The European Journal of Psychiatry 36 (2022) 65–66

THE EUROPEAN JOURNAL OF PSYCHIATRY

www.elsevier.es/ejpsy

LETTERS TO THE EDITOR

A case of Huntington's disease presenting with psychotic symptoms and rapid cognitive decline in the early stage

Dear editor:

Huntington's disease (HD) is an autosomal dominant disorder, caused by cytosine-adenine-guanine (CAG) trinucleotide repeat expansion in the huntingtin (*HTT*) gene on chromosome 4p. It is characterized by progressive motor, behavioral, and cognitive decline. The prevalence of HD in Asia and Europe is about 0.4 in 100,000 people[1] and 4–15 in 100,000 people respectively.[2,3] It typically develops in adults between 30–50 years, with a life expectancy of around 20 years after diagnosis.[4] Although there is no cure for HD, early treatment can relieve symptoms and improve quality of life.[3] The earliest symptoms can present as subtle psychosis, mood disturbances, or mental disabilities.[2] Initial symptoms in HD patients are psychotic symptoms that complicate the clinical diagnosis. Here, we report a case of HD that presented with psychotic symptoms and rapid cognitive decline in the early stage.

A 28-year-old woman was admitted to our psychiatric ward because of psychotic symptoms, poor impulse control, and aggressive behavior. According to medical records, she had difficulty in reading, writing, and arithmetic at elementary school. Therefore, her academic performance had been poor, and she had dropped out of school in the eighth grade. Moreover, she had impairment in social skills, self-care, and communication. At 22 years of age, she was found wandering around and her parents took her to the clinic. Mild mental retardation was diagnosed at that time according to her delayed milestone in childhood and learning disabilities in school. She did not have any neurological or psychotic symptoms until the age of 27. Her first psychiatric admission was at the age of 27 due to symptoms of aggressive behavior, self-talking, auditory hallucination, and persecutory delusion. The full-scale intelligence quotient (fIQ) on the Wechsler Intelligence Scale for Children was 65 (verbal IQ: 61, performance IQ: 70). The mini-mental status examination (MMSE) score was 22 (subscale scores: orientation: 8/10; immediate memory: 3/3; attention and calculation: 1/5; short-term memory: 3/3; language: 7/9). The clinicians then diagnosed her with schizophrenia and prescribed aripiprazole (10 mg/day). A few days later, symptoms of slow gait and uncoordinated body movement developed. Aripiprazole-induced parkinsonism was suspected; biperiden (4 mg/day) was initiated. Following symptom improvement, she was transferred to our hospital for psychiatric rehabilitation and long-term treatment.

At our hospital, symptoms of irritability and psychotic symptoms were still observed. Her medications were revised from aripiprazole (10 mg/day) to quetiapine (600 mg/day) and valproic acid (1000 mg/day). However, the therapeutic effect was insufficient. The fIQ on the Wechsler Intelligence Scale for Children was 42 (verbal IQ: 40; performance IQ: 44). The MMSE score was 7 (subscale scores: orientation: 0/10; immediate memory: 0/3; attention and calculation: 1/5; short-term memory: 0/3; language: 6/9). Compared to the MMSE score 1 year ago, her cognitive function declined rapidly. In addition, uncontrollable, and jerky movements developed on the face, neck, and four limbs. These involuntary movements were identified as chorea. A brain computed tomography scan revealed mild bilateral frontal lobe and vermis atrophy. A review of family medical history revealed that her mother and aunt had undergone genetic testing and HD had been diagnosed; thus, a genetic examination was arranged for her. The genetic testing showed 55 CAG repeats in the *HTT* gene, confirming HD. Her involuntary movement improved partially following therapy with tetrabenazine (25 mg/day).

This patient with HD developed psychotic symptoms and rapid cognitive decline at the early stage. To summarize her clinical course, initially, she presented with mild mental retardation, which is a neurodevelopmental disorder characterized by significantly impaired intellectual and cognitive function. Her impaired cognitive function in childhood did not worsen until the onset of psychotic symptoms at the age of 27. Rapid decline in cognitive function within 1 year (MMSE score from 22 to 7) was noted. Subsequently, she developed chorea and HD was confirmed.

The clinical presentations of this case highlighted several points for learning. First, the early stage of HD was dominated by psychotic symptoms, not mood symptoms. A previous study stated that as high as 33%–69% of HD patients manifested depression and 34%–61% of HD patients manifested anxiety.[5] In comparison, the prevalence of psychotic symptoms in individuals with HD ranges only between 3% and 11%.[5] The possible mechanisms involve γ-aminobutyric acid (GABA) and acetylcholine, the main neurotransmitters affected in HD.[6] The psychotic symptoms in HD can

https://doi.org/10.1016/j.ejpsy.2021.06.001

be explained as a loss of inhibitory GABAergic function and an increased dopamine turnover due to selective survival of type II spiny interneurons.[6] Second, the patient showed rapid cognitive decline within 1 year, especially in domains of orientation to place and time, immediate memory, and short-term memory. Previous studies have reported progressively impaired cognitive abilities[3] and memory and executive functions as the main affected domains.[7] Therefore, more attention should be paid to the orientation ability of suspected HD cases. Third, it is important to evaluate the change in intelligence or cognitive function for patients with suspected HD diagnosis. This case presented as mild mental retardation (fIQ = 70) and her fIQ dropped to 42 within 1 year (27–28 years old). The rapid cognitive decline could not be explained by only the disease course of mental retardation, and this needs further evaluation. In this case, the most probable reason for rapid cognitive decline was the onset of HD at the age of 27.

In conclusion, this report is unique because the present case of HD manifested with psychotic symptoms and rapid cognitive decline at the early stage. The report supports the consideration of HD as a differential diagnosis for patients with these symptoms in the early stage. A careful investigation of abnormal motor symptoms in patients with psychosis and a comprehensive assessment of family medical history can aid the detection of inherited genetic disease in them. Early differential diagnosis of HD may facilitate its treatment management and improve the quality of life for HD patients.

Ethical considerations

The patient described in the study provided informed consent.

Funding

There is not any funding source.

Conflicts of interest

The authors declared no conflicts of interest associated with this manuscript.

References

1. Pringsheim T, Wiltshire K, Day L, Dykeman J, Steeves T, Jette N. The incidence and prevalence of Huntington's disease: a systematic review and meta-analysis. Mov Disord. 2012;27(9):1083–91, http://dx.doi.org/10.1002/mds.25075.
2. Dayalu P, Albin RL. Huntington disease: pathogenesis and treatment. Neurol Clin. 2015;33(1):101–14, http://dx.doi.org/10.1016/j.ncl.2014.09.003.
3. Frank S. Treatment of Huntington's disease. Neurotherapeutics. 2014;11(1):153–60, http://dx.doi.org/10.1007/s13311-013-0244-z.
4. Walker FO. Huntington's disease. Lancet. 2007;369(9557):218–28, http://dx.doi.org/10.1016/s0140-6736(07)60111-1.
5. van Duijn E, Kingma EM, van der Mast RC. Psychopathology in verified Huntington's disease gene carriers. J Neuropsychiatry Clin Neurosci. 2007;19(4):441–8, http://dx.doi.org/10.1176/jnp.2007.19.4.441.
6. Amann B, Sterr A, Thoma H, Messer T, Kapfhammer HP, Grunze H. Psychopathological changes preceding motor symptoms in Huntington's disease: a report on four cases. World J Biol Psychiatry. 2000;1(1):55–8, http://dx.doi.org/10.3109/15622970009150566.
7. Montoya A, Price BH, Menear M, Lepage M. Brain imaging and cognitive dysfunctions in Huntington's disease. J Psychiatry Neurosci. 2006;31(1):21–9.

Y.-S. Chen[a], T.-M. Hu[a,b], Y.-Y. Wang[a], C.-L. Wu[a,c,*]

[a] *Department of Psychiatry, Taipei Veterans General Hospital, Yuli Branch, Hualien County, Taiwan*
[b] *Department of Future Studies and LOHAS Industry, Fo Guang University, Jiaosi, Taiwan*
[c] *Institute of Medical Sciences, Tzu Chi University, Hualien City, Taiwan*

* Corresponding author at: Department of Psychiatry, Taipei Veterans General Hospital, Yuli Branch, No. 91, Xinxing St., Yuli Township, Hualien County 981, Taiwan.
E-mail address: peterwu2000.tw@yahoo.com.tw (C.-L. Wu).