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Weber Syndrome: Herpes Simplex Virus Brainstem Encephalitis as an Etiology

To the Editor:

Weber syndrome is characterized by ipsilateral third cranial nerve palsy with contralateral hemiplegia. Basal infarction of the midbrain region is the most common etiology for Weber syndrome. The first case was described by Sir Herman David Weber, a London-based physician in the 19th century, and the eponym of the syndrome goes in his name. Since then, many cases of nonvascular causes, including aneurysm, tumor, and demyelination, have been reported. We report one of the rare manifestations of herpes simplex virus-2 (HSV-2), causing brainstem encephalitis and clinically presenting as Weber syndrome.

CASE REPORT

A 62-year-old man presented to our hospital with fever, persistent headache, and 3 episodes of seizures in 3 days before this presentation. The patient was delirious at presentation. When examined, he was conscious, with signs of meningeal irritation and no other focal neurological deficit. Fundus examination showed nothing abnormal. Other systems, including genitals, were clinically normal. However, the next day, the patient developed ptosis (**Figure 1**), with external ophthalmoplegia of the right eye, indicating a possible oculomotor cranial nerve palsy on the right side, along with hemiplegia of the left side, of grade 3/5 power (**Figure 2**).

Investigations revealed a total white blood cell count of 13,100 cells/mm^3 and erythrocyte sedimentation rate of 80 mm/h. Computed tomography of the head showed no abnormality. Cerebrospinal fluid analysis revealed a cell count of 1045 cells/mm^3, all cells being lymphocytes. Cerebrospinal fluid protein was 215 mg/dL and glucose was 67 mg/dL. Cerebrospinal fluid, Gram stain, Ziehl-Neelsen stain, and India ink preparation did not show any pathogen. Human immunodeficiency virus (HIV) tests for both HIV-1 and HIV-2 were negative by enzyme-linked immunosorbent assay method.

Magnetic resonance imaging showed irregular altered signal intensity lesions in the frontotemporal lobes on both sides and small altered signal intensity areas in the right cerebral peduncle, occipital lobe, vermis, anterior aspect of medulla and posterior aspect of pons, and the midbrain on the right side (**Figure 3**). Features were consistent with encephalitis and brainstem involvement, herpes simplex virus being the most probable etiology. The diagnosis was confirmed by cerebrospinal fluid polymerase chain reaction analysis, which was positive for HSV-2. The patient was treated with a course of intravenous acyclovir and dexamethasone. His power on the left side of the body gradually improved to grade 5/5. His ptosis disappeared and he regained full range of movement in the right eye.

DISCUSSION

HSV encephalitis in adults is predominantly caused by HSV-1, but in this case, encephalitis was caused by HSV-2 virus. It had affected the brainstem without any evidence of genital herpes infection. In adults, HSV-2 usually causes uncomplicated genital herpes, but occasional cases of neurological involvement are also reported.[1-4] Primary HSV-2 encephalitis developing neurological deficits identical to Weber syndrome, in the absence of genital herpes in an immunocompetent adult, makes this case unique in clinical presentation.

Encephalitis limited to the brainstem is a rare presentation of herpes simplex encephalitis. Although cranial nerve signs are noted in 32% of cases of herpes simplex encephalitis, this is more often the result of raised intracranial

Figure 1 Complete ptosis of the right eye.

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Figure 2 Loss of adduction in the right eye.

pressure than of direct viral invasion of the brainstem.[5,6] In the above-mentioned case, the presence of third cranial nerve palsy, which is associated with contralateral hemiplegia, suggests a definitive lesion in the midbrain. So far, only a few cases of HSV-2 infection with brainstem involvement have been reported.[7-9]

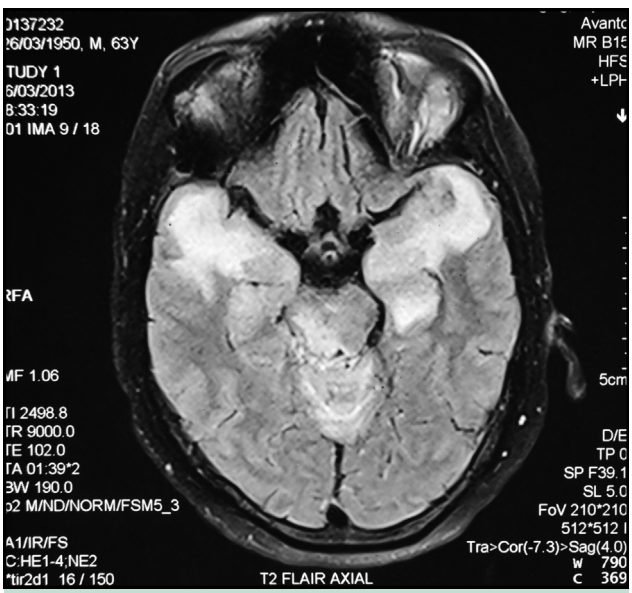

Figure 3 Magnetic resonance image (T2 fluid attenuation inversion recovery [FLAIR]) showing altered signal intensity (hyperintense) lesions involving temporal lobes on both the sides and midbrain on the right side, along with the involvement of vermis and its adjacent structures.

CONCLUSION

We report a case of HSV-2 brainstem encephalitis in an immunocompetent adult in the absence of genital herpes infection, manifesting with clinical features of Weber syndrome. As far as we know, this is the first case in which clinical features consistent with Weber syndrome has been reported in a patient of primary HSV-2 encephalitis. Hence, any atypical presentation in encephalitis should prompt clinicians to further investigate to look for underlying herpes infection as the cause, and initiate antiviral therapy for better outcome.

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