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Psychiatric Presentation Revealing Creutzfeldt-Jakob Disease: A Case Report

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Abstract **Case Report**

Creutzfeldt-Jakob disease or subacute spongiform encephalopathy is a rare prion encephalopathy with a long incubation period and fatal outcome without remission. In this summary, we report a case of sporadic Creutzfeldt-Jakob disease consolidates by positive income CSF analysis of the 14.3.3 protein. This patient study report presents a 54 years old Moroccan male patient with no underlying disease. Whose history of the disease goes back to 04 months, by the admission at the department of psychiatry for the quickly progressive installation of a depressive syndrome, with behavioral disorders made up of anxiety and aggression towards, associated with a decline in visual acuity that the patient reported as very annoying and disabling, while the ophthalmologic examination without abnormalities, and the patient was able to walk alone and avoids obstacles while walking. With a strictly normal brain MRI, treatment by antidepressants and neuroleptics has been prescribed. The evolution was marked 3 months later by the appearance of significant memory disorders associated with hallucinations, impaired walking, and myoclonus in the upper limbs which are exerted by sounds in the arms and legs. A new brain MRI performed showed bilateral frontal and occipital cortical high signal, a visual evoked potential demonstrated a decrease in the activity of the visual pathways with alteration of the central macular vision, the electroencephalogram (EEG) revealed a slowing of the background activity with periodic activity and rapid rhythmicity, the study of Cerebrospinal fluid (CSF) was without abnormalities regarding CSF value of proteins and glucose but the dosage of the protein 14.3.3 came back positive. Following these clinical, biological, radiological, and electrophysiological elements, the diagnosis of sporadic Creutzfeldt-Jakob disease (sCJD) was retained.

Keywords: Sporadic Creutzfeldt-Jakob disease (sCJD), Psychiatric presentation, protein 14.3.3.

INTRODUCTION

Creutzfeldt-Jakob disease (CJD), or subacute spongiform encephalopathy, is a rare prion encephalopathy with a long incubation period and a fatal course without remission. The initial symptoms can be found in various early stages, making it quite difficult to achieve a diagnosis. Since the first description made in 1920 by Creutzfeldt, the main symptom was dementia followed by myoclonic jerks and some patients have seizures. Sometimes the symptoms can be started with cortical blindness or symptoms of cerebellar abnormalities such as ataxia, nystagmus, slurred speech, stiff tongue, and dysarthria. Three forms of CJD have been described: sporadic (sCJD), familial, and acquired. The sporadic form is the most frequent with 85% of cases, with a higher incidence in people around 60 years old; with a mortality of about 90% within one year after the onset of symptoms, with an average survival of 6 months [1]. Variant CJD (vCJD) is a new human prion infection that occurs primarily in the United Kingdom and has been related to the ingestion of beef products infected with the bovine disease agent [2, 3]. The sporadic CJD (sCJD) syndrome is marked by rapidly progressive dementia, which is often associated with myoclonus and additional symptoms of central nervous system (CNS) disorders, leading eventually to death. The characteristic features and evolution of vCJD compared with sCJD were associated with a younger age range and more pronounced psychiatric manifestations than the typically described sporadic form of CJD. The clinical symptoms of these diseases continue to be identified [4, 5]. The initial phases of vCJD are characterized by neuropsychiatric manifestations, in contrast to the typical course of sCJD, in which psychiatric symptoms are "rare" or “unusual" [6]. We report the case of a Moroccan patient who was diagnosed sCJD with a clinical course that started with psychiatric disorders without being able to think of this

diagnosis at the beginning. The aim of our case report is to encourage clinicians to consider the diagnosis of CJD in front of neuropsychiatric symptoms in a patient without psychiatric history or triggering factors, although there are no abnormalities on the MRI and EEG.

CASE REPORT

A 54-year-old man, professional soldier, with no history of particular personal or family health problems, whose history of the disease goes back to 05 months, by admission to the psychiatric department for the rapidly progressive installation of a depressive syndrome with behavioral disorders made up of anxiety and aggression towards relatives outside, without any context of family conflict or trouble at work, associated with a decline in visual acuity that the patient reported as very annoying and disabling, although the ophthalmologic examination was without abnormalities and the patient was able to walk alone and avoids obstacles while walking. A tomography scan of the brain and brain MRI were without abnormality, routine blood tests and ECG showed no pathological alterations. At this stage drugs like antidepressants (venlafaxine (200 mg/day)) and neuroleptics (risperidone up to 4mg/day) were used to manage the psychiatric symptoms with no benefit.

The evolution of the symptoms was marked, 4 months later, by the aggravation of the clinical picture, with myoclonus in the right upper limb and severe headache. After the onset of neurological symptoms, the next month was progressed rapidly with cognitive impairment, behavioral dyscontrol, agitation, generalized and spinal myoclonus, progressive immobility, and akinetic mutism leading to dependency. Faced with this symptomatology, a brain MRI repeated at 5 months showed bilaterally symmetrical high-intensity on T2-weighted and fluid-attenuated inversion recovery (FLAIR), involving the frontal and occipital cortex and in the bilateral caudate nuclei (Figure-1). An EEG showed a generalized slowing of wave and periodic activity with rapid rhythmicity (Figure-2), the routine CSF results (Cell counts, glucose, and protein) were within normal limits but the 14.3.3 protein analysis in CSF came back positive. Based on the clinical and additional investigations as well as the dosage of the protein 14.3.3, which is a marker of neuronal lysis, based on internationally-agreed diagnostic criteria [1], a probable diagnosis of sporadic Creutzfeldt-Jakob disease was retained. The patient was discharged from the hospital to his home under treatment with a benzodiazepine (Clobazam 20mg/day), and an antiepileptic (sodium valproate 500mg twice a day), associated with psychotherapy for his wife as part of the global management of this fatal disease. The evolution was marked by a constant aggravation of the symptoms, with severe temporal and spatial disorientation, a pyramidal syndrome, and generalized myoclonus. Functionally, the patient was totally dependent on his family, confined to a wheelchair. The patient died 10 months after the onset.

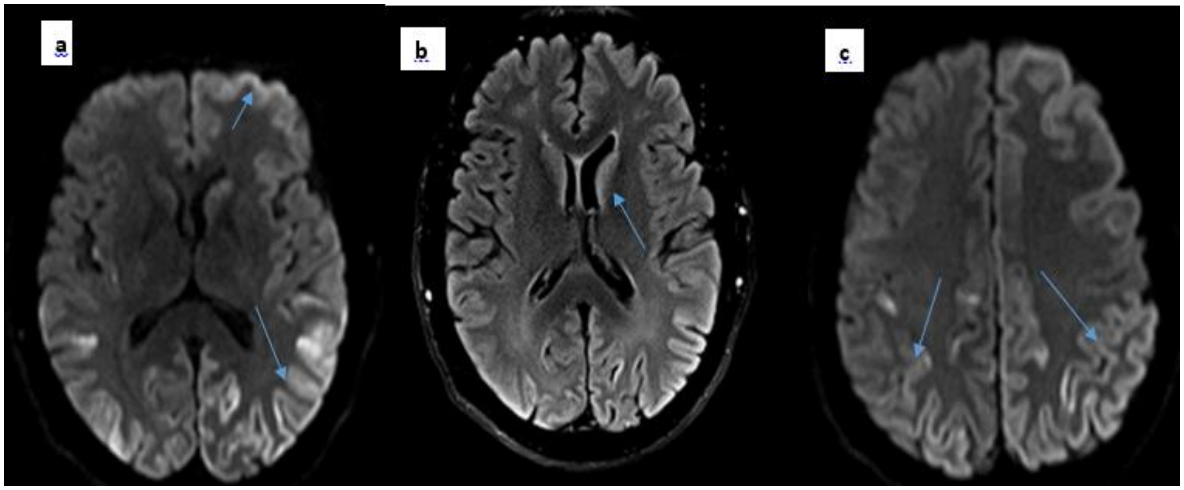

Fig-1: Magnetic resonance imaging brain diffusion-weighted sequence revealed hyper-intensity in bilateral caudate nucleus (b). Diffusion restriction is also observed in bilateral parietal, occipital, and frontal cortex (a, c), (blue arrows). Resembling typical cortical ribbon pattern of sporadic Creutzfeldt–Jakob disease

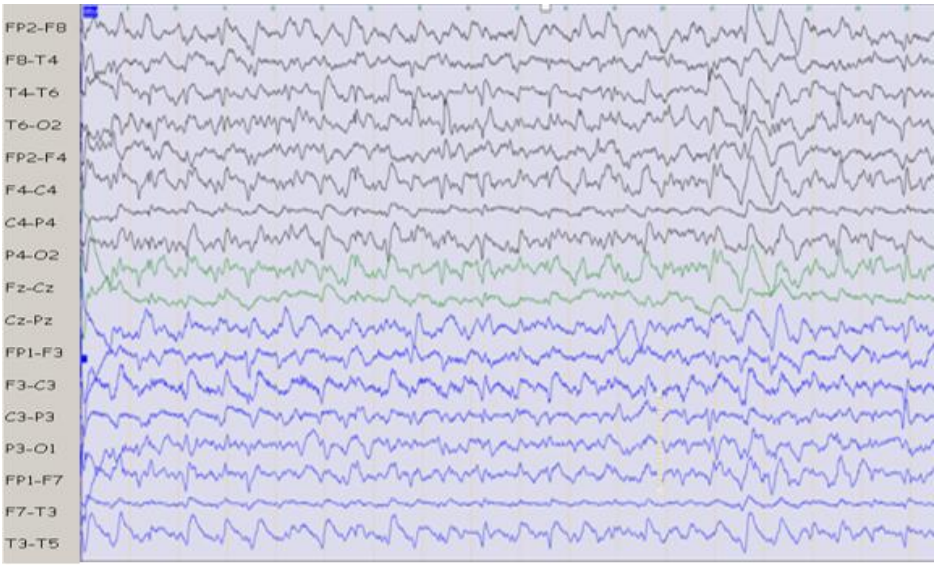

Fig-2: Electroencephalography shows diffuse slowing of background activity accompanied by periodic activity with short periodicity

DISCUSSION

A very rapidly evolving dementia syndrome, associated with myoclonus, should suggest Creutzfeldt-Jakob disease. After eliminating other possible diagnoses, the combination of clinical and additional investigations (EEG, MRI, and CSF biomarkers) makes it possible to retain the diagnosis with a very high probability [7], although the definitive diagnosis is established with neuropathology by the identification of spongiform degeneration, loss of neurons and gliosis [1]. For our case, psychiatric symptoms were at the first round in the development of the disease, which is seen in one-third of cases of sporadic CJD and in almost all cases of vCJD [8]. In history, psychiatric symptoms have been considered relatively uncommon in the sporadic form of Creutzfeldt-Jakob disease, but several case reports mention the possible presentation of sCJD with psychiatric manifestations [9, 10]. Wall and al have published a retrospective study review of 126 sCJD patients, the authors focused on studying the frequency and timing of occurrence and treatment of psychiatric symptoms, during the course of sporadic CJD, they have shown that Psychiatric manifestations are early and prominent features of sporadic CJD, often occurring prior to formal diagnosis, they found, by studying patients records over a 25-year period that most patients presented at least one psychiatric symptom during the course of the disease, with nearly 25% in the prodromal phase. Comparing the frequency of neuropsychiatric symptoms in sporadic CJD with those of variant CJD described in other studies, they concluded that there are fewer clinical distinctions than previously reported, and Clinicians must therefore include sCJD in their differential diagnosis of new-onset dementia, particularly when associated psychosis, sleep problems or persistent and worsen depression symptoms, despite standard psychiatric treatments [3].

The combined use of biomarkers (tau and 14.3.3 protein) increases the specificity of the analysis [11]. A high value of 14.3.3 protein with a sensitivity of 93% and a specificity of 95% [12] seems to be the best biological marker, which is interesting to combine with an imaging pattern, but it can be positive in other pathologies such as paraneoplastic encephalitis, cerebral vasculitis, and frontotemporal dementia [13]. The classic radiological manifestations of brain MRI in sCJD are high signals in the cerebral cortex or basal ganglia on DWI, T2, and FLAIR sequences in order to increase diagnostic certainly, even at an early stage of progression [14]. With sensitivity and specificity of diffusion-weighted MRI in diagnosing CJD as 92.3% and 93% respectively [15], but many diseases show similar abnormalities, including cerebral hypoxia, stroke, and vasculitis [16]. EEG helps the diagnosis with sensitivity near 64% and specificity between 74 and 91% [17].

In summary, this case suggests the necessity of considering CJD as a potential differential diagnosis, in patients who present with psychotic symptoms or affective disturbances, resistant to conventional therapy in psychiatry. The common lack of biological markers for the diagnosis of psychiatric illnesses may complicate the initial diagnosis, particularly in cases of atypical presentation [18, 19]. Therefore, in patients with a strong initial suspicion of CJD but normal EEG and neuroimaging tests, it is recommended that these tests be repeated during the course of the disease [20]. Although there are currently no available treatments for CJD, the patient's and caregivers' quality of life can be improved by symptomatic therapy for neuropsychiatric manifestations. Therefore, close observation and early intervention may improve the quality of care for people affected by this fatal and terrifying disease.

CONCLUSION

A rare but fatal disease, there is currently no known treatment to modify its underlying pathological process, hence the interest in researching more in the hope of finding a possible treatment. Clinicians should therefore include CJD in their differential diagnoses of recent dementia, especially when associated symptoms of psychosis and depression persist and worsen, despite standard psychiatric treatments.

Ethical Approval

We confirm that no ethical approval is required to publish case reports from our institutions and informed consent was obtained from the patient and his family to report this case.

Conflicts of Interest: The authors declare no conflicts of interest regarding the publication of this paper.

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