Psalm 91: Pediatric neuropsychiatric presentation in a Hispanic female (Case Report)

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ABSTRACT

The recognition of multiple sclerosis (MS) in the pediatric population has been increasing over the past years. The presentation of onset symptoms may be shared among the adult and pediatric population. In either group, a psychoactive presentation is rare and often causes delay in MS diagnosis. Report a neuropsychiatric pediatric onset case. A 28-year-old Hispanic female patient diagnosed with MS. Patient presented onset of psychiatric and cognitive difficulties at the age of 15. Here the patient was treated with various psychoactive drugs. The patient continued with her cognitive and psychiatric conditions until a Brain MRI was performed. Here, the typical MS lesions were observed and a diagnosis was reached at the age of 26. The condition is now successfully treated, showing clinical and self-improvement. An 11 year delay between first symptom and MS diagnosis occurred due to the rarity of the symptom. Since her presentation was psychoactive and at such a young age, MS was not considered as a diagnosis until the patient was in her mid 20s. This case brings attention to the fact that more studies need to be done on pediatric onset cases with a psychiatric symptom so as to diagnose these patients faster and thus provide a better prognosis.

BACKGROUND

Pediatric MS is an immune-mediated inflammatory demyelinating disease of the central nervous system with an onset preceding the age of 18. Various studies have described that 10% of the MS population reported onset symptoms prior to the age of 18 (1). A Puerto Rican study showed that 10.6% of patients presented their first symptom at 18 years of age or younger (2). 2 to 5% have reported symptoms prior to 16 years of age (3) and less than 1% of all MS patients have reported symptoms prior to the age of 10 (4). The incidence of pediatric MS worldwide remains unknown. However, a California pediatric cohort study, reported the incidence to be 0.51 per 100,000 persons years (5). A comparison study done by Langille et al. between pediatric-onset and adult-onset MS in a population of 363 Hispanic-Americans showed that 70% presented MS onset symptoms after the age of 18, versus a 30% reporting initial MS symptoms before age 18. In the study done by Weisbrot, et al., a population of 45 pediatric MS patients were psychiatrically evaluated, with 25 of them having at least one psychiatric disorder, and the most prevalent psychiatric diagnoses being anxiety disorders, ADHD and mood disorders. Interestingly, those diagnosed with anxiety or mood disorders had the highest frequency of cognitive impairment (6).

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OBJECTIVE

Report a neuropsychiatric pediatric onset case

CASE

This is the case of a 28-year-old female, Miss D, diagnosed with RRMS and neuropsychiatric disorders:

1. Patient was diagnosed with mild mental retardation and low IQ scores before the age of 5
2. Age 5, patient suffered absence seizures; treated with ethosuximide and brain MRI, based on the patient's recollection, was negative for demyelinating diseases
3. Miss D experienced difficulty completing special education's third and fourth grade
4. Age 15, emotional stress triggered episodes of depression that led to a catatonic state (catatonic rigidity, delirium, and extreme sense of guilt). Also referred hearing negative voices, periods of insomnia, and weight loss of 10 pounds due to lack of appetite.
5. Age 16, diagnosis of schizoaffective disorder due to episodes of visual and auditory hallucinations in absence of depressive symptoms treated with risperidone, lithium, and lorazepam, which resulted in stabilization of psychiatric episodes.
6. Age 26, patient began presenting speech difficulties; a brain MRI was performed, which revealed white matter lesions with a single one showing faint enhancement (**Figure 1**)
7. Lumbar puncture demonstrated 8 IgG oligoclonal bands in CSF (**Figure 2**)
8. Treated with dimethyl fumarate and for the past 2 years refers to have an overall improvement in her cognitive, psychiatric, and physical symptoms
9. Brain MRI performed in 11/2016 showed increase in number of lesions and single enhancing lesion. Images not shown
10. Most recent evaluation of brain MRI over time reveals reduction in size of plaque and absence of enhancing lesions (**Firgure 3**) 2017
11. Patient has family history of depression, schizophrenia, and seizures.

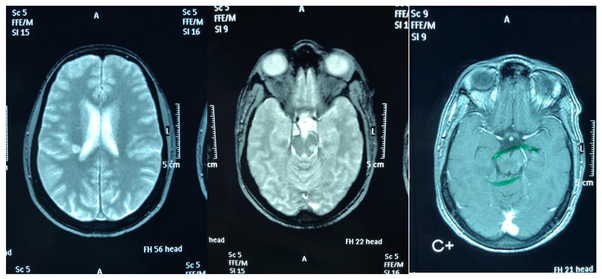
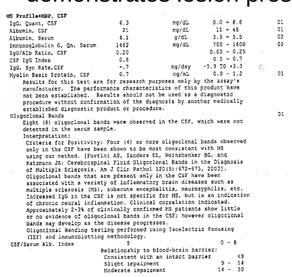


Figure 1: Left and middle image show the white matter changes on her diagnostic MRI. Image to the right demonstrates lesion presenting contrast enhancement.



MS Profile+WBP, CSF

IgG, Quant, CSF	4.3	mg/dL	0.0 - 8.6	01
Albumin, CSF	21	mg/dL	11 - 48	01
Albumin, Serum	4.1	g/dL	3.5 - 5.3	02
Immunoglobulin G, Qn, Serum	1422	mg/dL	700 - 1600	02
IgG/Alb Ratio, CSF	0.20		0.00 - 0.25	
CSF IgG Index	0.6		0.0 - 0.7	
IgG, Syn Rate,CSF	-.7	mg/day	-5.9 TO +3.3	
Myelin Basic Protein, CSF	0.7	ng/mL	0.0 - 3.2	01

Results for this test are for research purposes only by the assay's manufacturer. The performance characteristics of this product have not been established. Results should not be used as a diagnostic procedure without confirmation of the diagnosis by another medically established diagnostic product or procedure.

Oligoclonal Bands 01

Eight (8) oligoclonal bands were observed in the CSF, which were not detected in the serum sample.

Interpretation:

Criteria for Positivity: Four (4) or more oligoclonal bands observed only in the CSF have been shown to be most consistent with MS using our method. (Fortini AS, Sanders EL, Weinshenker BG, Katzmann JA: Cerebrospinal Fluid Oligoclonal Bands in the Diagnosis of Multiple Sclerosis. Am J Clin Pathol 135(3):472-475, 2011). Oligoclonal bands that are present only in the CSF have been associated with a variety of inflammatory brain diseases such as multiple sclerosis (MS), subacute encephalitis, neurosyphilis, etc. Increased IgG in the CSF is not specific for MS, but is an indication of chronic neural inflammation. Clinical correlation indicated. Approximately 2-3% of clinically confirmed MS patients show little or no evidence of oligoclonal bands in the CSF; however oligoclonal bands may develop as the disease progresses.

Oligoclonal Banding testing performed using Isoelectric Focusing (IEF) and immunoblotting methodology.

CSF/Serum Alb. Index	0 - 8

Relationship to blood-brain barrier:

Consistent with an intact barrier	<9
Slight impairment	9 - 14
Moderate impairment	14 - 30

Figure 2: Lumbar Puncture results demonstrating 8 oligoclonal bands in CSF.

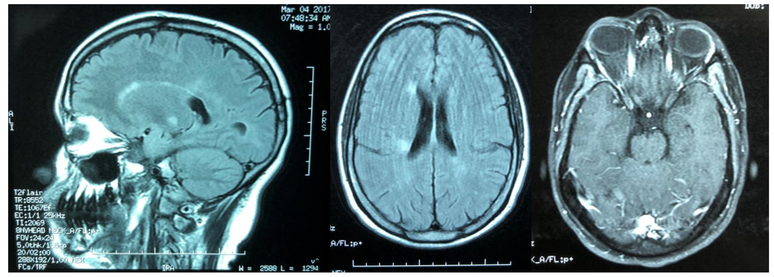


Figure 3: Left image shows a sagittal view of patient's MS lesions. Middle shows the new lesion that was demonstrated in MRI performed on 11/2016. Right image shows resolution of enhancing lesion from 2015 brain MRI. No lesions were enhancing in this MRI.

CONCLUSIONS

The diagnosis of pediatric MS has presented with an increase in recognition in the past years. From the beginning of her health problems at age five to the diagnosis of multiple sclerosis at age 26, 20 years passed where the patient presented cognitive problems shown by a supposed low IQ, difficulty with school interactions and communication problems. In addition to the cognitive dysfunction, the patient presented with psychiatric conditions such as depression and hallucinations, which led her to be diagnosed with schizoaffective disorder. These psychiatric and cognitive impairments, plus a history of epilepsy, could suggest that the patient's initial onset of symptoms were of this nature for years prior to her diagnosis. Early diagnosis of MS in pediatric patients remains a great challenge. Education and psychiatric professionals must consider the variety of symptoms that can present in pediatric MS, greatly varying from the classical adult MS symptoms. It is important to raise awareness about the variable presentations when diagnosing pediatric MS, and to continue promoting the study of MS in Hispanic population, leading to a better understanding and possible recognition of the disease at an earlier onset..

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