TUMOR-LIKE MULTIPLE SCLEROSIS

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SUMMARY – Multiple sclerosis is a chronic demyelinating disease of the central nervous system. Tumor-like manifestation of multiple sclerosis is one of the rare clinical variants and it is frequently misdiagnosed. This is a report on a 45-year-old man who presented with right-sided hemiparesis. Initial computed tomography and magnetic resonance imaging studies of the brain revealed a large hyperintense signal lesion in the left hemisphere surrounding the cerebral edema. Low grade glioma was among the likely differential diagnoses. The patient underwent surgery. Brain biopsy showed demyelination. Lumbar puncture was performed and cerebrospinal fluid was positive for intrathecal synthesis of immunoglobulins. Other findings were compatible with the unusual form of multiple sclerosis. This case report illustrates a demyelinating process mimicking tumor lesions of the brain and it is of high importance to consider the diagnosis of multiple sclerosis on differential diagnosis of a tumor-like lesion of the central nervous system.

Key words: *Tumor–like lesion; Multiple sclerosis*

Introduction

Multiple sclerosis is a chronic demyelinating disease of the central nervous system. Usually, multiple sclerosis is a disease of young adults, with a higher predominance in women compared to men and the disease onset typically between the ages of 20 and 40 years[1]. Multiple sclerosis is diagnosed on the basis of clinical and/or radiographic evidence of disease dissemination in time and space[2,3]. On magnetic resonance imaging (MRI), multiple sclerosis plaques are usually found, small and irregular, with well-defined margins[4]. Edema and mass effect are uncommon features of multiple sclerosis plaques. A solitary demyelinating lesion greater than 2 cm is defined as a tumefactive demyelinating lesion[5]. Tumor-like manifestation of multiple sclerosis is one of the rare clinical variants and the presence of tumefactive lesions on MRI can cause diagnostic difficulties because several neoplastic and infective diseases of the brain may have similar imaging characteristics[6-9].

Case Report

This is a report on a 45-year-old male patient who presented with a 10-day history of right-sided extremity weakness. His medical history included attacks of dizziness in his twenties. A month before admission to our Department, he had weakness of the right leg, which was connected with low back pain.

Physical examination confirmed right-sided mild hemiparesis, increased deep tendon reflexes on the right limbs and positive Babinski sign.

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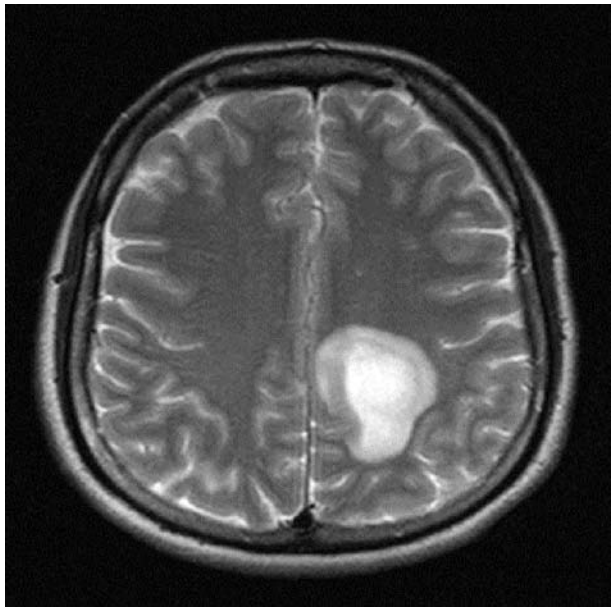

Fig. 1. MRI of the brain showing a large left frontoparietal mass surrounding edema.

Computed tomography (CT) scan of his brain showed a large solitary left frontoparietal hypodense white matter lesion. MRI scan showed a large left frontoparietal mass surrounding the edema (Fig. 1). Low grade glioma was among the likely differential diagnoses.

We consulted a neurosurgeon and the patient underwent surgery for resection of the lesion.

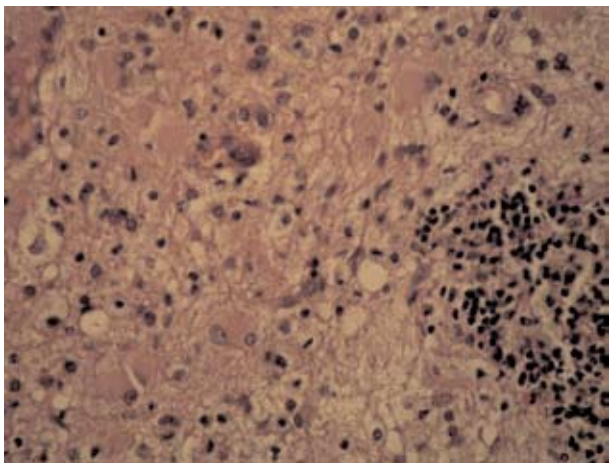

Fig. 2. Lymphocytic perivascular infiltrate with the surrounding lipid laden macrophages and reactive astrocytes is typical in demyelinating lesions. (hemalaun & eosin, X400)

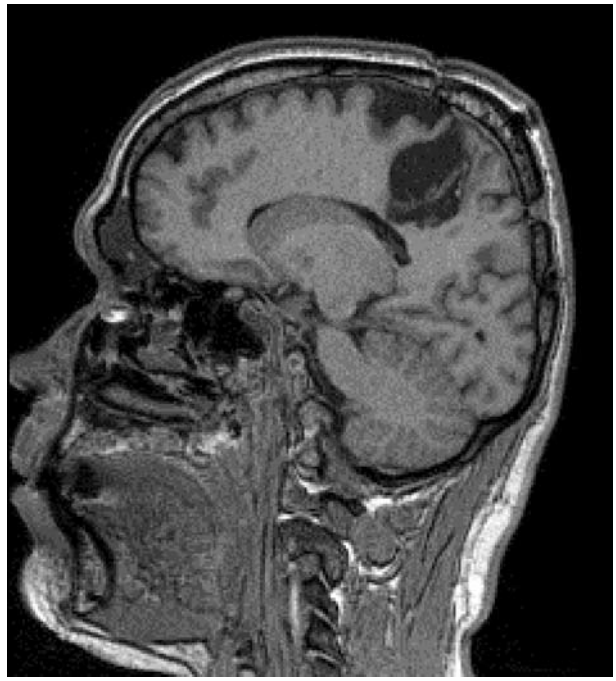

Fig. 3. Follow up MRI of the brain.

Postoperative pathology indicated an extensive inflammatory cell reaction, the presence of CD-68 positive macrophages and astrocytic proliferation through the white matter areas, with uninvolved grey matter, also with the absence of myelin (Fig. 2).

Lumbar puncture was performed and cerebrospinal fluid was positive for intrathecal synthesis of immunoglobulins. Other findings were compatible with an unusual form of multiple sclerosis[10]. Follow up MRI of the brain showed several new demyelinating lesions in white matter (Fig. 3).

The patient's condition improved upon intravenous infusion of steroids (1 g for 5 days)[11]. Two months later, he had a right focal tonic-clonic seizure with secondary generalization. Carbamazepine in a dose of 400 mg *per* day was administered to prevent seizure recurrence. On follow up visit, the patient was seizure free for 3 months.

Discussion

Most of the knowledge about tumefactive form of multiple sclerosis is derived from case reports and series of case reports[12-14]. In 2008, Lucchineti *et al.*

published the results of a study including a cohort of 168 biopsy proven tumefactive multiple sclerosis cases. The most common presenting symptoms were motor, cognitive, cerebellar and brainstem dysfunction. Atypical symptoms were headache, seizures, aphasia, agnosia, and cortical sensory loss. During the follow up of less than 5 years, two-thirds of these patients developed relapsing-remitting multiple sclerosis and only one-third of patients had the monophasic form of disease, which differed from the previously published reports[12,13].

Our case report illustrates the demyelinating process mimicking tumor lesions of the brain, which led to surgical procedure. MRI of the brain was highly suspect of low grade glioma. Some recent studies of MRI features suggest differences that can be helpful in distinguishing the tumefactive demyelination lesions from neoplasms[14,15]. The majority of patients with the complete ring enhancement pattern on brain MRI have tumefactive multiple sclerosis[16]. It is very important to perform MRI spectroscopy because elevation of the glutamate/glutamine peaks is not seen in neoplastic diseases of the brain[17]. For clinician, it is important to consider multiple sclerosis on differential diagnosis of a tumor-like lesion of the central nervous system to avoid invasive diagnostic procedures and aggressive treatment.

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Sažetak

TUMEFAKTIVNI OBLIK MULTIPLE SKLEROZE

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Multipla skleroza je kronična demijelinizacijska bolest središnjega živčanog sustava. Pojava tumefaktivnog oblika multiple skleroze je jedna od rijetkih kliničkih varijanta i često je pogrešno dijagnosticirana. Ovo je prikaz slučaja 45-godišnjeg muškarca s desnostranom hemiparezom. Početna kompjutorizirana tomografija i magnetska rezonanca mozga prikazale su veliku hiperintenzivnu leziju lijeve hemisfere mozga okruženu cerebralnim edemom. Diferencijalno dijagnostički nalaz je upućivao na nisko diferencirani glioblastom mozga. Bolesnik je podvrgnut kirurškom zahvatu. Biospija mozga potvrdila je demijelinizaciju. Učinjena je lumbalna punkcija i nalaz likvora ukazao je na intratekalnu sintezu imunoglobulina. Drugi su nalazi dijagnostičke obrade bili u skladu s rijetkim oblikom multiple skleroze. Ovaj prikaz slučaja ilustrira demijelinizacijski proces koji se prikazao kao tumoska lezija mozga i od iznimne je važnosti razmotriti dijagnozu multiple skleroze kao diferencijanu dijagnozu tumefaktivne lezije središnjega živčanog sustava.

Ključne riječi: *Tumefaktivna lezija; Multipla skleroza*