

Radiological Tumor-Like Image in Multiple Sclerosis

Imagem Radiológica Semelhante a Tumor na Esclerose Múltipla

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ABSTRACT

Tumefactive tumor-like radiological image in multiple sclerosis (MS) is not a common finding in magnetic resonance imaging. This presentation poses an extra challenge to the already difficult diagnosis of MS. We report on a clinical MS case with this unusual radiological presentation and the diagnostic difficulties in this patient. We also discuss our case in comparison to the world literature, and we comment on the relative lack of Brazilian papers on the subject.

Keywords. Multiple Sclerosis, Brain Tumor, Imagem por Ressonância Magnética.

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RESUMO

Imagem radiológica tumefativa com aspecto de tumor na esclerose múltipla (EM) não é um achado comum na ressonância magnética. Esta apresentação traz mais um desafio ao já difícil diagnóstico de EM. Relatamos um caso de EM com esta apresentação radiológica não usual, e as dificuldades diagnósticas nesta paciente. Discutimos também nosso caso em comparação à literatura mundial e comentamos sobre a relativa falta de artigos brasileiros neste assunto.

Unitermos. Esclerose Múltipla, Tumor Cerebral, Magnetic Resonance Imaging.

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INTRODUCTION

The radiological criteria for diagnostic confirmation of multiple sclerosis (MS) are well known and accepted worldwide^{1,2}. There are no single tests for MS diagnosis, and radiological evidence of temporal and spatial dissemination is the ultimate finding corroborating the MS clinical presentation. Multiple sclerosis plaques usually appear on magnetic resonance imaging (MRI) as multiple, well demarcated, homogenous, small ovoid lesions, without any mass effect and frequently oriented perpendicularly to the long axis of the lateral ventricles³. The presence of a lesion larger than 2 cm, with associated mass effect, perilesional edema and ring enhancement, mimicking a brain tumor⁴, is much less frequent. Although this tumor-like, tumefactive image is not common, it adds to the difficulties in MS differential diagnosis. Up to 2008, the literature on the subject was restricted to a few anecdotal cases, thus making it difficult to establish comparisons between clinical and radiological findings in these MS patients. A recent comprehensive review of pathologically confirmed tumefactive MS lesions³ in 168 patients encouraged us to report on this case, in order to compare our findings with those from this large series.

Case Report

This case report was approved by the Ethics Committee of UNIMES (064-008) and the patient gave her consent for publication.

An Afro-descendent female patient, aged 41 in August 2006, was seen at another service and presented with left hemiparesis and hemiparesthesia that had become established over a 48-hour period. She also reported moderate, throbbing, diffuse headache over this two-day period. She reported high blood pressure (under treatment), a sedentary lifestyle and overweight (BMI = 27), with a family history of stroke (several relatives). Her neurological examination confirmed left hemiparesis and hemihypoesthesia for pain and temperature, with no other findings. Her blood pressure was 165x95 mmHg (very anxious at the time).

Her laboratory assessment showed: normal

blood cell counts; blood glucose (fasting) = 110 mg% (normal range = 70-110); blood cholesterol = 245 mg% (normal value up to 200); LDL-cholesterol = 148 mg% (moderate risk value = up to 130); HDL-cholesterol = 32 mg% (low risk value higher than 40); triglycerides = 250 mg% (normal value up to 150). Her other results, including rheumatological tests, were unremarkable.

Her MRI is shown in Figure 1. A very large, gadolinium marked image was observed in the deep temporo-parietal region of the right brain hemisphere. This lesion suggested cavitation, with tissue loss. Edema and indirect evidences of blood-brain barrier damage were also noticeable. Other smaller lesions, compatible with demyelinating injury, were diffusely distributed in the subcortical areas.

Her cerebrospinal fluid (CSF) analysis was normal, showing two cells (lymphocytes); total protein = 38 mg%; glucose = 70 mg%; immunological reactions = negative.

At that time, one neurologist suggested that a new, complete CSF analysis should be done; another neurologist suggested a brain biopsy; while yet another suggested a new MRI in three months' time. She did not want to undergo other examinations at that time, particularly because she presented a full recovery after receiving a pulse of corticosteroids.

In August 2007, the patient presented a single episode of unilateral visual blurring, which was treated successfully with corticosteroids by an ophthalmologist. No further investigation was carried out at that time.

In May 2009, she was referred to the MS Reference Center DRS IV, due to complaints of mild cognitive impairment, fatigue and paresthesia in her right arm. All her cardio-cerebrovascular risk factors were under clinical control. Her neurological examination revealed hypoesthesia in the right arm and shoulder and increased response of deep tendon reflexes in the left arm and leg without Babinski response. A psychological evaluation showed no cognitive impairment, but mild depression. A new CSF analysis showed nor-

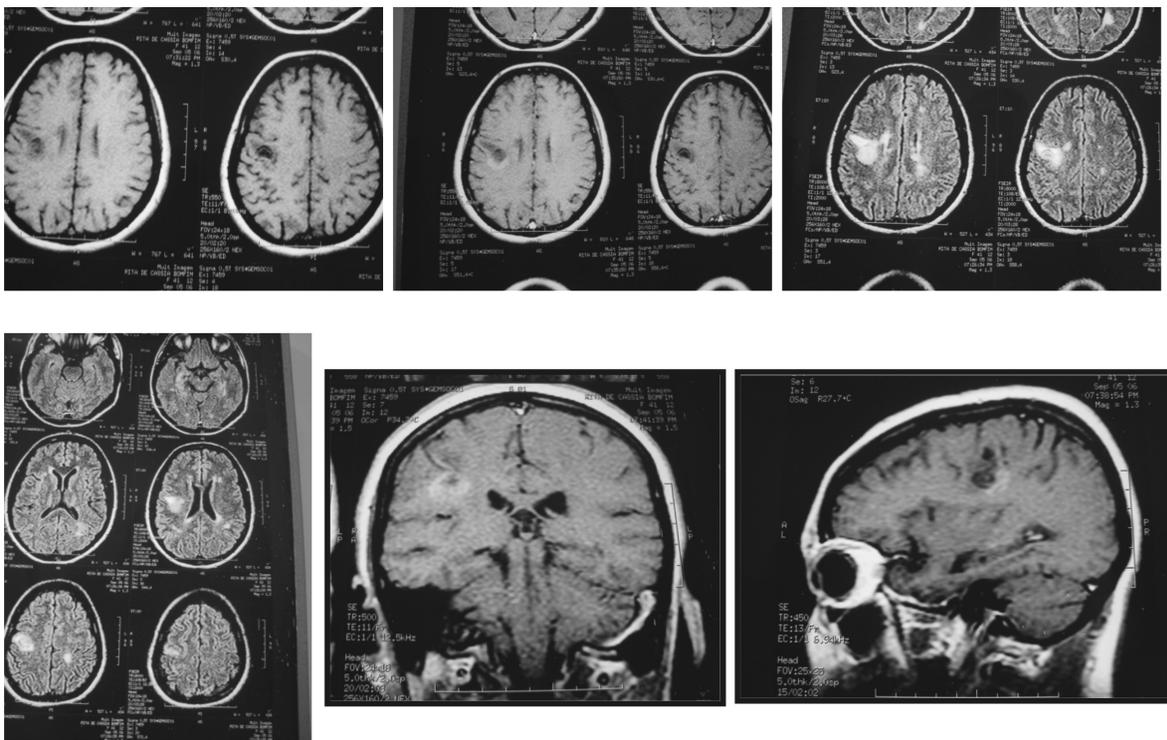


Figure 1. (September 2006) MRI images of the large tumefactive MS lesion, showing ring enhancement, edema and mass effect. The other lesions in the MRI are typical of MS demyelination.

mal pressure; two cells (lymphocytes); total protein = 36 mg%; glucose = 58 mg%; immunological reactions = negative; protein electrophoresis: increased gamma globulin (24.3%) with normal serum protein profile and negative oligoclonal bands.

Her MRI is shown in Figure 2. The diagnosis was confirmed as MS and she started immunomodulatory treatment.

DISCUSSION

Neurological patients presenting MRI similar to this case should not be immediately considered to have a tumefactive MS lesion. However, it is important to maintain MS as part of the differential diagnosis of tumors and vice versa.

According to a recent case series and literature review³, the majority of MS patients with tumor-like images were women with a median age of 37 years, with neurological multifocal presentation. The median time interval until the second relapse was 4.8 years,

and the disease evolution did not differ from that of other MS patients. The radiological image typically showed multiple lesions in 70% of the patients, and ring enhancement was a frequent finding. The lesions were usually located in the supratentorial and subcortical regions. In over 90% of the cases, the lesions were located in the frontal or parietal lobes. The tumefactive lesion did not progress to a black hole in the majority of the cases reviewed³.

The authors were not aware of similar Brazilian cases previously published. Our review of the literature searching indexed publications for Brazilian MS cases presenting a tumefactive lesion at disease onset rendered only three single previous reports⁵⁻⁷. These cases were published in 1995 and 1996, and no further cases or discussions were to follow. An extensive review of radiological findings among 270 Brazilian MS cases that was performed in 2001 did not report any tumor-like lesions in Brazilian patients⁸. No other tumor-like radiological or clinical

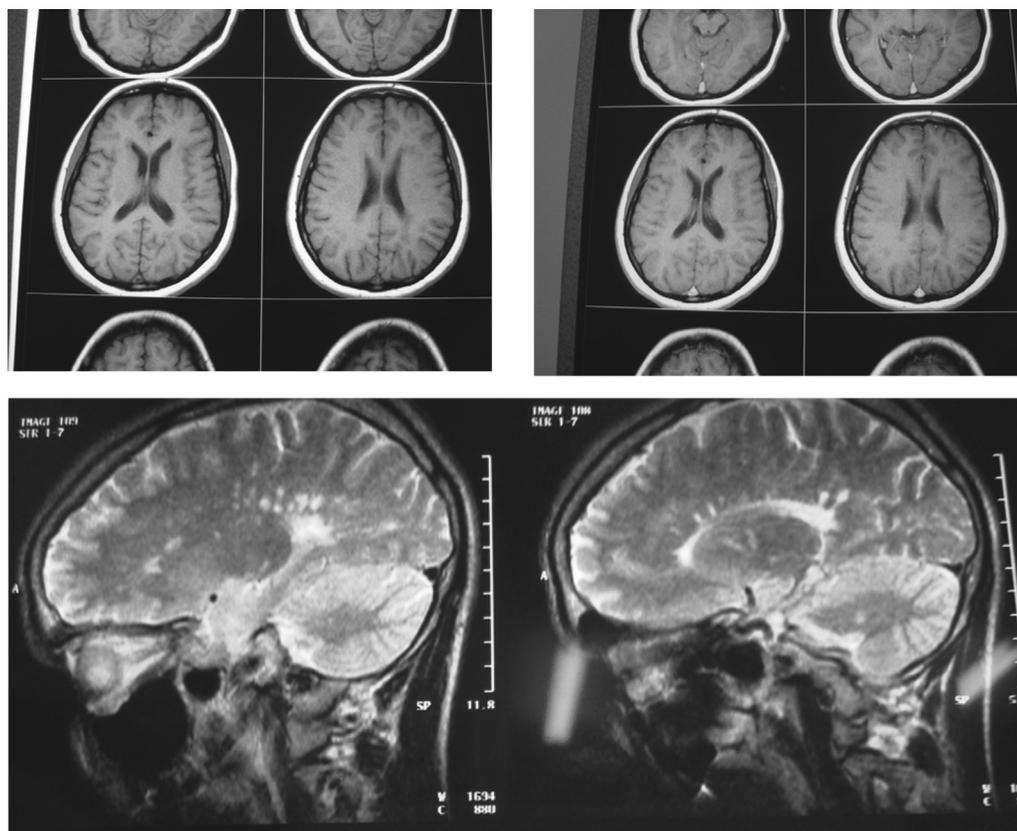


Figure 2. (May 2009) MRI images of MS. No evidence of a tumefactive lesion or a black hole in its place, thus suggesting that this lesion has imminent inflammatory characteristics (but is not necessarily degenerative or severe).

cases (or series) have been published since. New MRI techniques⁹, such as magnetization transfer imaging, diffusion tensor imaging, magnetic resonance spectroscopy and cell-specific contrast, as well as higher field strengths, may provide interesting data on this radiological presentation of MS.

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