

# Tumefactive: A Rare First presentation of Multiple Sclerosis

Athena Sharifi Razavi<sup>1</sup>, Narges Karimi<sup>1</sup>, Arash Rezaei<sup>2</sup>, Hamed Jafarpour<sup>3\*</sup>

<sup>1</sup> Department of Neurology, Clinical Research Development Unit of Bou Ali Sina Hospital, Mazandaran University of Medical Sciences, Sari, Iran

<sup>2</sup> Student Research Committee, Golestan University of Medical Sciences, Golestan, Iran

<sup>3</sup> Student Research Committee, Department of Neurology, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran

Received: 2017/03/25 Accepted: 2018/05/10 Published: 2018/07/07

## Abstract

Tumefactive demyelinating lesions are a rare presentation of multiple sclerosis (MS). Diagnosis of tumefactive is commonly carried out using magnetic resonance image (MRI). Tumefactive diagnosis is difficult because of may similar to the clinical and MRI characteristics of glioma or a cerebral abscess. We presented a 35-years-old female with one episode of secondary generalized seizure after delivery. In MRI with contrast, two gadolinium-enhanced lesions were observed in right temporal lobe with open-ring appearance.

**Keywords:** Multiple Sclerosis, Demyelinating Disease, Tumefactive Multiple Sclerosis

## Introduction

Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease that is the most common autoimmune disorder affecting the central nervous system (CNS) (1-3). Tumefactive demyelinating lesions are a rare presentation of MS (4). Diagnosis of tumefactive is commonly carried out using magnetic resonance imaging (MRI). Tumefactive diagnosis is difficult because of may similar to the clinical and MRI characteristics of glioma or/and a cerebral abscess. However, its shape is differentiated from tumors and abscesses. Tumefactive lesions have seen with open-ring enhancement, not a complete ring enhancement (5). We a case of tumefactive in a young adult woman with multiple lesions.

## Case Presentation

A 35-years-old women without any medical history, 50 days after delivery presented with one episode of secondary generalized seizure. Her seizure was accompanied by tongue biting, neither bowel or bladder incontinence. The episode lasted nearly 30–60 s and resolved without intervention. The patient did not have any past medical

history. Family history was negative for the neurologic disorder. She was not on special medication in her drug history. On physical examination, she had postictal confusion but no focal neurological deficit. An initial brain computed tomography scan indicated hypodensity focus on the right temporal lobe. Subsequent axial MRI reported hyper-signal lesion in right temporal lobe with finger-type edema. Multiple white matter plaques were also noted in the periventricular and subcortical regions (figure-1). In MRI with contrast, two gadolinium-enhanced lesions in right temporal lobe with open-ring appearance was seen (figure-2). Lumbar puncture was clear. Cerebrospinal fluid (CSF) analysis showed two white cell counts without any red blood cells. CSF protein was 32 mg/dL and glucose, 60 mg/dL (blood glucose was 87 mg/dL). Oligoclonal bands were observed in the CSF and IgG index was 0/98. The patient was started on 1 gr methylprednisolone for five days. Tumefactive MS (TMS) is a clinical variant of MS, presenting as a tumor-like lesion and often associated with edema and ring enhancement greater than 2.0 cm (6). In imaging, the mass effect may be shifting the lateral ventricles to another side from midline. Many differential diagnoses may be considered to be such as brain

### \*Corresponding Author:

Hamed Jafarpour, Medical Student, Student Research Committee, Department of Neurology, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, IR Iran

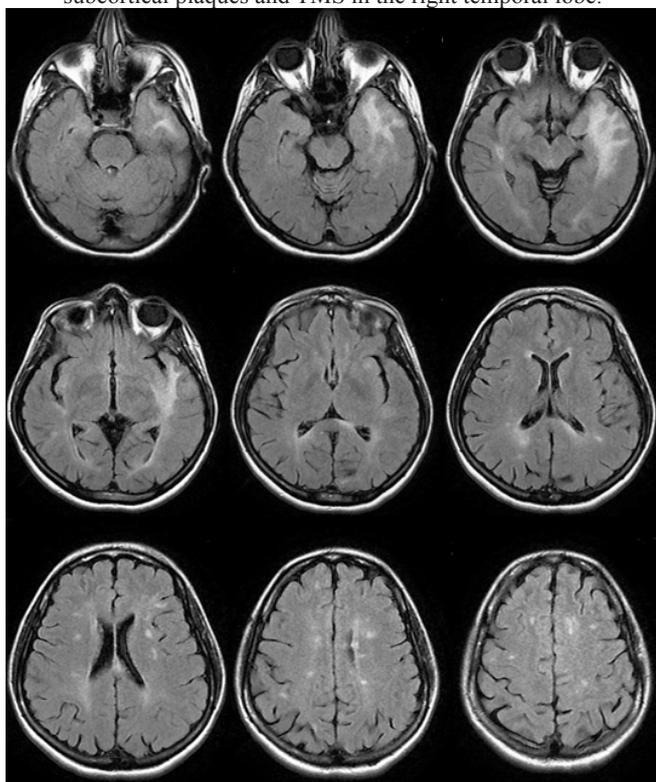
Email Address: Hamed.jafarpour7@gmail.com

Telephone Number: 09371143879



abscess, primary CNS tumors—glioma or astrocytoma, metastatic lesion, toxoplasmosis, and CNS lymphoma, etc. (7). The clinical presentation varies from an asymptomatic incidental finding to fatigue, numbness, confusion, seizure, sensory loss. The more common symptoms include spasticity, visual impairment, difficulty in walking, and paresthesia (8). Many cases presented with the generalized seizure. Near half of the TMS had a relapsing-remitting course. Due to the wide range of symptoms experienced by patients with MS, the treatment for each MS patient varies depending on the symptoms (9).

**Figure 1.** Axial FLAIR MRI revealed multiple periventricular and subcortical plaques and TMS in the right temporal lobe.



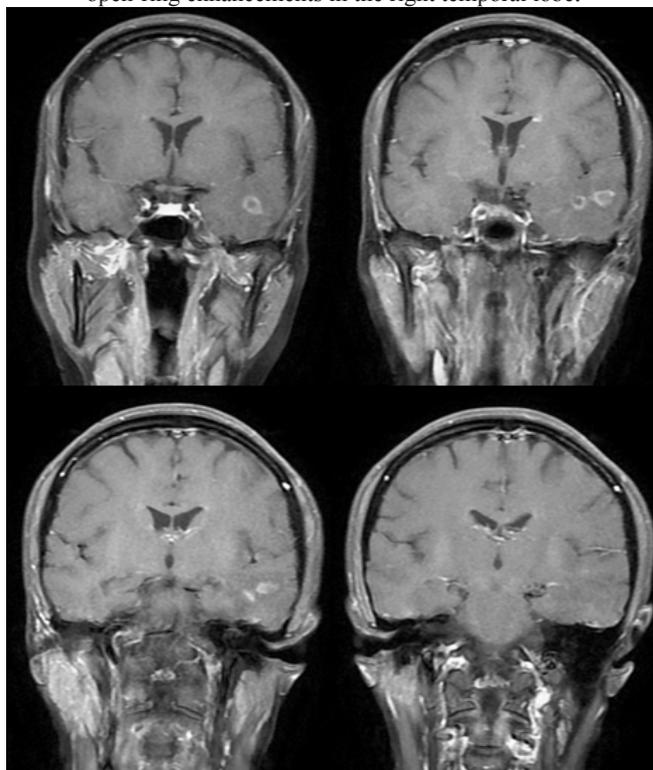
## Acknowledgment

The authors would like to express their thanks to the Department of Neurology, Clinical Research Development Unit of Bou Ali Sina Hospital and student research committee of Mazandaran University of Medical Sciences to support this research.

## Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

**Figure 2.** Coronal T1-weighted image with contrast revealed two open-ring enhancements in the right temporal lobe.



## References

1. Dagher A, Smirniotopoulos J. Tumefactive demyelinating lesions. *Neuroradiology*. 1996;38(6):560-5.
2. Alaei A, Cheraghmakani H, Arkakeli A, Mohammad A. Comparing the Number, Size and Location of Multiple Sclerosis Plaques in Patients with and without Migraine. *J Mazandaran Univ Med Sci*. 2016;26(139):53-65.
3. Razavi ES, Razavi AS, Kazemian M, Bakhshipour B, Mirzaeian B, Ahmadi AM, et al. The comparison of higher cognitive processes in multiple sclerosis patients and normal individuals. *Sadra Med Sci J*. 2017;2(1):75-82.
4. Selkirk SM, Shi J. Relapsing-remitting tumefactive multiple sclerosis. *Mult Scler J*. 2005;11(6):731-4.
5. Xia L, Lin S, Wang Z-c, Li S-w, Xu L, Wu J, et al. Tumefactive demyelinating lesions: nine cases and a review of the literature. *Neurosurg Rev*. 2009;32(2):171-9.
6. Frederick MC, Cameron MH. Tumefactive Demyelinating Lesions in Multiple Sclerosis and Associated Disorders. *Curr Neurol Neurosci Rep*. 2016;16(3):26.
7. Kilic AK, Kurne AT, Oguz KK, Soylemezoglu F, Karabudak R. Mass lesions in the brain: tumor or multiple sclerosis? Clinical and imaging characteristics and course from a single reference center. *Turk Neurosurg*. 2012;23(6):728-35.
8. Lucchinetti C, Gavrilova R, Metz I, Parisi J, Scheithauer B, Weigand S, et al. Clinical and radiographic spectrum of pathologically confirmed tumefactive multiple sclerosis. *Brain*. 2008;131(7):1759-75.
9. Nakamura M, Itani K, Miyake K, Kunieda T, Kaneko S, Kusaka H. Natalizumab is Effective for the Treatment of Relapsing-remitting Tumefactive Multiple Sclerosis. *Intern Med*. 2017;56(2):211-4.