Letter to Editor

Understanding Cortico-Striatal Connections From a Case of Creutzfeldt–Jakob Disease

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Sir,

A review article about Creutzfeldt–Jakob disease (CJD) was previously written by Ozen(3) in a very detailed work. We wish to present a sporadic CJD case that is shed light on cortico-subcortical connections in a human brain.

A 66-year-old man presented with ataxia, asymmetrical myoclonic jerking and progressive deterioration in behavior within weeks. Behavioral disturbances include the appearance of irritability, apathy, depression and language alterations. Brain MRI showed cortical and basal ganglionic hyperintensity in diffusion-weighted (Figure 1) and T2 images as well as cortical atrophy in T1. Imaging may play a role in identification of sporadic and variant forms of CJD that high signal changes in the putamen and caudate head are often related with sporadic CJD and variant form is usually associated with hyperintensity of the pulvinar of the thalamus(1,3). Although CSF analysis was not done in our patient; history, neurological examination, imaging and electroencephalography (EEG) test results (Figure 2) support the diagnosis of sporadic CJD(4).

Animal studies have shown that caudate nucleus reciprocally connected to the cortical areas in a topographic organization(5). Leh et al. (2) investigate fronto-striatal connections in a human tractography study and they found that there are connections between the dorsolateral prefrontal areas and the dorsal-posterior caudate nucleus, as well as between the ventrolateral prefrontal areas and the ventral-anterior caudate nucleus. In our case increased intensity on prefrontal cortex and the head, body of the caudate nucleus support that there are interactions between these parts of brain. With this short illustrative case we wish to call attention to not only the characteristic findings of CJD but also the organization of cortico-striate projections.
Figure 1: Diffusion-weighted images (DWI) of MRI showed gyriform increased signal intensity in the right frontal (A) and left occipital lobes as well as head (B) and body (C) of the caudate nuclei which is more prominent on the right.

Figure 2: Periodic sharp wave complexes (more pronounced on the right hemisphere) are seen as characteristic findings of CJD.