

**CASE REPORT**

# You are already dead: Case report of nihilistic delusions regarding others as one representation of Cotard's syndrome

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**Abstract**

**Background:** While the symptom of “I am already dead” is a hallmark of Cotard's syndrome, also known as nihilistic delusions, the symptom of “you are already dead” has been neglected.

**Case presentation:** A woman aged in her 60s diagnosed with schizophrenia was admitted to our hospital for psychotic symptoms, including delusions of reference, delusions of guilt, auditory hallucinations, cenesthetic hallucinations, agitation, depression, suicidal ideation, and catatonia. During hospitalization, her cenesthetic hallucinations progressed to include nihilistic delusions. She described cenesthetic hallucinations along with various delusional descriptions, including the belief that various objects, such as spoons, irons, nails, rulers, bins, and coins, were inside her body and that her body was being burned or in danger of exploding. She also claimed an altered sense of her own body, that her body was larger than normal or reversed. Moreover, she reported nihilistic delusions that her face and body did not exist, that her heart was not functioning, and that she was going to die soon or was already dead. She occasionally refused to eat because of the feeling of being dead. Notably, during a severe episode, she claimed that a doctor in front of her was dead. Clozapine was effective in improving her symptoms. Ultimately, the patient regained her sense of being alive and acknowledged that the doctor was alive.

**Conclusion:** We report the case of a patient presenting with nihilistic delusions regarding both self and others, along with prior cenesthetic hallucinations. Aberrant interoceptive processing could be a potential link between these two forms of nihilistic delusions.

**KEYWORDS**

Cotard, delusion of negation, interoception, nihilistic delusion

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## BACKGROUND

The “I am already dead” symptom is a hallmark of Cotard's syndrome, also known as “nihilistic delusions.”<sup>1,2</sup> The classical features of this syndrome include nihilistic delusions, delusions of immortality, delusions of guilt, ideas of damnation or possession, insensitivity to pain, auditory hallucinations, anxious melancholia, and suicidal behaviour.<sup>3</sup> This syndrome is predominant in women and most frequently observed in middle-aged to older patients. Patients with various psychiatric and neurological disorders, including schizophrenia and affective disorders, have been reported to present with this syndrome.<sup>3-5</sup> Although pharmacological therapy is effective in approximately half of the patients,<sup>4</sup> modified electroconvulsive therapy (mECT) may be required to improve symptoms in some patients. The underlying pathophysiology of Cotard's syndrome remains unknown.

Whereas nihilistic delusions regarding self, such as the denial of one's body and the feeling of being dead, have been widely recognized, nihilistic delusions regarding others have been neglected.<sup>1,5</sup> Here, we present the case of a patient with schizophrenia who expressed the “you are already dead” belief, in addition to typical nihilistic delusions. We then discuss the potential mechanisms underlying this symptom.

## CASE PRESENTATION

A woman in her 60s who was operationally diagnosed with schizophrenia based on the *Diagnostic and Statistical Manual of Mental Disorders*, 5th Edition, criteria was admitted to our hospital for acts of violence at home arising from her auditory hallucinations and delusions of reference. She had a medical history of hypothyroidism, which did not account for her psychotic symptoms. Structural magnetic resonance imaging (MRI) findings were negative. Symptom onset occurred at the age of 19 years, and her condition gradually worsened. Furthermore, poor adherence to treatment resulted in treatment resistance and repetitive admissions.

In addition, the patient presented with agitation, depression, suicidal ideation, delusions of guilt, catatonia, and cenesthetic hallucinations. Neurological examination revealed insensitivity to pain and touch. Over the course of the patient's hospitalization, her cenesthetic hallucinations progressed to include nihilistic delusions. She claimed to experience cenesthetic hallucinations along with various delusional descriptions, including the belief that various objects, such as spoons, irons, nails, rulers, bins, and coins, were inside her body or that her body was being burned or in danger of exploding. She also claimed an altered sense of her own body, stating that her body was larger than normal or reversed. Moreover, she reported nihilistic delusions that her face and body were non-existent, her heart was not functioning, she was going to die soon, and she was already dead. At times, she refused to eat because of the feeling of being dead.

Intriguingly, while in the condition's severe form, she claimed that the doctor in front of her and other patients in her shared room were dead. She also claimed that another doctor had committed suicide, her son would soon die, and she had killed her daughter. She was unable to provide a reason for these beliefs and sometimes provided delusional explanations.

Usual medications were ineffective in treating these symptoms, and mECT with bitemporal electrode placement was administered more than 20 times (twice per week) with only partial effectiveness. Consequently, clozapine (up to 200 mg) was prescribed, effectively improving her symptoms (Positive and Negative Syndrome Scale score: positive 31 → 13, negative 28 → 25, and general 27 → 16). Ultimately, the patient regained her sense of being alive and acknowledged that the doctor was alive. The patient provided informed consent for this case report.

## DISCUSSION

We presented the case of a patient with cenesthetic hallucinations and nihilistic delusions regarding both self and others. Notably, the patient's nihilistic delusions developed from her various cenesthetic hallucinations with delusional descriptions. In some case reports of Cotard's syndrome, the patients exhibit several related symptoms, such as the belief that they have no family members, their doctors do not exist, their children are dead, and everyone around them is dead.<sup>2,5-7</sup> However, the prevalence of these related symptoms is not well understood, and these types of nihilistic delusions regarding others have been neglected compared to nihilistic delusions regarding self.

First, the potential mechanism of nihilistic delusions regarding self should be considered. Recently, a mechanism based on the dysfunction of “interoception” has been gaining attention.<sup>5,8</sup> Interoception refers to internal bodily sensations, with the insular cortex associated with its neural basis. The James–Lange theory suggests that interoception plays a key role in the development of emotion,<sup>9</sup> and it has more recently been recognized for its importance in forming body image.<sup>10</sup> According to the theory of interoceptive dysfunction, abnormal interoceptive processing may lead to loss of emotional resonance or emptiness, ultimately resulting in the feeling of being dead.<sup>8,11</sup> This theory, which is in line with the two-factor theory of delusions, proposes that the development of delusions requires both extraordinary perceptual experience (first factor) and abnormal reasoning regarding it (second factor).<sup>8</sup> Some case studies of Cotard's syndrome support this mechanism, including one case of insular atrophy<sup>8</sup> and another that showed positron emission tomography (PET) changes after symptom improvement using ECT.<sup>11</sup> This theory is particularly appealing as it explains the various symptoms of Cotard's syndrome, such as pain asymbolia, alexithymia, and melancholia, as well as nihilistic delusions regarding self.<sup>8,12</sup>

Additionally, our patient's cenesthetic hallucinations with delusional descriptions (secondary delusions) may support the two-factor theory of delusions. According to this theory, her delusional



descriptions, such as the presence of various objects within her body and her body burning or exploding, can be considered abnormal reasoning. Her delusional descriptions may be linked to her visceral sense; one potential underlying abnormality could be interoceptive dysfunction. An association between cenesthetic hallucinations and the insula has been reported.<sup>13,14</sup> Her other delusions, such as the belief that her body was larger than normal or reversed, could be a reflection of her disrupted body image and subsequent abnormal reasoning. This may be owing to the aberrant integration of bodily information, including interoception and proprioception.<sup>10</sup>

Considering the consistent underlying pathophysiology, our patient's symptom progression from various cenesthetic hallucinations to nihilistic delusions regarding self may support this theory. Moreover, abnormal reasoning may be linked to metacognitive deficits, which have been widely recognized in schizophrenia and contribute to the development of delusions.<sup>15</sup> The lack of insight and metacognition of her symptoms was clearly observed in our patient throughout her entire clinical course beyond her present course and might have provoked her current delusions.

According to this theory, we speculate that nihilistic delusions regarding others may also be attributed to abnormalities in interoception during social interactions. In our case, the patient said "you are already dead" during a face-to-face conversation with one of the authors. Her statement that other patients in her shared room were already dead could be attributed to equivalent pathophysiology as she interacts with them in the shared space. Increasing evidence is being reported on interoception's crucial role in recognizing others' emotions in the context of social cognition and empathy.<sup>9</sup> Interoception contributes to the precise and intense recognition of others' emotional expressions<sup>9,16</sup> and enhances empathy based on the theory of mind and shared emotional representation between self and others' experiences.<sup>17,18</sup> Additionally, the perception of animacy in others' faces has been linked to social interaction.<sup>19</sup> A functional MRI study found that animacy perception is associated with a social neural network, wherein the insula has the strongest activation.<sup>20</sup> Therefore, impaired interoceptive processing could disrupt emotional engagement with others during social interactions, manifesting as nihilistic delusions regarding others. This disrupted emotional engagement could also serve as the first factor in the two-factor theory of delusions, paralleling the disruption or aberration of bodily signals in nihilistic delusions regarding self. Subsequent delusional reasoning, as the second factor, leads the patient to the conclusion that individuals in front of her are dead.

In addition to our patient's potential disruption in emotional engagement during ongoing social interactions, her affected memory may have contributed to her symptom development. She also expressed nihilistic delusions regarding individuals who were not present, such as the delusional belief that her son would die soon, and that she had killed her daughter. While her various symptoms, such as fear, guilt, and nihilism, may be intertwined in such delusional belief, the theme of death may emphasize nihilistic aspects of her symptoms. Although further research is needed to fully understand

the impact of interoceptive dysfunction on memory, the insular cortex has been reported as being associated with the vividness and richness of autobiographical memory.<sup>21,22</sup> Thus, an affected recall could serve as the first factor in the development of such symptoms.

Limitations of the study include the lack of brain function assessment, such as PET, owing to our hospital's lack of such equipment. Additionally, we were unable to conduct any neuropsychological assessment of interoception or any other neuropsychological assessments because of the severity of the patient's symptoms. Nevertheless, we believe that our patient's symptomatic progression and the existing research and theories imply the possibility of interoceptive dysfunction.

## CONCLUSION

Here, we report the case of a patient presenting with nihilistic delusions regarding both self and others and prior cenesthetic hallucinations that support our hypothesis that aberrant interoceptive processing may be a potential link between these two forms of nihilistic delusions. Further research on the underlying pathophysiology of Cotard's syndrome is warranted. We believe that our case report strikes the neglected vital point of Cotard's syndrome.

## AUTHOR CONTRIBUTIONS

All authors contributed to the patient's treatment and discussion regarding her symptoms. A. K. wrote the first draft, and all co-authors have approved the final manuscript.

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## CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

All available data were included in this manuscript. This case's more detailed data are unavailable because of personal information protection.

## ETHICS APPROVAL STATEMENT

This case report was conducted in accordance with ethical guidelines for case reports of the Japanese Society of Psychiatry and Neurology.

## PATIENT CONSENT STATEMENT

Written informed consent for this case report was obtained from the patient in accordance with ethical guidelines for case reports of the Japanese Society of Psychiatry and Neurology.

## CLINICAL TRIAL REGISTRATION

N/A.

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