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Structural neuroimaging and neuropsychological correlates of a single case of focal central pontine myelinolysis: Intact memory function with decreased intellectual and motor functions

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ABSTRACT

We report on the case of middle-aged right-handed woman with central pontine myelinolysis (CPM) revealed by high resolution structural T2-weighted FLAIR MRI imaging. There was a general flattening of Wechsler Adult Intelligence Scale—Fourth Edition subtest scores which were 1 standard deviation below expected values. In contrast Wechsler Memory Scale—Fourth Edition visual and auditory memory scores remained within the normal range. Verbal working memory appeared mildly impaired while nonverbal working memory was not. Scores on the Advanced Clinical Solution' s Social Perception battery were all in the normal range as were academic skills measured by the Wide Range Achievement Test—Fourth Edition. Performance was impaired on the Delis-Kaplan Executive Function System' s counterpart of the Trail-Making Test: Part B. Similarly, on the Draw-A-Person Test there was a discrepancy in that our patient' s standard score was 76 compared to her estimated premorbid FSIQ in the average range. She also displayed bilateral motor coordination slowing on the Finger Tapping task collectively suggesting damage to pontine motor tracts. The Minnesota Multiphasic Personality Inventory—Second Edition—Restructured Form profile was consistent with a diagnosis of severe anxiety and depression perhaps due to damage to serotonergic neural tracts originating within the central pons. Finally, the patient displayed severe sleep disturbances and other signs of reticular activating formation injury. CPM may constitute a unique means of studying reversible subcortical lesions in the central pons in otherwise healthy subjects with benign illness. To our knowledge this is among the first patients with CPM without the usual risk factors for the disorder and who was otherwise healthy. Knowledge of the etiology and neuropsychology of such patients might aid in understanding the interaction of the fronto-ponto-cerebellar tracts in executive functions and motor programming.

KEYWORDS

Central Pontine Myelinolysis; Neuropsychology; T2-Weighted Structural MRI FLAIR Imaging; Motor Functions; Subcortical Signs; Fronto-Ponto-Cerebellar Function

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