



Case report

A case report of COVID-19-associated severe psychotic symptoms and suicidal behavior: a late psychiatric intervention

Yen Phi Ho Nguyen^{*a}, Xuan Manh Bui^a, Minh Chau Pham^a, Anh Ngoc Tran^a, Trung Nghia Tran^a and Tich Linh Ngo^a

^aDepartment of Psychiatry, University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam.

Received January 29, 2022; Revised October 08, 2022; Accepted October 19, 2022

Abstract: A 25-year-old previously healthy female patient experienced new-onset psychosis and showed suicidal behavior after contracting COVID-19. Based on the International Statistical Classification of Diseases and Related Health Problems (ICD-10), the diagnosis of an acute and transient psychotic disorder (ATPD) was appropriate. Due to poor insight into illness, the patient received an oral solution containing 2 mg/mL haloperidol and fully recovered after the first month of treatment. This is the first case of a COVID-19-associated psychotic episode showing full recovery with late intervention, which occurred nearly 45 days after exhibiting the first psychotic symptoms. Additionally, the patient would require long-term follow-up owing to an ultra-high risk of relapse.

Keywords: case report; COVID-19; psychotic episode; suicidal behavior; late intervention.

1. BACKGROUND

Since the start of the coronavirus disease 2019 (COVID-19) pandemic, COVID-19 has seriously affected not only physical health but also mental health at multiple levels [1, 2]. The prevalence of depression, anxiety, insomnia, and other stress-related disorders has been increasing dramatically and has been researched in many studies [3]. Meanwhile, COVID-19-induced first psychotic episodes have been reported in some cases [4-14]. COVID-19-induced psychotic symptoms might have several etiologies, including psychosocial stressors [15], inflammatory processes, immune reactions [16], and the side effects of the treatment for COVID-19 [17]. In all cases, patients presented with various psychotic symptoms, especially hallucinations and delusions [5-14], while a few cases experienced severe symptoms, including even suicidal attempts and behavior [5, 8]. Most of these cases were approached early with an appropriate intervention and obtained full recovery around 2 weeks after commencing antipsychotics.

According to the Vietnamese Ministry of Health, approximately 790,750 cases of COVID-19 and 19301 COVID-19-related deaths were reported in Vietnam by October 1, 2021 [18]. Since August 2021, social distancing strategies have been applied in many places in Vietnam, especially in Ho Chi Minh City, where most of the infected cases were reported. In our case, the patient suffered from COVID-19 and started to exhibit psychotic symptoms during the crisis period in which most hospitals were converted into COVID-19 treatment centers with a shortage of healthcare professionals. Therefore, she could not receive appropriate psychiatric intervention. Approaching a late intervention nearly 45 days after experiencing a psychotic episode led to a steady improvement and a slow recovery.

2. CASE PRESENTATION

A 25-year-old single female real estate broker had her first AstraZeneca vaccine on August 10, 2021. On the same day,

*Address correspondence to Ho Nguyen Yen Phi at the Department of Psychiatry, University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam; E-mail: honguyenyenphi@ump.edu.vn

she was diagnosed with COVID-19 by a nasopharyngeal swab after her roommates observed the symptoms of the disease.

She experienced various symptoms of COVID-19 infection, including fever, nasal congestion, sore throat, rhinorrhea, cough, dysgeusia, and anosmia. In particular, she suffered from severe insomnia and told her sister that she could not sleep at all. She received a prescription for paracetamol, thymodulin, and methylprednisolone from local specialists and took these medications for 3 days.

On August 19, 2021, she tested negative for COVID-19 and had no specific symptoms other than severe insomnia.

On August 20, 2021, she showed the symptoms of delusion for the first time. She told her roommates that she was possessed by a dead male student whom she had just met.

On August 22, 2021, she attempted suicide for the first time by jumping off the second-floor balcony when she saw some healthcare professionals coming to conduct a COVID-19 test. Fortunately, she had no severe injuries and did not receive any treatment.

Three days later, she again jumped from the fifth floor and landed on the metal roof of the house next door. She was admitted to the emergency department at Nhan Dan Gia Dinh hospital with a diagnosis of multiple traumas, including subarachnoid hemorrhage, fracture in the L1-L2 vertebrae, and pelvic injuries. Internal iliac artery ligation and external fixation of the pelvis and backbone were performed. The next day, she went into a coma and recovered after one week. Then, she received pain relievers, such as nefopam and gabapentin. However, she sometimes refused to take the medications, saying that the medications tasted bitter. She was discharged 25 days after hospitalization.

On September 30, 2021, she developed a high fever of 40 °C, and she was admitted to a local hospital with a diagnosis of urinary tract infection. She was discharged one day later. Her COVID-19 test was negative.

She explained her suicidal behavior to her sister; she said that she heard the voice of a dead student asking her to jump off the balcony to see a beautiful landscape. During the illness period, she had poor quality of sleep and often had desultory conversations, but she did not show aggressive behavior. She also felt guilty about hurting her relatives.

She had no history of medical illness, previous psychosis, or substance abuse. There was also no family history of mental illness.

She denied having a mental health problem and refused to consult with any psychiatrists. Therefore, on October 4, 2021, the first online interview with her sister, who had been taking care of her during the illness period, was conducted under a lockdown situation in her living place.

One day later, she agreed to have an online meeting with a doctor who could give her advice on sleep. During the interview, she lay in bed, and her movements were normal. She had a blunted affect and showed slow speech. Because of her behavior, she developed guilt feelings toward her parents. Upon thinking about her suicidal behavior, she explained that she felt depressed and wanted to die, but she denied having any hallucinatory behavior. She had a clear and accurate orientation to the person, place, and time, except for the date. She reported that she sometimes heard a very soft and unclear

voice and felt very anxious about her physical health. She also felt a fear of someone coming to harm her family. She also denied having suicidality and homicidality. She said that she wanted to take medication to improve her sleep.

3. INVESTIGATIONS

During the hospitalization after her second suicide attempt, a head computed tomography scan revealed subarachnoid hemorrhage. An X-ray showed fractures in the L1-L2 vertebrae and pelvis. The full blood count and biochemical profile were normal.

4. DIFFERENTIAL DIAGNOSIS

The patient's symptoms, including a sudden onset of the first psychotic episode that lasted more than 1 month, satisfied the ICD-10 criteria for the diagnosis of an ATPD [19].

Delirium is a common neurological manifestation of COVID-19 [20]. However, in this case, delirium was ruled out due to the lack of amnesia and disorientation throughout the illness episode. Moreover, the DSM-5 criteria for the diagnosis of delirium require evidence of comorbidity along with physical conditions that could contribute to the syndrome [21], which were absent in this case. The patient recovered from COVID-19 and experienced the first psychotic episode simultaneously.

A diagnosis of drug-induced psychosis was also excluded, even though the patient received corticosteroids a few days before the onset of psychosis. Nevertheless, she stopped taking the medications before the onset of psychotic symptoms. Typically, patients with drug-induced psychosis exhibit symptoms within 1-2 weeks of the initiation of treatment [17], whereas our patient developed symptoms outside of this time window.

Schizophrenia spectrum disorder should be considered during a long-term follow-up period because she is at the typical age of onset of schizophrenia spectrum disorder. Of note, the psychotic episodes can be irrelevant to COVID-19 contracting and their occurrence might be incidental. A study by Schwartz et al. revealed that the initial diagnosis was valid only in 2% and 0.5% of patients with brief psychotic disorders after a 6-month and 24-month follow-up, respectively [22]. The rest of the patients' initial diagnoses changed over time, particularly the diagnosis of schizophrenia spectrum disorder; 34.5% and 31.7% of patients were still diagnosed with schizophrenia spectrum disorder after a 6-month and 24-month follow-up, respectively, whereas 26.5% and 24.3% of patients were still diagnosed with schizophrenia after a 6-month and 24-month follow-up, respectively. Another study by Rusaka et al. elucidated that the diagnosis of first-episode ATPD in 70% of patients eventually converted to schizophrenia [23].

In addition, this case did not meet the DSM-5 criterion for the diagnosis of schizoaffective disorder [21]. Although a few depressive symptoms were observed, they did not meet the criteria for the diagnosis of a major depressive episode.

5. TREATMENT

She still experienced auditory hallucinations and suffered from insomnia, as well as other stressors and serious trauma that might trigger the next episode. Therefore, she received

antipsychotics and benzodiazepines. Due to her poor adherence to treatment and the availability of antipsychotics on the market, an oral solution containing 2 mg/mL haloperidol was administered. She received 1 mg of haloperidol per day (BID) and 5 mg of diazepam once at night. After 3 days, the dose of haloperidol was increased to 2 mg/day (BID) and was kept constant for the first week of treatment.

6. OUTCOME AND FOLLOW-UP

She was followed up on every day by online interaction with her sister. Her sleep duration improved to 6 h per night, and her mood was slightly elevated. An online interview was conducted 3 days and 7 days after the start of the treatment. There was no improvement during the one week based on the scores of the Brief Psychiatric Rating Scale (BPRS), which is presented in the table below.

Table 1. The patient's improvement and treatment during the first seven days

BPRS items	Baseline	After 3 days	After 7 days
1. Somatic concern	4	2	2
2. Anxiety	7	7	7
3. Emotional withdrawal	4	4	4
4. Conceptual disorganization	2	2	2
5. Guilt feelings	4	3	3
6. Tension	3	3	3
7. Mannerism and posturing	2	2	2
8. Grandiosity	2	2	2
9. Depressive mood	4	3	3
10. Hostility	2	2	5
11. Suspiciousness	4	7	7
12. Hallucinatory behavior	3	7	7
13. Motor retardation	7	2	2
14. Uncooperativeness	2	7	7
15. Unusual thought	2	7	7
16. Blunted affect	4	4	4
17. Excitement	2	2	2
18. Disorganization	2	2	2
Total points	60	68	71
Treatment	1 mg haloperidol/day	2 mg haloperidol/day	3 mg haloperidol/day

One week after the treatment, other than an increase in sleep, no improvement in other symptoms was observed. Due to her slow recovery, the dose of haloperidol continued to level up and reached 5 mg a day (BID) after 1 month.

Six weeks after receiving treatment, her mood and behavior were in the normal range. She denied either hallucinations or delusions. She could do some household chores and read books related to her occupation. She noted that she felt happy with her current conditions and had planned to return to her work.

She did not attend the eight-week appointment and self-discontinued the antipsychotic without any consultation from psychiatrists

7. DISCUSSION

The patient had a very difficult time in her life because of a late psychiatric intervention, in addition to the lockdown and quarantine strategies that were applied in many places in Vietnam. She developed a psychotic episode after contracting COVID-19, received an antipsychotic 45 days later, and showed a slow improvement, whereas other reported cases recovered quickly during two weeks of treatment [5-12, 14]. The core features of a psychotic episode are delusion, hallucination, and suicidal behavior, which are consistent with the symptoms in previously reported cases [5-14].

Importantly, the patient received the first dose of the COVID-19 vaccine and exhibited the symptoms of COVID-19 on the same day. There were several cases reported of the relationship between the first psychotic episode and the administration of the COVID-19 vaccine [24-26]. However, Reinfeld *et al.* did not infer that psychotic symptoms were the side effects of the vaccine and suggested that patients at risk for new-onset psychosis should be closely monitored after receiving the COVID-19 vaccine [24], while Grover *et al.* hypothesized that psychotic episodes may be related to autoimmune mechanisms [25]. In this case, the psychotic episode could have occurred due to the concomitant COVID-19 infection and COVID-19 vaccine administration. Since the concerns were recurrently reported by cases, more research related to this field would be required for a more comprehensive conclusion.

In particular, the patient made a full recovery with oral haloperidol, which is a first-generation antipsychotic. In a similar vein, in some cases with severe symptoms and/or aggressive behavior, haloperidol was first introduced in order to obtain significant improvement [6, 7], whereas olanzapine was started to target both psychotic symptoms and sleep disturbances [8, 14]. As for reducing side-effects in maintenance treatment, most patients received second-generation antipsychotics such as risperidone [7, 9-12, 14],

and aripiprazole [6]. As these symptoms might recur, especially in the case of psychosocial stressors [27], and the poor prognosis of an ATPD [23], the present patient was considered for long-term therapy with an atypical antipsychotic. The most likely diagnosis after a longitudinal follow-up would be schizophrenia spectrum disorder, schizophrenia, bipolar disorder, or major depressive disorder [22, 23].

This case was the first reported case of COVID-19 induced psychosis in Vietnam. On the other hand, due to guarantee strategies, the patient was examined and followed-up via online interview, which may have led to some limitations on the clinical examination.

Conclusion

General practitioners should be aware of psychiatric symptoms in patients recently diagnosed with COVID-19 because of the potential risk of harm and poor prognosis of psychiatric symptoms. In terms of specialists, psychiatrists should be mindful of the wide range of precipitating or perpetuating factors of psychiatric presentations associated with the COVID-19 pandemic. Therefore, the conditions requiring psychiatric interventions should be recognized, and psychiatric interventions should be provided as soon as possible to prevent severe consequences and recurrences.

PATIENT PERSPECTIVE

I got through a very difficult period in my life, and I still cannot believe I did it. I have currently returned to my job. I feel thankful to my doctors, who have shed light on my future

ETHICAL STATEMENT

Patient consent form was obtained.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ACKNOWLEDGEMENTS

We would like to thank the patient and her family for their publication agreement.

AUTHORS' CONTRIBUTION

YPHN, XMB and MCP interviewed, managed, and followed the patient's treatment and contributed to writing and editing the manuscript. TNT and TLN were the supervisors for the process.

ORCID ID


Ho Nguyen Yen Phi  <https://orcid.org/0000-0001-5585-6269>

Bui Xuan Manh  <https://orcid.org/0000-0002-7219-0195>

Pham Thi Minh Chau  <https://orcid.org/0000-0002-5082-5962>

Tran Anh Ngoc  <https://orcid.org/0000-0002-1260-8326>

Tran Trung Nghia  <https://orcid.org/0000-0002-5028-3040>

Ngo Tich Linh  <https://orcid.org/0000-0001-5308-8614>

REFERENCES

- Jiang F, Deng L, Zhang L, Cai Y, Cheung CW, Xia Z. Review of the Clinical Characteristics of Coronavirus Disease 2019 (COVID-19). *J Gen Intern Med.* 2020 May;35(5):1545-9.
- Banerjee D, Viswanath B. Neuropsychiatric manifestations of COVID-19 and possible pathogenic mechanisms: Insights from other coronaviruses. *Asian J Psychiatr.* 2020 Dec;54:102350.
- Hossain MM, Tasnim S, Sultana A, Faizah F, Mazumder H, Zou L, et al. Epidemiology of mental health problems in COVID-19: a review. *F1000Res* [Internet]. 2020 Jun;9:636. Available from: <https://f1000research.com/articles/9-636/v1>
- Alba L, Coll C, Sáez S, Alonso L, Pérez H, Palma S, et al. New-onset psychosis: A case report of brief psychosis related to COVID-19 infection. *Psychiatry Res.* 2021 Jul;301:113975.
- Chacko M, Job A, Caston F 3rd, George P, YacoubA, Cáceda R. COVID-19-Induced Psychosis and Suicidal Behavior: Case Report. *SN Compr Clin Med.* 2020 Sep;26:1-5.
- Desai S, Sheikh B, Belzie L. New-Onset Psychosis Following COVID-19 Infection. *Cureus* [Internet]. 2021 Sep; 13(9):e17904. Available from: <https://doi.org/10.7759/cureus.17904>
- Faisal H, Taufik FF, Sugihen T, Prasenohadi, Juliani T, Yunus F. Brief psychotic disorder in COVID-19 patient with no history of mental illness. *J Infect Dev Ctries.* 2021 Jun 30;15(6):787-90.
- Gillett G, Jordan I. Severe psychiatric disturbance and attempted suicide in a patient with COVID-19 and no psychiatric history. *BMJ Case Rep.* 2020 Oct 31;13(10):e239191.
- Haddad PM, Abdulla MA, Latoo J, Iqbal Y. Brief psychotic disorder associated with quarantine and mild COVID-19. *BMJ Case Rep.* 2020 Dec 16;13(12):e240088.
- Kozato N, Mishra M, Firdosi M. New-onset psychosis due to COVID-19. *BMJ Case Rep.* 2021 Apr 16;14(4):e242538.
- Majadas S, Pérez J, Casado-Espada NM, Zambrana A, Bullón A, Roncero C. Case with psychotic disorder as a clinical presentation of COVID-19. *Psychiatry Clin Neurosci.* 2020 Oct;74(10):551-2.
- Parker C, Slan A, Shalev D, Critchfield A. Abrupt Late-onset Psychosis as a Presentation of Coronavirus 2019 Disease (COVID-19): A Longitudinal Case Report. *J Psychiatr Pract.* 2021 Mar 5;27(2):131-6.
- Parra A, Juanes A, Losada CP, Álvarez-Sesmero S, Santana VD, Martí I, et al. Psychotic symptoms in COVID-19 patients. A retrospective descriptive study. *Psychiatry Res.* 2020 Sep;291:113254.
- Smith CM, Komisar JR, Mourad A, Kincaid BR. COVID-19-associated brief psychotic disorder. *BMJ Case Rep.* 2020 Aug 11;13(8):e236940.
- Dubey S, Biswas P, Ghosh R, Chatterjee S, Dubey MJ, Chatterjee S, et al. Psychosocial impact of COVID-19. *Diabetes Metab Syndr.* 2020 Sep-Oct;14(5):779-88.
- Jasti M, Nalleballe K, Dandu V, Onteddu S. A review of pathophysiology and neuropsychiatric manifestations of COVID-19. *J Neurol.* 2021 Jun; 268(6):2007-12.
- Kenna HA, Poon AW, de los Angeles CP, Koran LM. Psychiatric complications of treatment with corticosteroids: review with case report. *Psychiatry Clin Neurosci.* 2011 Oct;65(6):549-60.
- Briefing Vietnam, Shira D, Association Staff. Vietnam business operations and the coronavirus: Updates. Vietnam Briefing. 2020.
- World Health Organization. The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines. 1992.
- Garg RK. Spectrum of Neurological Manifestations in Covid-19: A Review. *Neurol India.* 2020 May-Jun;68(3):560-72.
- American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-5. 5th ed. Arlington: American Psychiatric Association; 2013.
- Schwartz JE, Fennig S, Tanenberg-Karant M, Carlson G, Craig T, Galambos N, et al. Congruence of diagnoses 2 years after a first-admission diagnosis of psychosis. *Arch Gen Psychiatry.* 2000 Jun;57(6):593-600.
- Rusaka M, Rancāns. A prospective follow-up study of first-episode acute transient psychotic disorder in Latvia. *Ann Gen Psychiatry.* 2014;13(1):4.
- Reinfeld S, Cáceda R, Gil R, Strom H, Chacko M. Can new onset psychosis occur after mRNA based COVID-19 vaccine administration? A case report. *Psychiatry Res.* 2021 Oct;304:114165.
- Grover S, Rani S, Kohat K, Kathiravan S, Patel G, Sahoo S. First episode psychosis following receipt of first dose of COVID-19 vaccine: A case report. *Schizophr Res.* 2022;241:70-71.
- Aljeshi A, Abdelrahim I, Aljeshi A. Psychosis Associated With COVID-19 Vaccination. *Prim Care Companion CNS Disord.* 2022;24(1).
- Stephen A, Lui F. Brief psychotic disorder. 2019.