It involves disruptions in the recognition processes that are critical for interpersonal relationships. Individuals with this syndrome often display an intact visual recognition system, but experience a disconnect between visual perception and the emotional response typically elicited by familiar faces. This disconnect may stem from dysfunctions in specific brain regions, particularly those involved in facial recognition (such as the fusiform gyrus) and emotional processing (including the amygdala).[2,3] The result is a failure to experience the emotional resonance usually associated with familiar individuals, leading the patient to conclude that the person must be an impostor.

Capgras syndrome can occur in various contexts, from organic brain diseases to primary psychiatric disorders. In some cases, it is associated with lesions in the right hemisphere of the brain, which is crucial for processing emotional responses to visual stimuli.[4] The disconnection between recognition and emotional response may trigger paranoid delusions, causing the individual to

perceive their loved ones as threats.[5] The syndrome is also noted for its peculiarities in symptom expression, with some individuals holding the belief about only one person, while others may extend it to multiple acquaintances.

In recent years, there have been documented cases of Capgras syndrome in individuals without any underlying psychiatric or neurological disorder. These instances raise important questions about the triggers and mechanisms underlying the syndrome, particularly in adolescents, a demographic in which such presentations are exceedingly rare.[6] This case report focuses on an anomalous instance of Capgras syndrome in a 16-year-old female who exhibited delusions about her mother, devoid of any clear etiology, thereby illuminating the challenges in diagnosis and management in atypical cases. Understanding these unusual presentations is vital for refining our approach to treatment and expanding the scope of research into Capgras syndrome and related disorders.

CASE REPORT

Patient background

The patient, a 16-year-old female, presented with an abrupt onset of delusional beliefs centered around her mother, whom she believed had been replaced by an impostor. Her history revealed no prior psychiatric or neurological conditions, and there was no significant family history of mental illness. Academically, she performed above average and maintained a stable social life with no prior behavioral issues.

Premorbid temperament

An assessment of the patient's premorbid temperament revealed traits that may have predisposed her to the development of delusions. She demonstrated a tendency toward high sensitivity to stress and anxiety, often expressing worries about changes in her environment. These traits were consistent with a more anxious and perfectionistic temperament, which could heighten her vulnerability to distorted perceptions and beliefs under stress. Her ability to cope with emotional challenges appeared limited, which might have contributed to her sudden onset of delusional thinking when faced with interpersonal stressors.

Symptom onset and clinical features

The patient first exhibited symptoms three weeks before being brought to clinical attention. Her mother reported that the patient began expressing concerns that her mother was "not herself" and that she had been replaced by a look-alike who was attempting to harm her. The delusion was specific to her mother and did not extend to other family members or friends. The patient exhibited heightened anxiety, particularly in her mother's presence, and often refused to be in the same room with her.

During the mental status examination, the patient presented with a clear sensorium, showing no signs of hallucinations, thought disorder, or cognitive impairments. She was fully oriented to time, place, and person, and her memory and attention was intact. The delusional belief was the sole abnormal finding, leading to a provisional diagnosis of Capgras syndrome.

This unique presentation, combined with her premorbid temperament, underscores the complexity of diagnosing and managing Capgras syndrome in adolescents, particularly when the etiology is not readily apparent.

Diagnostic workup

Given the rarity of Capgras syndrome in adolescents, especially in the absence of an underlying psychiatric disorder, a comprehensive diagnostic workup was conducted. This included:

Psychiatric evaluation: A thorough psychiatric assessment revealed no symptoms indicative of schizophrenia, mood disorders, or other delusional disorders. There was no history of substance abuse or exposure to psychoactive substances.

Neurological examination: A full neurological examination was unremarkable, with no signs of focal neurological deficits, tremors, or abnormal movements.

Neuroimaging: MRI (magnetic resonance imaging) of the brain was performed to rule out structural abnormalities, tumors, or neurodegenerative processes. The results were normal, with no evidence of lesions in the frontal or temporal lobes, areas often implicated in delusional misidentification syndromes.

Electroencephalogram (EEG): An EEG was conducted to detect any epileptiform activity that could be associated with the delusion. The EEG results were normal, with no evidence of seizures or abnormal electrical activity.

Blood Tests: A full blood panel, including thyroid function tests and screening for autoimmune encephalitis was within normal limits. There were no signs of infection or metabolic disturbances.

Treatment and management

Due to the absence of an underlying psychiatric or neurological condition, the treatment strategy focused on symptom management and psychoeducation. The treatment plan included:

1. *Pharmacotherapy:* The patient was initially started on a low dose of risperidone (0.5 mg/day) to address her delusional thoughts. While this dose is considered a starting point, it is acknowledged that it may be suboptimal for effectively treating psychotic symptoms. During follow-up appointments, the treatment team closely monitored the patient's response. After two weeks, observing minimal improvement in her symptoms, the risperidone dosage was gradually increased to 2 mg/day to better manage her delusional beliefs while minimizing side effects.

2. *Cognitive behavioral therapy (CBT):* The patient and her family participated in weekly CBT sessions, totaling eight sessions over the course of two months. During these sessions, several cognitive distortions were identified, including:

- All-or-Nothing Thinking: The patient viewed her mother's behavior in absolute terms, believing that any change indicated her mother was an impostor.
- Catastrophizing: She often imagined worst-case scenarios, such as her mother planning to harm her.
- Mind Reading: The patient assumed she knew her mother's thoughts and intentions, believing that the "impostor" was malicious.

To address these distortions, the following cognitive restructuring techniques were employed:

- Reality Testing: The therapist encouraged the patient to evaluate evidence for and against her belief that her mother was an impostor. This included discussing specific instances that contradicted her delusion.
- Cognitive Restructuring: The patient was guided to reframe her thoughts by challenging the validity of her beliefs. For example, she was encouraged to consider alternative explanations for her mother's behavior.
- Behavioral Experiments: The patient engaged in exercises where she interacted with her mother in different contexts to gather evidence that supported her mother's identity, reinforcing the idea that her initial beliefs were unfounded.

Role of family members during CBT sessions

In the context of the CBT sessions, family members played a crucial supportive role in the patient's treatment. Their involvement was designed to enhance the therapeutic process and address the dynamics contributing to the patient's delusions. Here are some specific ways in which family members participated:

Support and validation: Family members provided emotional support, reinforcing the patient's efforts to challenge her delusions. Their presence helped create a safe environment where the patient felt understood and less isolated in her experiences.

Facilitating communication: Family members were encouraged to openly communicate their feelings and concerns. This dialogue allowed the patient to hear different perspectives, helping her recognize the inconsistencies in her beliefs about her mother.

Participating in reality testing: Family members were involved in exercises that aimed to challenge the patient's delusions. They shared specific examples and anecdotes that contradicted the belief that the mother was an impostor, providing concrete evidence to support the patient's cognitive restructuring.

Reinforcing positive changes: Family members were guided to acknowledge and reinforce positive behaviors and improvements in the patient's thought patterns. This reinforcement helped motivate the patient to continue her therapeutic work.

Addressing family dynamics: Family therapy sessions also focused on underlying stressors or dynamics that could contribute to the patient's delusions. By addressing these issues collaboratively, the family could strengthen their relationships and reduce tension.

Homework assignments: Family members were often included in homework assignments that encouraged joint activities, helping the patient practice coping strategies and engage in positive interactions with her mother outside of therapy.

3. *Family therapy:* The goals of family therapy was to enhance understanding, improve communication, and support the family as they navigate the challenges of the condition.

Techniques used in family therapy

1. ***Communication skills training:*** Teaching family members effective communication strategies can help reduce misunderstandings and enhance emotional support.
2. ***Psychoeducation:*** Providing information about Capgras syndrome and its implications can help family members understand the patient's experiences, reducing feelings of frustration or helplessness.
3. ***Supportive counseling*:** Offering a space for family members to express their emotions and concerns helps to validate their experiences and strengthen their coping mechanisms.
4. ***Problem-solving strategies:*** Facilitating discussions about specific challenges the family faces can help them develop collaborative solutions and enhance their resilience.

Goals of family therapy in this index case

1. ***Understanding and acceptance:*** The primary goal is to foster an understanding of Capgras syndrome among family members, helping them accept the patient's perspective and the complexities of her condition.
2. ***Improving communication:*** Enhancing communication within the family can reduce tension and misunderstandings, allowing for more supportive interactions.
3. ***Emotional support*:** Providing emotional support to both the patient and her mother is crucial, as the delusion can create significant distress and strain in their relationship.
4. ***Coping strategies:*** Helping the family develop effective coping strategies to manage the stress and anxiety associated with the delusion can promote resilience.
5. ***Enhancing relationships*:** Strengthening family bonds and encouraging positive interactions can help the patient feel more secure and understood, potentially alleviating some of her distress.
4. ***Follow-up:*** The patient was monitored closely with weekly follow-ups to assess the response to treatment and adjust the medication as needed. Over the course of eight weeks, there was a gradual improvement in the patient's symptoms, with a marked reduction in the intensity of the delusional belief. By the tenth week, the patient no longer expressed the belief that her mother was an impostor, although residual anxiety remained.

DISCUSSION

Literature review

Capgras syndrome, though well-documented in adults, remains exceedingly rare in adolescents, particularly those without any underlying psychiatric or neurological disorder. A review of the literature reveals only a handful of cases where Capgras syndrome presented in younger populations. Most cases in adolescents are linked to schizophrenia spectrum disorders, mood disorders with psychotic features, or neurological conditions such as epilepsy.[7-9]

This case is unique because it did not follow the typical pattern associated with Capgras syndrome. The absence of underlying psychiatric or neurological conditions challenges the conventional understanding of the syndrome's etiology. The patient's presentation suggests that Capgras syndrome may occur as an isolated delusional phenomenon in adolescents, raising questions about potential triggers that are not yet fully understood.

Methodological considerations

The methodology for studying rare psychiatric conditions like Capgras syndrome in adolescents is inherently challenging due to the low incidence and atypical presentations. Case reports and small case series remain the primary means of accumulating knowledge about these conditions. However, the reliance on case reports introduces limitations, including the potential for selection bias and the difficulty in generalizing findings to broader populations.[10]

To address these challenges, future research should consider the following methodological approaches:

1. ***Case-control studies:*** Although difficult to conduct due to the rarity of the syndrome, case-control studies could help identify potential risk factors and triggers by comparing adolescents with Capgras syndrome to matched controls without the condition.
2. ***Longitudinal studies:*** Tracking patients with Capgras syndrome over time could provide insights into the natural history of the disorder and the long-term effectiveness of different treatment approaches.
3. ***Neuroimaging and biomarker research:*** Advanced neuroimaging techniques, such as functional MRI (fMRI) and positron emission tomography (PET), could be employed to explore any subtle neurological changes associated with Capgras syndrome in adolescents. Similarly, research into potential biomarkers could help identify adolescents at risk for developing the syndrome.
4. ***Collaborative registries:*** Establishing a registry for rare psychiatric syndromes like Capgras syndrome could facilitate data sharing and research collaboration across institutions, allowing for a more comprehensive understanding of these conditions.

Unique aspects of clinical presentation in this case

Abrupt onset in an adolescent: The patient exhibited a sudden onset of delusional beliefs specifically regarding her mother, which is atypical for Capgras syndrome, particularly in adolescents. Most cases occur gradually or in conjunction with other psychiatric conditions.

Isolated delusion: The delusion was narrowly focused on her mother and did not extend to other family members or friends. This specificity is relatively rare and suggests a unique psychological dynamic, as many cases involve broader misidentifications.

Absence of underlying psychiatric or neurological disorders: The patient had no prior history of psychiatric or neurological conditions, which contrasts with most documented cases of Capgras syndrome that often involve significant underlying mental health issues or neurological impairment.

Premorbid temperament: The presence of a sensitive and anxious premorbid temperament may have influenced the

development of her delusion, highlighting how individual psychological traits can interact with environmental stressors to manifest such conditions.

Effective response to treatment: The patient showed a marked improvement in symptoms with a relatively short course of CBT and pharmacotherapy, which is noteworthy, given the typically complex and challenging nature of treating delusional disorders.

CONCLUSION

This case of Capgras syndrome in an adolescent female without an underlying psychiatric or neurological disorder underscores the importance of considering atypical presentations in young patients. The case highlights the diagnostic challenges posed by such presentations and the need for a tailored, multidisciplinary treatment approach. Although the patient responded well to a combination of pharmacotherapy and CBT, the exact etiology of her condition remains unclear.

Future research should aim to better understand the mechanisms underlying Capgras syndrome in adolescents and explore potential interventions that can be tailored to this population. The establishment of case registries and the application of advanced neuroimaging techniques may offer promising avenues for future study.

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