

# Neurosciences Quiz

*Submitted by: Farzad Fatehi, MD, Mohammad Zare, MD, Mohammad Saadatnia, MD.*

*From Departments of Neurology and Neurosciences Research Center (Fatehi, Saadatnia, Zare), and Medical Education Research Center (Fatehi, Saadatnia), Faculty of Medicine, Isfahan University of Medical Science, Isfahan, Iran.*

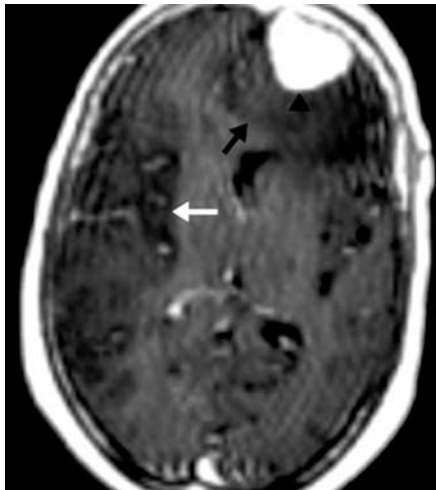
*Address correspondence to: Dr. Farzad Fatehi, Resident of Neurology, Neurology Department, Alzahra Hospital, Sofeh Street 81744, Isfahan University of Medical Sciences, Isfahan, Iran. Tel. +98 9133186330. E-mail: fatehi@edc.mui.ac.ir*

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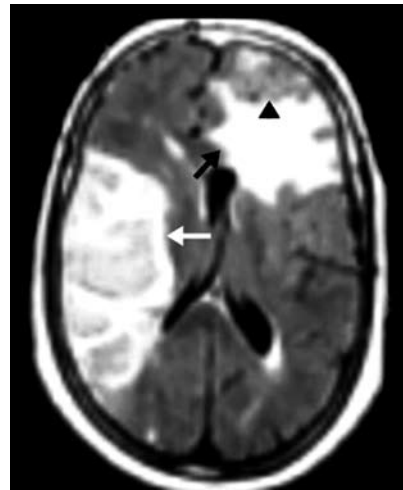
## **A patient with abrupt left sided palsy but an incidental finding on brain MRI**

### **Clinical Presentation**

A 68-year-old woman was admitted due to acute onset left sided hemiplegia. Medical history was unremarkable. She was conscious. There was normal funduscopic examination, left side facial paresis, left sided MRC grade 2 strength, and left plantar extensor reflex. Other neurological examinations were unremarkable. Her brain MRIs are shown in **Figures 1 & 2**.



**Figure 1** - Post contrast axial T1 weighted brain MRI.



**Figure 2** - Axial FLAIR brain MRI.

### **Questions:**

1. What abnormal findings are seen on neuroimaging?
2. Can a frontal lesion on the left side explain the clinical findings?
3. What are the differential diagnoses of a left sided lesion?

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## Answers

1. Abnormal finding on right side includes hypointensity (white arrow) on post contrast T1 weighted brain MRI (**Figure 1**), and hyperintensity (white arrow) on fluid attenuation inversion recovery (FLAIR) (**Figure 2**) in territory of right middle cerebral artery. On left side, abnormal findings include avidly enhanced extra axial lesion (arrowhead) attached to dura on post contrast T1 weighted (**Figure 1**), which is isointense (arrowhead) on FLAIR image (**Figure 2**) with a large edema (black arrow) in frontal lobe more prominent on FLAIR image. Right middle cerebral artery territory stroke and left frontal meningioma is diagnosis.
2. No, this finding is an incidental finding.
3. Differential diagnoses on the left side include other extra axial enhancing masses such as hemangiopericytoma, meningioma, and metastasis.

### Discussion

Meningiomas are not strictly brain tumors, since they arise from meningotheial cells that form the external membranous covering of the brain. However, because they arise within the intracranial cavity and present with neurologic symptoms and signs, they are usually classified as brain tumors.<sup>1</sup> Meningiomas represent approximately 15% of all primary intracranial tumors, they are more common in women than in men (2:1) and have their highest incidence in the sixth and seventh decades. There is evidence that persons who have undergone radiation therapy to the scalp or cranium are susceptible to the development of meningiomas and that the tumors appear at an earlier age in such individuals.<sup>2</sup> Meningiomas occur mainly at the base of the skull, in the parasellar regions, and over the cerebral convexities. Thus, symptoms and signs frankly reflect the location of the tumor. Most meningiomas are slow growing and are not associated with substantial underlying brain edema, they cause symptoms by the compression of neighboring neural structures. Patients with tumors of the hemispheric convexities often present with a seizure or progressive hemiparesis. Patients with skull-based lesions typically present with cranial neuropathy, whereas meningiomas in any location may cause headache.<sup>1</sup> The diagnosis of meningioma is greatly made easy by their ready visualization with contrast-enhanced CT and MRI and by arteriography, all of which disclose their propensity to calcify and their prominent vascularity. These changes are reflected by homogeneous contrast enhancement.

### References

1. DeAngelis LM. Brain tumors. *N Engl J Med* 2001; 344: 114-123.
2. Ropper AH, Brown RH, editors. Intracranial neoplasms and paraneoplastic disorders. In: Adams and Victor's Principles of Neurology. 8th ed. New York (NY): McGraw-Hill; 2005. p. 558-591.