

Iran University of Medical Sciences

Title: Multiple sclerosis cognitive impairment mimicking Alzheimer's disease: neurodegenerative hypothesis

Monireh Eslami, MD [1]*, Mehdi Moghaddasi, M2*[1]*; Nafiseh Mohebi, MD*[3]

[1] Corresponding author, Assistant of Neurology, Rasool Akram Hospital, Iran University of Medical Sciences, Tehran, Iran

[2] Associate Prof. of Neurology, Rasool Akram Hospital, Iran University of Medical Sciences, Tehran, Iran

[3] Assistant Prof. of Neurology, Rasool Akram Hospital, Iran University of Medical Sciences, Tehran, Iran

Abstract

Recent studies propose that multiple sclerosis (MS) is not only a demyelinating disorder but a primary degenerative disease accompanied with whole brain atrophy. Brain atrophy, indeed, might happen without any clinical attacks or magnetic resolution imaging (MRI) new T2 lesions even early in the disease. Furthermore, brain atrophy plays a prognostic role in the conversion of clinically isolated syndrome (CIS) to MS or MS progression. Although brain volumetry in MS is important, it's using has not been familiar with our clinic practice.

Here in, we present a 24-year-old, bachelor graduate female diagnosed with relapsing-remitting MS (RRMS) for three years, complaining of memory disturbance. On physical examination, she had Expanded Disability Status Scale (EDSS) of 1. Neuropsychological test including mini-mental status examination (MMSE), Montreal cognition assessment (Moca) and Addenbrooke's cognitive test was in normal range. But brief international cognitive assessment of multiple sclerosis (BICAMS) revealed impairment in two parts of test. The stunning finding is her drawing test in Addenbrooke's cognitive test and Rey Osterrieth Complex Figure, has a similar simplification and errors of perspective that seen in Alzheimer's disease at her age. Cognitive impairment can be overlooked in MS patients especially early in the disease or might be quite different from what is expected, as in our patient. It is assumed that a comprehensive psychological test is required to evaluate variable domains of cognition in MS patients. Consequently, appropriate case selection can be made for brain volumetric MRI.

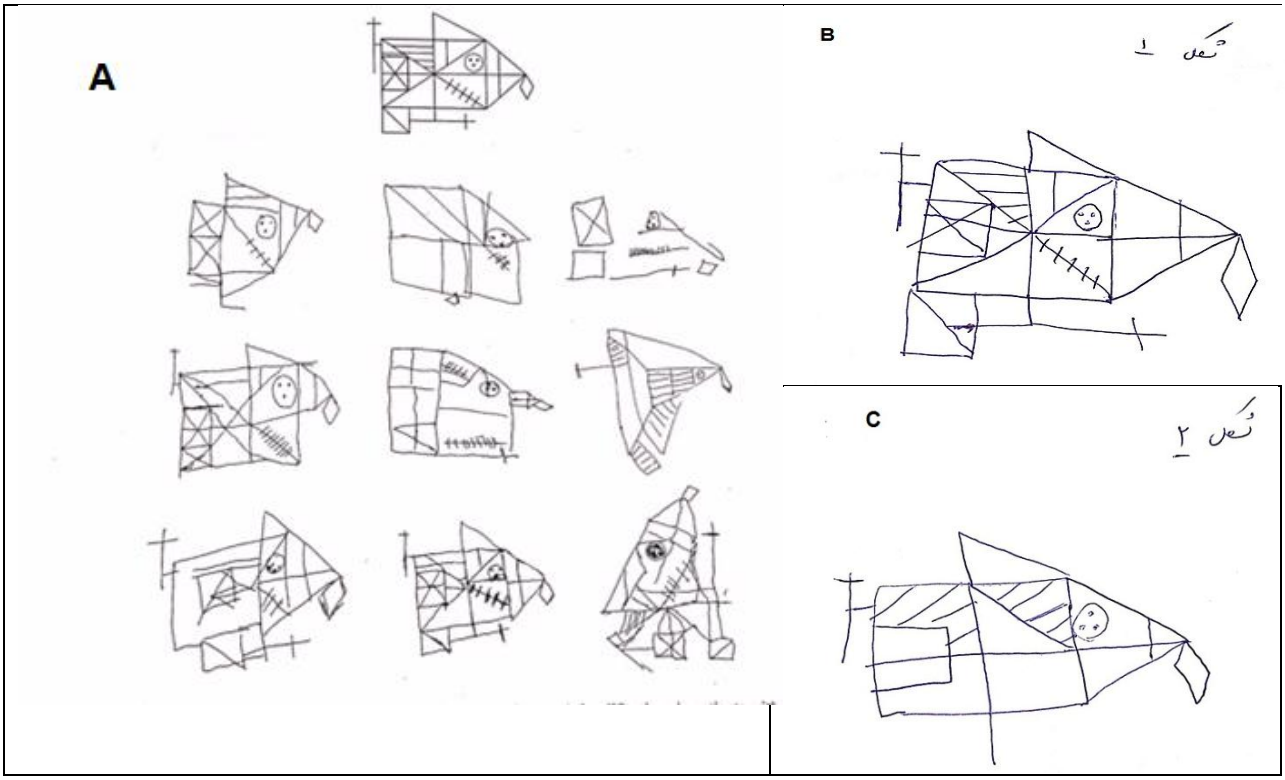


Fig1: coping of Rey complex fiqure. A:Gross spatial distortions and simplifications in patients with Alzheimer's disease(first row); planning errors, spatial distortions, and perseveration in patients with vascular dementia (second row) and frontotemporal dementia (lowest row). In the left sided column are reported drawings of patients with mild forms and in the right-sided columns those of patients with severe forms of dementia. Note in the right top figure that the reproduction of the single subcomponents is relatively spared, but spatial relationships among them are lost; in the right bottom figure an instance of rotation.(1) B: Coping of Rey complex figure in our MS patient. C: Gross spatial distortions and simplifications in our patients with MS.

1: Picture from Trojano L, Gainotti G. Drawing disorders in Alzheimer's disease and other forms of dementia. Journal of Alzheimer's Disease. 2016 Jan 1;53(1):31-52.

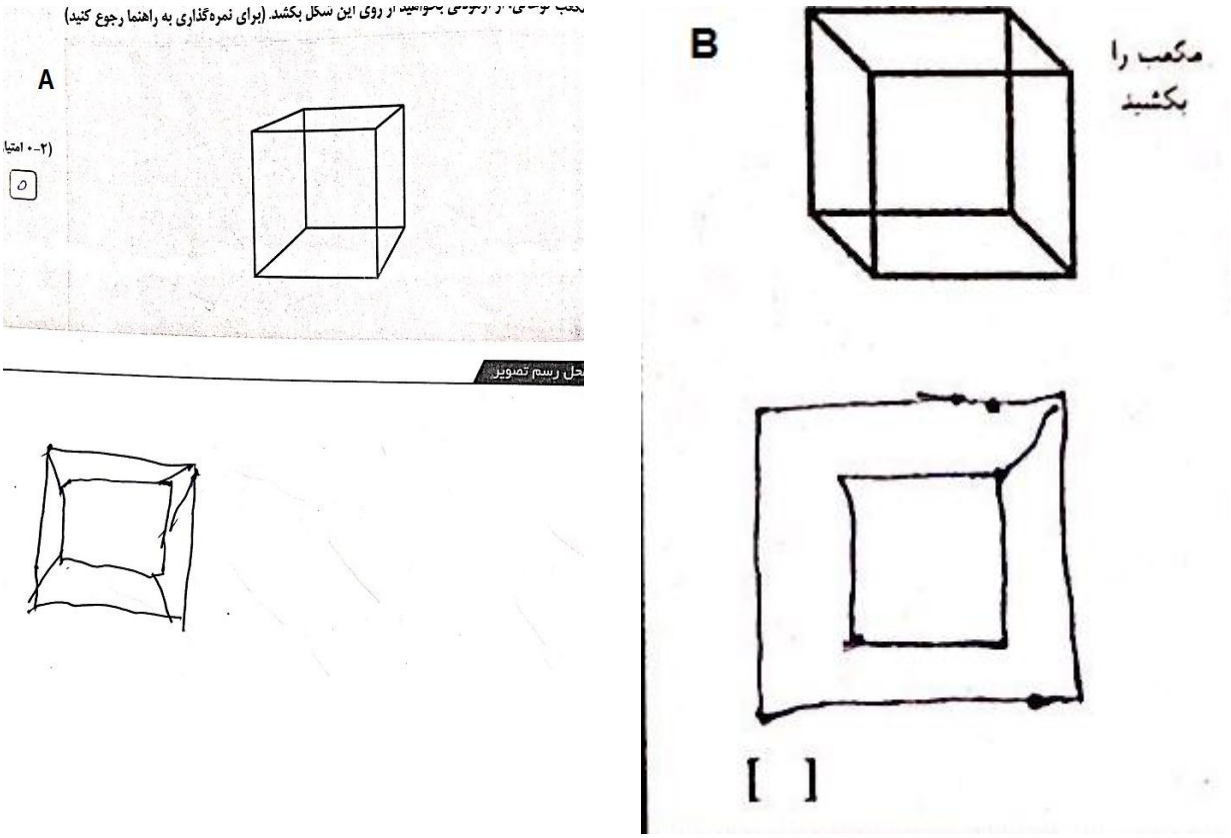


Fig2: A: Cube test drawing of Addenbrook's test of patients with Alzheimer's disease. B: Cube test drawing of MoCA of patients with MS

Recent Publications:

- **Eslami, M**., Mohebi, N., Moghaddasi M., & Nouri Shirazi Sh. (2018). **Brief International Cognitive Assessment for Multiple Sclerosis (BICAMS), is it enough for screening?** Poster presented at the 4th Middle East North Africa Committee for Research and Treatment in Multiple Sclerosis (MENACTRIMS) Congress 2018, 30 November- December 1 2018, Dubai, United Arab Emirates.
- **Eslami, M**., Dadfar, M., Mohebi, N., Mohaghegh, F., & Moghaddasi, M. (2018). **Relationship between love of life and happiness in Iranian patients with Multiple Sclerosis**. Poster presented at the 4th Middle East North Africa Committee for Research and Treatment in Multiple Sclerosis (MENACTRIMS) Congress 2018, 30 November- December 1 2018, Dubai, United Arab Emirates.

- Razmeh S, Habibi AH, Sina F, Alizadeh E, **Eslami M**. Stiff person case misdiagnosed as conversion disorder: A case report. Caspian J Intern Med. 2017 Fall;8(4):329-331. doi: 10.22088/cjim.8.4.329. PubMed PMID: 29201327

Biography:
I am a neurology resident (years 4) working at Rasool Akram general hospital affiliated with Iran University of Medical Sciences, Department of Neurology. I graduated from Shahid Beheshti University of Medical Sciences (SBMU), Tehran, Iran and become Doctor of Medicine (M.D.) at age of 26.

I keen on cognition and especially cognition and multiple sclerosis. I think this part of the MS is very important and has a special effect on the management of the disease.

Email: monireh.eslami.85@gmail.com

Phone No: +989125911938

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