

New Variant Creutzfeldt-Jacob Disease Presenting With Catatonia: A Rare Presentation

To the Editor: Creutzfeldt-Jacob disease is a prion disease which is characterized by progressive neurodegeneration that is always fatal. The onset is usually in the fifth or sixth decade. The onset of illness is fifth or sixth decade in case of sporadic CJD but cases are reported at earlier ages. New-variant CJD (nvCJD) accounts for < 1% of all CJD and it usually affects adults. It results when the patients are exposed to contaminated products and transplants. Early prodromal stage is characterized by neurasthenic symptom lasting weeks or months. Sometimes, objective findings may be lacking and confused with functional psychiatric disorder. Course is usually rapidly deteriorating and majority of patients die within two years of onset of illness. Nonspecific clinical findings, rare presentation and need of advanced neuro-radiological, serological and autopsy make the diagnosis difficult.

There have been reports suggesting presentation of CJD with catatonic signs.¹ But there is no report of catatonic presentation of nvCJD in the available literatures. The case was rare as electronic search did not reveal any of the nvCJD cases with Catatonic features. We report the first case of nvCJD presenting with catatonic signs.

Case Report

A 35-year-old Hindu vegetarian male was brought to the hospital with complaints of headache, fatigue, decreased interaction, and mood

swings for 1 week. After a week he could not stand from bed in the morning and developed stiffness in whole body. His speech was slurred and incomprehensible. Patient never suffered from any psychiatric illness in the past and there was no history of substance use. He never underwent major surgical procedure or received any transplants or transfusion. Patient's elder brother also suffered from an unknown medical disorder and died within 6 months of onset of illness.

On examination, the patient had mutism (Bush Francis Catatonia Rating Scale [BSFRS] score= 3), immobility (BSFRS score=3), rigidity (BSFRS score=3) in all limbs, waxy flexibility (BSFRS score=3) and positive grasp reflex (BSFRS score=3). He also had frequent brief myoclonic jerks. Neurological examination did not reveal any significant abnormality except hyperreflexia. Sensory examination could be done as patient was not cooperative but patient responded to painful stimuli. Bush Francis catatonia rating scale score was 19, suggestive of severe catatonia. Patient scored mainly on stupor, rigidity, waxy flexibility and grasp reflex. Vitals were stable and investigations including hemogram, platelet count, peripheral blood smear, serum glucose, ammonia, liver, renal, thyroid function tests, vitamin B12 level, serum venereal disease research laboratory (VDRL), electrolytes and other metabolic parameters were within normal limits. Serological tests for vasculitis were within normal limits. X-Ray chest, CT scan (plain and contrast) and CSF analysis did not reveal any significant abnormality. Scalp electroencephalography (EEG) showed diffuse slowing of background activity to delta range.

FIGURE 1. MRI Showing High Signal Intensity and Fluid Attenuated Inversion Recovery

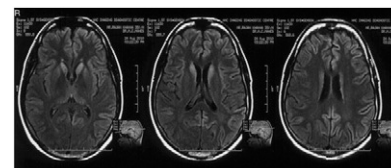
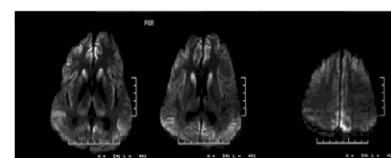


FIGURE 2. Diffusion-Weighted Images Showing Symmetric Bilateral Hyperintense Signals in the Caudate, Frontal, Parietal, and Occipital Regions



Magnetic Resonance Imaging (MRI) of brain (Figure 1) revealed high signal intensity on T2 WI and fluid attenuated inversion recovery (FLAIR) in caudate nucleus, thalamus bilaterally (hockey stick sign), posterior cingulate and parietal lobe. Diffusion weighted images (Figure 2) showed bilateral symmetric hyperintense signals in the caudate, frontal, parietal and occipital region.

He was admitted under specialized inpatient Neurological care with regular psychiatric consultations. The family refused ECT as a treatment modality and response to intravenous lorazepam was unsatisfactory.

The patient deteriorated rapidly in following months. He developed disorientation and became vegetative. His oral intake was poor and he gradually became more and more vegetative. With passing time he became dependent on supportive

measures. Patient in terminal days developed bronchopneumonia and nearly 3 months after onset of the symptoms he expired.

Discussion

Creutzfeldt-Jacob disease (CJD) is the most common transmissible spongiform encephalopathy in humans, with a worldwide incidence of 0.5 to 1 cases per million per year² but there are intercontinental differences. In India it has been reported to be 0.085 per million as per NIMHANS CJD registry, National CJD registry at NIMHANS in India had reported 85 cases through September 2005.² There are three forms of CJD. Sporadic CJD is the commonest form (85%–90%)² followed by Familial CJD (5%–10%). New Variant CJD (nvCJD) is a rare presentation. In contrast to the traditional forms of CJD, nvCJD has affected younger patients (average age 29 years, as opposed to 65 years), has a relatively longer duration of illness (median of 14 months as opposed to 4.5 months) and is strongly linked to exposure, probably through food, to a TSE of cattle called Bovine Spongiform Encephalopathy (BSE)³. Dystonia, myoclonus, and characteristic periodic complexes on EEG and posterior thalamic hyper-intensities on MRI however favors diagnosis of CJD.⁴

CJD may be mistaken for a variety of psychological illnesses because of the behavioral changes that occur in 30% at the onset and 57% at later stages.⁵ Five out of eight cases of CJD studied by Yen et al.⁶ had psychiatric symptoms including changes of mood, thought, behavior and perception during their course of illness. Four cases had been sent to the psychiatric unit and received treatment under different psychiatric diagnoses.⁶ In these cases, it is likely that it was the psychiatrists who will first met CJD patients in the early stages of disease. The frequency of psychiatric manifestations in sporadic CJD ranges

between 18 to 39% with mainly depressive disorder, personality changes, and emotional lability.⁷ Seven out of 11 cases studied by Satish Chandra et al. found psychiatric symptoms including predominant mood symptom, paranoid ideation, hallucinatory behavior suggesting auditory hallucination and visual hallucination and disturbances of higher mental functions.⁸ Dementia, myoclonus, ataxia and visual loss are commoner symptoms of sporadic CJD whereas psychiatric symptoms, ataxia, involuntary movements, and painful dysesthesia are more common in nvCJD. Periodic triphasic waves are seen in sporadic whereas nvCJD is characterized by Pulvinar sign on MRI.⁹

Early CJD symptoms are characterized by neurasthenic symptoms. This case also presented with such symptoms for 1 week. This patient acutely developed catatonia after week's prodromal neurosthenic symptoms, which is not a common occurrence. CT scan can be essentially normal even in advanced stage of illness as found in this case. In this case also CT scan was normal in spite of cortical involvement and contributed to a couple of weeks delay in diagnosis with apparently normal clinical neurological examination. MRI might be used to diagnose sporadic CJD⁹. MRI is a valuable diagnostic tool with a reasonable sensitivity of 61% to 90% and a high specificity of 94%¹⁰. The pulvinar sign as defined by increased intensity in the pulvinar relative to the anterior putamen is perhaps is the most sensitive marker for variant CJD.¹¹ Bilateral pulvinar sign has a sensitivity of 78% and correlates with histological Gliosis.¹¹ Characteristic MRI findings of high intense signal involving caudate nucleus in both fluid attenuated inversion recovery and diffusion weighted were keys for diagnosis in this case. Cortical involvement especially occipital and

parietal areas have also been reported in case studies but frontal involvement is rare. Though specific serological tests and histopathology of the brain sample could not be done, the rapidly deteriorating course of illness eventually causing death of the patient within three months of onset of the symptoms presentation accompanied by classic MRI findings and contributory EEG findings were strong pointers toward the diagnosis of nvCJD. The case was a rare one in the light that electronic search did not reveal any of the nvCJD cases with catatonic features.

Conclusion

Worldwide there is trend toward increasing prevalence of CJD. Psychiatric symptoms including catatonic symptoms may be the clinical presentation of the disorder. So, high index of suspicion is suggested. Normal CT scan and apparently normal neurological examination can be misleading. If the cognitive symptoms with unusual psychiatric symptoms or catatonic symptoms fail to respond to psychotropic treatment, possibility of CJD should be kept in mind and followed with serial EEGs.

LOKESH SINGH SHEKHAWAT

Dr SN Medical College, Jodhpur

SANTOSH KUMAR

Darbhang Medical College,
Darbhanga, India

SANTOSH IRANNA RAMDURG

SDM College of Medical Sciences,
Dharwad, India

N MANJUNATHA

NIMHANS, Bangalore, India

PRERNA GUPTA

Sri Tirthankar Mahavir Med
college, Moradabad

References

1. Maurice V, Ropper AH: Adams and Victor's Principles of Neurology, 7th ed McGraw-Hill, 2001, pp 34

2. Shankar SK, Satishchandra P: Did BSE in the UK originate from the Indian subcontinent? *Lancet* 2005; 366:790–791
3. WHO Fact sheet N°180, Revised November 2002, available from <http://www.who.int/mediacentre/factsheets/fs180/en/> (cited on May 5, 2011)
4. World Health Organization's Clinical Criteria for Diagnosis of Creutzfeldt Jakob Disease. *Wkly Epidemiol Rec* 1998; 3:361–365
5. Brown P, Gibbs CJ Jr, Rodgers-Johnson P, et al: Human spongiform encephalopathy: the National Institutes of Health series of 300 cases of experimentally transmitted disease. *Ann Neurol* 1994; 35:513–529
6. Yen CF, Lin RT, Liu CK, et al: The psychiatric manifestation of Creutzfeldt-Jakob disease. *Kaohsiung J Med Sci* 1997; 13:263–267
7. Will RG, Matthews WB: A retrospective study of Creutzfeldt-Jakob disease in England and Wales 1970-79. I: Clinical features. *J Neurol Neurosurg Psychiatry* 1984; 47:134–140
8. Satishchandra P, Sharma P, Chatterji S, Shankar SK Psychiatric manifestations of Creutzfeldt Jakob Disease: probable neuropathological correlates 1996: 44; 43–46
9. Wall CA, Rummans TA, Aksamit AJ, Krahn LE, Pankratz VS: Psychiatric manifestations of Creutzfeldt-Jakob disease: a 25-year analysis. *J Neuropsychiatry Clin Neurosci* 2005; 17:489–495
10. Human TSE: Human transmissible spongiform encephalopathies. *Wkly Epidemiol Rec* 1998; 73:361–365
11. Zeidler M, Sellar RJ, Collie DA, et al: The Pulvinar Sign on variant Creutzfeldt- Jakob Disease. *Lancet* 2000; 55:1412–1418