

Temporal association of psychotic and cognitive symptoms in an alcohol-induced psychosis case

Alkole bağı bir psikoz olgusunda psikotik ve bilişsel semptomların zamansal ilişkisi

Koray Yariz¹, Sivi Kuci², Meltem Kamaci³, Burcu Kahveci Oncu³, Inci Ozgur Ilhan⁴

¹Assist. Dr., ³MSc., ⁴Prof. Dr., Department of Psychiatry, Ankara University School of Medicine, Ankara, Turkey, <https://orcid.org/0000-0001-5901-8406>, <https://orcid.org/0000-0002-1500-5061>, <https://orcid.org/0000-0001-5052-2841>, <https://orcid.org/0000-0002-6031-5739>

²M.D., Private Guven Hospital, Psychiatry Clinic, Ankara, Turkey, <https://orcid.org/0000-0003-4516-970X>

SUMMARY

Alcohol use-related psychotic disorder is a complication of alcohol use disorder associated with heavy alcohol consumption for many years. It is usually seen after the age of 40 and is often accompanied by auditory hallucinations. Cognitive disorders are observed more frequently in these patients than in patients with uncomplicated alcohol use disorder. Findings from some studies suggest a relationship between alcohol use-related psychotic disorder and cognitive impairment. In this case report, a 56-year-old male patient in whom both psychotic and cognitive signs and symptoms improved at the same rate with antipsychotic treatment is presented. What was remarkable in our case was the simultaneous and almost complete recovery of the psychotic state and cognitive impairments observed during alcohol use and withdrawal periods. The simultaneous occurrence of psychotic symptoms and cognitive impairments and their recovery at the same time suggest that cognitive symptoms in alcohol-related psychosis are not related to alcohol use alone, but are directly related to accompanying psychotic symptoms and are temporary like psychotic symptoms. It can even be suggested that cognitive impairments may be included in the symptom list of psychotic disorder due to alcohol use. Follow-up studies on this subject will facilitate the understanding of the cognitive and neurobiological basis of alcohol use-related psychotic disorder.

Informed consent was obtained from the patient for publication of this case report.

Keywords: alcohol-induced psychotic disorder, cognitive disorder, alcoholic hallucinosis, addiction, alcohol dependence

ÖZET

Alkol kullanımına bağlı psikotik bozukluk, uzun yıllardır yoğun alkol tüketimi ile ilişkili alkol kullanım bozukluğunun bir komplikasyonudur. Genellikle 40 yaşından sonra görülür ve sıklıkla işitsel halüsinasyonlar eşlik eder. Komplike olmayan alkol kullanım bozukluğu olan hastalara göre bu hastalarda bilişsel bozukluklar daha sık gözlenir. Bazı çalışmalardan elde edilen bulgular, alkol kullanımına bağlı psikotik bozukluk ile bilişsel bozulma arasında bir ilişki olduğunu düşündürmektedir. Bu olgu sunumunda antipsikotik tedavi ile hem psikotik hem de bilişsel belirti ve bulguları aynı oranda düzelen 56 yaşında erkek hasta sunulmaktadır. Olgumuzda dikkat çekici olan, alkol kullanımı ve bırakma dönemlerinde gözlenen psikotik durum ve kognitif bozuklukların eş zamanlı ve tama yakın düzelmesi idi. Psikotik belirtilerin ve bilişsel bozuklukların aynı anda ortaya çıkması ve bunların aynı anda iyileşmesi, alkole bağlı psikozdaki bilişsel belirtilerin tek başına alkol kullanımıyla ilgili olmadığını, doğrudan eşlik eden psikotik belirtilerle ilişkili olduğunu ve psikotik belirtiler gibi geçici olduğunu düşündürmektedir. Bilişsel bozuklukların alkol kullanımına bağlı psikotik bozukluğun belirti listesine dahil edilebileceği bile ileri sürülebilir. Bu konudaki takip çalışmaları, alkol kullanımına bağlı psikotik bozukluğun bilişsel ve nörobiyolojik temelini anlaşılmasını kolaylaştıracaktır.

Bu vaka raporunun yayınlanması için hastadan bilgilendirilmiş onam alındı.

Anahtar Kelimeler: alkole bağlı psikotik bozukluk, bilişsel bozukluk, alkolik halüsinosis, bağımlılık, alkol bağımlılığı

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INTRODUCTION

Alcohol-induced psychotic disorder is a rare complication of alcohol use disorder, associated with heavy alcohol consumption for many years (1). Although it varies from country to country, the lifetime risk for alcohol addiction is 10-15% for men and 3-5% for women, only 2-3% of these patients experience psychotic symptoms. However, only 33% of the aforementioned patients are diagnosed with alcohol-induced psychotic disorder. This disorder differs from schizophrenia because of the temporal relationship of psychotic symptoms with alcohol use and according to the DSM-5 criteria delusions, hallucinations, disorganized speech, disorganized or catatonic behavior, or negative symptoms last at least for six months and the symptoms are not attributed to a substance or other medical condition in schizophrenia, and from delirium tremens by an intact consciousness, fully oriented, non-fluctuating course of the clinic, and an insignificant disturbance of attention (2). It is usually seen after the age of 40 and often accompanied by auditory hallucinations (3).

Cognitive disorders are observed more frequently in these patients compared to patients with uncomplicated alcohol-use disorder (4). Some studies concluded that attention and concentration difficulties were observed more frequently in patients with alcohol-induced psychotic disorder than patients with uncomplicated alcohol use disorder (5, 6). In a more recent cross-sectional study, patients diagnosed with alcohol-induced psychotic disorder performed worse in the areas of immediate verbal memory, recall, verbal reasoning skills, and abstraction when compared to patients with uncomplicated alcohol use disorder (7). Although there is a vast number of studies on neurocognitive impairment due to alcohol use, there are few studies focusing on cognitive impairments in alcohol-induced psychotic disorder. The existing studies, on the other hand, are generally cross-sectional and more follow-up studies are needed, as they do not provide sufficient findings regarding the course of the disease.

In this article, it is stated that cognitive impairment is observed in conjunction with alcohol-induced psychotic disorder; where psychotic and cognitive

symptoms of a 56-year-old male patient improved at the same rate when treated with antipsychotic drugs.

CASE REPORT

56-year-old male patient was addressed with the decision of compulsory hospitalization, accompanied by the police. According to the information obtained from the relatives who were told by the patient he had no complaints and that the decision of compulsory hospitalization was made due to his disturbing behaviors such as throwing things out of the window and shouting, irritability, sudden outbursts of anger, expansive speech and incoherence, and it was brought to attention by the relatives that he thought the National Intelligence Organization, president's wife and the mafia were chasing him, and that he was being punished for what he did in the past.

During the post-hospitalization interviews, the patient complained of memory problems. The patient felt guilty about upsetting his relatives with his drinking, and he thought of some of his behaviors when drinking alcohol as illicit, consequently feeling remorseful. He said he had from time to time suicidal thoughts. He claimed of hearing voices blaming him, sometimes even seeing dead people. His sleep was poor and irregular. His appetite was reduced and as a result he lost weight. To our observation, the patient was forgetful when telling his medical history and past experiences.

The patient started using alcohol at the age of twelve. He consumed a beer (approximately 2 standard drinks) once or twice a month until the age of twenty, then increasing his alcohol consumption over the years. In his thirties, he was having 5-7 beers (approximately 10-14 standard drinks) per day. The patient tried to quit alcohol several times and applied for residential treatment but continued to consume 10-15 beer (approximately 20-30 standard drinks) or equivalent amount of raki (an alcoholic drink made of twice-distilled grapes and anise) after the age of fifty. Considering the alcohol history of the patient, it can be said that he has heavy alcohol consumption almost every day, especially in his 30s, and that he has heavy alcohol consumption every day after the age of 50 and contin-

ues uninterrupted, although there are attempts to quit.

When examining the patient's past medical records, it was noticed that six years before his last hospitalization, he had heard voices that were blaming and threatening him, that he perceived these sounds as coming from behind a wall, that he saw dead people, and that he had an increased interest in sharp objects, because of his suicidal thoughts. It was learned that during these periods when the patient had psychotic symptoms, he also had alcohol use. In addition, it was reported that the patient had depressive symptoms and received antidepressant treatment as a psychiatric outpatient for the last six years; however, it became apparent that there was a non-compliance with the medication. The psychotic symptoms that recurred three times over the last 6 years and the accompanying complaints of memory problems improved with antipsychotic treatment and detoxification, usually within 2-3 weeks; however, when the patient started drinking again, both psychotic and cognitive symptoms recurred. The information obtained from the patient's alcohol clinic records showed that periods of exacerbation of psychotic symptoms always coincided with periods of increased alcohol consumption and impaired adherence to alcohol treatment.

The patient had a medical history of coronary artery disease and hepatosteatosis due to alcohol use, and no indication of substance use.

On the physical examination of the patient who had no abnormal findings on neurological examination, immediate and long-term memory was sufficient; however, it was observed that the short-term memory was impaired, and the patient could remember only one of the three words given. Although he remembered one of the other two words in a multiple-choice section, he could not remember the third one in the time he has been given.

The patient's blood count and fasting blood sugar test, liver function tests, kidney function tests, electrolytes, thyroid function tests, vitamin B12 and folic acid levels were normal.

In his psychiatric examination, he was conscious

and his orientation to place and person was intact, but his orientation to time was partially impaired. In the cross-sectional examination, impairment in attention and short-term memory was found, and there was no pathology in the patient's perception. He had an impaired subjective judgment, looseness of association, incoherence, irritable mood, his affect was congruent with mood, accelerated thinking, his speech was expansive and detailed. He had circumstantial and tangential thoughts. Grandiose themes and referential and persecutory delusions drew attention in the content of the patient's thoughts, who was observed to have increased psychomotor activity.

Mini Mental State Test, Clock Drawing Test, Verbal Memory Processes Scale, and Frontal Assessment Battery were applied in the second day of hospitalization and before detoxification treatment to evaluate the cognitive functions of the patient whose attention and memory problems were noticed in the history and psychiatric examination.

In the Mini Mental State Test, which was applied to evaluate the cognitive state of the patient, it was noticed that his orientation and memory were impaired (Total: 24/30).

In the Verbal Memory Processes Scale, given to evaluate short-term memory functions, subpar performance was observed in all subcategories compared to people similar in age and education. He experienced difficulties in coding, storage, and

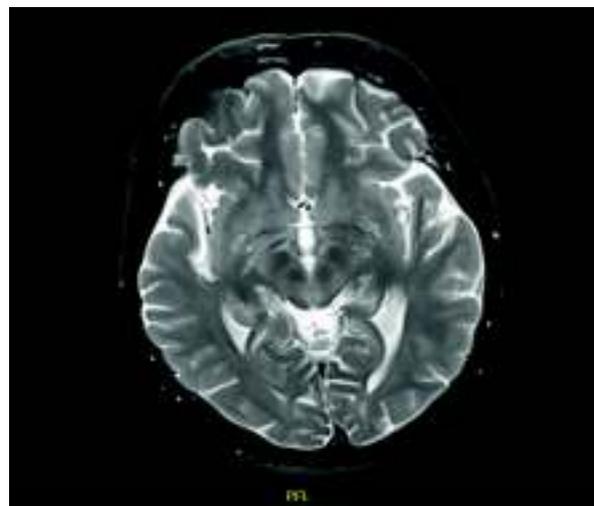


Figure 1. Brain MRI of the patient

recall processes; immediate memory, learning, and short-term memory impairments were observed.

The score he got in the Clock Drawing Test, which was given to evaluate memory, visual-spatial skills, structuring and executive functions, indicated that the patient had impairment in executive functions.

Frontal Assessment Battery was used to evaluate the patient's frontal functions, and as a result of the evaluation, it was observed that the patient's frontal functions were impaired.

As a result, when the findings were evaluated together, it was determined that the patient had impairments in orientation, memory, executive functions, and frontal lobe functions.

No significant pathology was detected in the patient's brain MRI (Figure 1).

Taking into consideration the clinical symptoms and test results the patient was hospitalized, a five-day oral detoxification treatment with diazepam was applied. For psychotic symptoms, he was given olanzapine 10 mg / day. The detoxification treatment was discontinued in the fifth day and no withdrawal symptoms or alcohol craving was observed in the patient. Trazodone 50 mg / day was added to the treatment since the patient stated difficulty in falling asleep. In the evaluation one week after admission, agitation was observed. His persecutory delusions continued. He exhibited loosening of associations and flight of ideas. His circumstantial and tangential speech continued. Since he was still agitated, the dose of olanzapine was increased to 20 mg / day.

In the examination two weeks after his admission, the patient was followed up with the current treatment, with a noticeable improvement in attitude towards the interviewer, his persecutory and referential delusions decreased, his associations were more regular, his thought stream was close to normal, his depressive mood improved, and his psychomotor activity was normal. Thereupon, it was planned to continue the patient's treatment as an outpatient. Discharge treatment was arranged as

olanzapine 20 mg / day, trazodone 50 mg / day and oral B and C vitamin complexes.

When the patient came for a doctor visit 10 days later (in the fourth week of hospitalization and alcohol abstinence), it was observed that he was more motivated to cooperate with the treatment. His psychotic and depressive symptoms were completely resolved. He stated that he was less forgetful. In his psychiatric examination, it was observed that his self-care was adequate and had a positive attitude towards the interviewer. No pathology was found in attention and memory examinations. His judgement was intact, associations were regular, and his mood was euthymic. The neurocognitive tests were repeated two weeks after the first test, since there was a significant improvement related to his previous complaints and clinical examination associated to memory.

In the Mini Mental State Test, it was found that the patient did not experience any impairment in any subfield. Cognitive abilities were within normal limits.

The score obtained from the Clock Drawing Test, which was applied to evaluate memory, visual spatial skills, structuring and executive functions, was 4/5. It can be said that there was a slight and partial impairment in executive functions such as concentration, planning, maintain strategies, coding and processing relevant information in working memory, problem solving in consecutive tasks in the goal-directed behavior.

In the Verbal Memory Processes Scale, which was given to evaluate short-term memory functions, it

Table 1. First and second neurocognitive test scores during and after resolution of the psychotic state with an interval of 2 weeks

		FIRST TEST	SECOND TEST
MMSE	Orientation	8/10	10/10
	Registration	3/3	3/3
	Attention and calculation	5/5	5/5
	Recall	0/3	3/3
	Language	8/9	9/9
	TOTAL	24/30	30/30
VMPS	Immediate memory	1 (3.3+)	5 (0.06+)
	Complete learning points	96 (2.09+)	111 (0.6+)
	Long-term memory	9 (0.03+)	13
CDT		1/5	4/5
FAB	Similarities	3/3	3/3
	Lexical verbal fluency	0/3	3/3
	Motor series	1/3	2/3
	Conflicting instructions	2/3	3/3
	Go-No go	0/3	3/3
	Prehension behavior	3/3	3/3
		TOTAL	9/18

(MMSE: Mini mental state examination, VMPS: Verbal memory processes scale, CDT: clock drawing test, FAB: Frontal assessment battery)

was found that the patient received low scores for the immediate memory and learning score fields with small standard deviations in accordance with age and education; however, it was observed that it remained within the normal range in the short-term memory area. It was observed that the patient had mild problems with verbal memory and verbal learning, coding, storage, and recall.

Frontal Assessment Battery was used again, and as a result of the evaluation, it was observed that the patient's frontal functions were normal. When all the test results were evaluated, it was concluded that the patient's cognitive functions were in normal range (Table 1).

The patient continues his current treatment and doctor visits regularly as an outpatient. After his discharge, the patient was still abstinent without any psychiatric symptoms.

DISCUSSION

In this case report, the psychotic symptoms of the patient had a temporal relation with alcohol use, and the patient had perceptual disturbances; however, the diagnosis was evaluated as "alcohol-induced psychotic disorder" according to ICD-11, since his consciousness appeared fair, disorientation was not evident and the clinic did not show a fluctuating course. In ICD-11, this diagnosis is defined as "development of psychotic symptoms during or immediately after alcohol withdrawal or alcohol intoxication, thought to be a direct result of alcohol use" (8). It usually occurs after the age of 40, and auditory hallucinations are often perceived as feelings of guilt, threatening sounds, sometimes coming from behind a wall or door. These hallucinations are distinguished from the hallucinations in schizophrenia by relation in time with alcohol use, the absence of a classic history of schizophrenia and their short duration. Alcohol-related psychotic disorder is repetitive in every drinking period and usually resolves in a short time with antipsychotic treatment and detoxification. The history of our patient's complaints, clinical examinations and response to treatment are also consistent with all these diagnostic criteria.

Some studies have found greater deterioration in immediate and short-term memory, verbal reasoning, and visual-spatial structuring skills in patients with alcohol-related psychotic disorder compared to uncomplicated alcohol use disorder (7). It has been reported that the impairments in tests evaluating verbal reasoning skills are due to left temporal and frontal lobe involvement (9). This localization may partially explain the occurrence of psychotic symptoms and support frontal and temporal lobe involvement in alcohol-related psychotic disorder.

Findings obtained from some studies suggest that there is a correlation between psychotic disorder related to alcohol use and cognitive impairment (10). What draws attention in our case report is the psychotic state and cognitive impairments observed during alcohol use and withdrawal periods improved simultaneously. It is known that there are impairments in various cognitive functions that develop secondary to alcohol use disorders without a psychotic disorder, and these impairments persist for a long time, and may even be permanent (11). There is also a study reporting different cognitive impairments in psychotic disorder due to alcohol use (10); however, there is no follow-up study on the prognosis of cognitive impairment in psychotic disorder due to alcohol use disorder. In our case, the simultaneous exhibition and then resolving of cognitive impairment and the psychotic symptoms suggests that the cognitive symptoms in alcohol-related psychotic disorder are not related to alcohol use alone, but are directly related to the accompanying psychotic symptoms and are transient, just like the psychotic symptoms. It could be considered that cognitive impairments may be included in the symptom list of alcohol-related psychotic disorder. Follow-up studies on this topic will facilitate the understanding of the cognitive and neurobiological bases of alcohol-induced psychotic disorder.

Correspondence address: Dr. Koray Yarız , Ankara Üniversitesi Tıp Fakültesi Psikiyatri Anabilim Dalı Cebeci / Ankara Ankara - Türkiye, korayyariz@gmail.com

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