

Case Report

An elderly lady with dementia and myoclonus : Think of Sporadic Creutzfeldt Jakob Disease

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Abstract:

Creutzfeldt Jakob disease (CJD) is an incurable, invariably fatal, rapidly progressive neurodegenerative disease caused by an abnormal isoform of a cellular glycoprotein known as the prion protein. CJD occurs worldwide, estimated annual incidence is about one case per million populations per year. Sporadic Creutzfeldt Jakob disease (sCJD) is a human prion disease; infection with this disease usually leads to death within one year of onset of illness. The characteristic clinical & diagnostic features of rapidly progressive dementia, myoclonus, visual or cerebellar signs, pyramidal/extrapyramidal sign, Akinetic mutism and positive result on the presence of 14-3-3 protein in CSF assay, typical EEG features and MRI findings of brain are highly suggestive of diagnosis. Biopsy of brain for histopathological examination is more specific & confirmatory for diagnosis. This article reports a case of sCJD who was diagnosed by characteristic findings of MRI of brain, Electroencephalography (EEG) & cerebrospinal (CSF) assay at National University Hospital (NUH), Singapore and later on admitted at United Hospital Limited (UHL) Dhaka for palliative and supportive management.

Key words: Creutzfeldt Jakob disease (CJD), dementia.

Introduction:

Epidemiologically sCJD is most common human prion disease, is rare in worldwide at a rate of one case per million population per year, most frequently in patients 55-65 years of age, cases can occur in people younger than 55 years of age but are extremely rare¹. In more than 85 % of cases, the duration of CJD is less than one year (median: four months) after the onset of symptoms.

Types of CJD include **Sporadic (sCJD)** caused by a mutation arising in an individual of unknown reason and this accounts for 85% cases of CJD². **Variant (vCJD)** caused by consuming food contaminated with prion. **Familial (fCJD)** caused by an inherited mutation & accounts for the other 15 % cases of CJD. **Iatrogenic** caused by contamination of tissue from infected person usually as a result of medical procedure e.g. corneal & meningeal transplant, blood transfusion. Diagnosis solely based on typical clinical manifestation, characteristic EEG findings, presence of 14-3-3 protein in CSF assay³, MRI of brain - high signal intensity in caudate nucleus & putamen symmetrically on T2WI and DWI are most sensitive⁴. The present manuscript reports encounter in NUH, Singapore and UHL, Dhaka known as sporadic CJD (sCJD).

Case Report:

A 67 years old highly educated active lady admitted at

Neurology department of UHL, Dhaka with 02 months H/O rapidly progressing personality change, dementia with loss of memory, impairment of judgment & intellectual functions She became anxious, depressed and aphasic with inappropriate sound. She also had visual disturbances with hallucination, ataxia with inco-ordination of her gait. For the last one & half months she developed myoclonus that persists during sleep, provoked by loud sound & bright light but no history of seizure attack. Clinically GCS >8, pupil bilaterally equal & reacting to light, Speech - aphasic with inappropriate sound and diminished cough reflex. No cranial nerve dysfunction with normal fundus, motor function normal with ataxic gait. Sensory function could not be assessed. All the relevant investigations - blood CBC, RBS, creatinine, and lipid profile, liver, renal & thyroid function were normal. Serum ANA, Anti ds DNA antibody, TSH, Anti TPO antibody, TSH receptor antibody, serum autoimmune encephalitis panel, PET CT FDG whole body scan were within normal limit. The presence of 14-3-3 protein in CSF analysis, typical EEG findings with periodic generalized sharp wave's complex (Figure 1), MRI of brain revealed symmetrical high signal intensity in DWI in caudate & lentiform nucleus and left fronto-temporo-parietal cortex (arrows in Figure 2),. She had been thoroughly evaluated in NUH Singapore and concluded the diagnosis of sCJD.

Discussion:

sCJD is a human prion disease rapidly progressive, invariably fatal, neurodegenerative disease that occurs worldwide. The majority of CJD patients usually die within one year of onset of illness. CJD is classified as a transmissible spongiform encephalopathy along with other prion disease that occur in human & animals⁵.

Patient initially became symptomatic with rapidly progressive dementia leading to memory loss, personality change,

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impairment of judgment & intellectual power. Other feature of anxiety, depression, paranoia, & psychosis. This is accompanied by physical problem such as speech impairment, jerky involuntary movement- Myoclonus, ataxia with changes in gait, rigid posture & seizure attack. At the last, patient died with complications of Pneumonia & Respiratory Failure. There is no test to confirm the diagnosis of CJD, only a brain biopsy can do this. The following investigations can help to diagnose such as EEG which shows characteristic generalized periodic sharp waves pattern, CSF assay for the presence of 14-3-3 protein⁶, MRI of brain revealed symmetrical high signal intensity in caudate nucleus & putamen on DWI & T2WI.



Fig-1

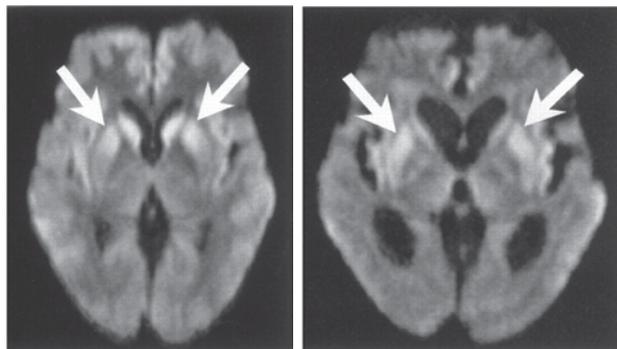


Fig 2:

Immunohistochemical analysis of brain tissue shows the marked accumulation of protease resistance prion protein. Brain biopsy is the definite diagnostic test which shows classic appearance of spongiform changes in gray matter, presence of rounded vacuoles which appear glassy or eosinophilic. Neuronal loss & gliosis are seen⁷.

There is no cure of CJD. No drug yet is available to stop the progression of disease. However some medications are in clinical trial. Pentosan polysulphate may slow the progression of disease. Amphotericin-B & doxorubicin as yet there is no strong evidence that either drug is effective in stopping the

disease. Quinacrine permanently cleared abnormal prion protein from cell culture but had no measurable effect on clinical course of CJD⁸. Aztemizole have anti-prion activity may be effective for the treatment of CJD. Current treatment aims are to alleviate symptoms and make the patient as comfortable as possible.

Conclusion:

sCJD though it is rare but may be missed due to lack of suspicion & diagnostic facilities. Any rapidly progressing demantic patient with myoclonus should have to be evaluated with CSF assay, EEG & MRI of brain, though no specific treatment are yet available till the disease CJD remains incurable . However extensive research is going on to find out an effective & curable drugs for CJD in future.

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