



A CASE REPORT OF RUSSELL'S SIGN IN A 50-YEAR-OLD FEMALE WITH PERSISTENT DELUSION

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Abstract

Background: Russell's sign is a condition commonly observed in individuals who intentionally induce vomiting and is characterized by the presence of calluses on the dorsum of the hand.¹ This physical manifestation is a significant marker for mental illness and is primarily prevalent among patients diagnosed with eating disorders, such as bulimia nervosa or anorexia nervosa.² Meanwhile, delusion disorder is a psychiatric condition with delusion as its main symptom. The diagnosis is often established when a person exhibits the symptoms one or more times, persisting for at least three months.³ Persecutory delusions are the most common delusion disorder, wherein the patients firmly believe they are being abused or harmed.⁵ Despite the significance of Russell's sign, there is limited knowledge regarding its association with other psychiatric conditions. The appearance of its symptoms can provide important clues about the underlying disease.

Case Report: We identified a case involving a 50-year-old female who exhibited persecutory delusion. During the examination, we discovered a pale lesion on the back of her right hand. Furthermore, the suspicions of food poisoning drove the patient to frequently induce vomiting after meals, which persisted for five years. We prescribed a daily dosage of 15 mg/day of Aripiprazole tablets to treat this condition. During the treatment, the suspicion towards family members gradually diminished, with total adherence to the prescribed medication.

Conclusion: Russell's sign highlighted the severity of the patient's beliefs and prolonged delusion. Furthermore, this case underscored the significance of conducting a comprehensive physical examination when assessing psychiatric disorders, as it could provide valuable insights for the psychiatrist.

Keywords: Russell's Sign, Delusion Disorders, Persecutory Delusion

Introduction:

Individuals diagnosed with bulimia nervosa commonly exhibit Russell's sign due to repeatedly making contact between their incisors and skin during self-induced vomiting or using their fingers to induce reflex vomiting at the back of the throat. This sign often manifests as lacerations, abrasions, and calluses on the dorsal surface of the hand, covering the metacarpophalangeal and interphalangeal joints. According to previous reports, it is considered one of the physical manifestations associated with mental illnesses, mainly eating disorders, such as bulimia nervosa or anorexia nervosa. However, the identification of Russell's sign alone does not indicate the presence of an eating disorders.^{1,2}

Delusion disorder is a psychiatric condition characterized by the prominent presence of delusion as its main symptom. Delusions are erroneous beliefs that persist despite contradicting evidence and are based on inaccurate interpretations of external reality. Medical professionals often diagnose delusion disorders when an individual experiences this symptom at least once for at least three months. Furthermore, the delusion experienced must not be attributable to other mental disorders, physiological factors, substance use, or medical conditions.³

Criteria for delusion disorders according to PPDGJ-III are :³

- a. Delusion is the only characteristic clinical feature or most prominent symptom. This delusion (whether singular or part of a delusion system) must have been present for at least three months and must be personal, not cultural.
- b. Depressive symptoms or a full-blown depressive episode may occur intermittently, provided that delusion persists during periods of no affective disturbance.
- c. There must be no evidence of brain disease.
- d. There must be no auditory hallucinations; if present, they must be occasional and temporary.
- e. There must be no history of schizophrenic symptoms (delusion of being controlled, broadcast thoughts, affective accumulation, etc.).

According to DSM-V, the lifetime prevalence of delusion disorders is approximately 0.02%, with an incidence rate of 0.7-3.0 per 100,000 population. Furthermore, its prevalence is lower than other conditions, such as schizophrenia, bipolar, and mood disorders. This can be attributed, in part, to underreporting and inadequate case documentation, as affected patients may not actively seek help. Many individuals with delusion disorders can function reasonably well in society and only seek psychiatrists when compelled by family or friends. The average age of onset is typically around 40 years, and the manifestation of persecutory and jealous delusion is more common in males.⁴

Patients with persecutory delusion often believe that they are being persecuted or harmed, and this condition is associated with anxiety, irritability, and anger. Affected individuals commonly act out of irritation, which can lead to an attack or murder.⁵

Based on previous findings, there are limited reports on the relationship between Russell's sign and other psychiatric conditions. The appearance of these symptoms can provide important clues about the underlying disease. Therefore, this report presents a case of a 50-year-old female experiencing persistent delusion disorders for the past five years and Russell's sign due to continuous induced vomiting caused by persecutory delusion.

Case Report

A 50-year-old divorced woman came to the psychiatric polyclinic with the main complaint of frequently suspecting her family members and having a brownish lesion on the dorsum of her right hand. During history taking, we found that the patient consistently refused to eat food provided by family members and repeatedly induced vomiting. The patient also frequently rinsed the mouth to eliminate toxins, which persisted for five years. This behaviour was exhibited due to suspicion that family members had poisoned the food presented. Physical examination revealed the presence of multiple callosities with hyperpigmentation on the fingertips of the right hand without other skin lesions. The complaints worsened in the past few months, leading to personal isolation and retraction from social interactions.

The patient's parents divorced during elementary school, and a grandmother who raised them passed away after they graduated from senior high school. Furthermore, the patient got married at the age of 20 years, gave birth to a child, and divorced at 40 years. Further assessment showed a poor mother-child relationship due to the child's close bond with the ex-husband, a prisoner.

Findings showed no family or personal history of mental or emotional disorders. They also denied a history of drug use, and the general medical conditions were normal. During the mental status examination, the affect and mood observed were euthymia. Furthermore, there were no impairments in thought processes, orientation, perception, concentration, memory, abstraction, and judgment. There was also no history of auditory or visual hallucinations, no family history of psychotic disorders, no evidence or symptoms of brain disease, no signs of schizophrenia, and no use of psychoactive substances. The patient was then diagnosed with persistent delusion disorders based on the diagnostic criteria of the Indonesian Classification and Diagnostic Guidelines for Mental Disorders III (PPDGJ III).

After diagnosing the condition, we administered a treatment regimen that involved taking a 15mg aripiprazole tablet daily. During treatment, the suspicion towards family members gradually diminished, and there was total compliance with the medication. At the 6-month follow-up, the intensity of the patient's conviction had decreased. On further questioning, there was a report of persecutory delusion, but the vomit-inducing behaviour had stopped entirely, along with improved social interactions.

Discussion

The patient's diagnosis was established based on the diagnostic criteria of the Indonesian Classification and Diagnostic Guidelines for Mental Disorders III (PPDGJ III). Anamnesis showed the exhibition of delusion lasting for more than three months, with suspicion towards family members and intentionally inducing vomiting. Furthermore, the fear came from believing that family members were trying to cause harm. Still, there was no reason to believe this, as family members discarded the insinuation during an interview. Further assessment showed that there was no history of visual or auditory hallucinations. Based on this information, the patient was diagnosed with persecutory delusion. Physical examination revealed the presence of multiple callosities with hyperpigmentation on the knuckles, which were symptoms of Russell's sign.

Previous studies had only reported the association of Russell's sign with eating disorders. In this patient, induced vomiting was a behaviour exhibited due to the delusion belief of being a victim of food poisoning. This behaviour led to calluses on the back of the right hand. In patients exhibiting repeated vomiting induction behaviour, common differential diagnoses, such as eating and obsessive-compulsive disorders, must be considered. However, we could rule out both diagnoses because the patient did not perceive this behaviour as excessive or irrational. A delusional belief caused it rather than a disturbance in body image.^{6,7}

In this patient, there were no abnormal laboratory results. Although laboratory tests are considered unnecessary for diagnosing delusion disorders compared to most psychiatric conditions, doctors must still consider using imaging or laboratory evaluations to eliminate the possibility of organic causes. Additionally, screening for substance-induced conditions should be conducted using urine tests, followed by a clinical examination. Furthermore, a doctor could conduct an assessment and ask further questions about the delusion of the patients. During the evaluation, a doctor often conducted a comprehensive mental status examination. It is also essential to consider the medical history of family and friends, as they might offer additional details about delusions and the timeline of symptom onset.⁴

We administered aripiprazole to the patient at a daily dose of 15 mg. Previous studies demonstrated that antipsychotics effectively managed delusion disorders with a response rate of 50%. Moreover, aripiprazole was a commonly employed monotherapy, using an average dose below the prescribed daily dosage in this report. Researchers reported that this drug exhibited partial agonist properties on dopamine D2 and D3 receptors and serotonin 5HT1A receptors while also acting as an antagonist on 5HT2A receptors. Its modulation of dopamine and serotonin signalling could explain the drug's

effectiveness in treating delusion disorders. Aripiprazole possessed a distinctive pharmacological property as a partial dopaminergic agonist, affecting both pre- and post-synaptic D2 receptors associated with psychotic symptoms. Ensuring treatment adherence emerged as a critical determinant of the prognosis for delusion disorders. Factors such as lack of insight, social functioning, and work environment might diminish treatment efficacy.^{8,9}

Delusional disorder often remains undetected until symptoms have escalated to a level where the individual's gradual decline in functioning becomes apparent to primary care, mental health, or policing services. At this stage, the intensity and certainty of the beliefs, coupled with distress, psychosocial setbacks, and damage to reputation, can create significant barriers to successful treatment and engagement. Individuals might hesitate to seek assistance as they lack a complete understanding of their needs and the disorder's impact on their lives.¹⁰

Previous studies reveal that individuals with delusional disorder may exhibit compromised verbal memory and executive functions compared to healthy counterparts, pointing to potential dysfunction in the prefrontal cortex and temporolimbic structures. Such impairments in encoding, retrieval of verbal information, and cognitive flexibility can lead to difficulties in acquiring social skills and applying effective problem-solving strategies, consequently impacting social cognition. This, in turn, can result in reduced social competence and functional limitations. Given the modest success of current pharmacological and cognitive-behavioural approaches in treating delusional disorder (with roughly one-third of patients responding positively to medication), tailored cognitive remediation or training strategies targeting verbal memory and potential abstraction/flexibility processes could offer functional benefits for individuals.¹¹

With proper treatment and medication adherence, the prognosis for delusional disorder improves. Medication yields a positive response in nearly 50% of patients, and over 20% experience symptom reduction. Conversely, fewer than 20% report minimal to no change. While delusional disorder is typically chronic, effective management can alter its trajectory.⁴

Conclusion

Identifying Russell's sign in this patient revealed the severity and duration of the delusion. From this case, a complete physical examination could provide important information to the psychiatrist while evaluating psychiatric illnesses. Moreover, appropriate treatment can achieve a better prognosis by necessitating trust, fostering a solid doctor-patient relationship, and ensuring treatment adherence.

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