

PREVALENCE OF TUMEFACTIVE DEMYELINATING LESIONS IN MULTIPLE SCLEROSIS

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Objective: The aim of this study was to estimate the prevalence of tumefactive demyelinating lesions (TDLs) in a cohort of patients diagnosed with multiple sclerosis (MS).

Materials and Methods: We reviewed brain MRI scans of 443 patients referred to our MS center from January 1996 to December 2014 and fulfilling McDonald criteria for MS. All patients whose MRI showed at least one TDL were included. TDL was defined by plaque size larger than 2 cm, with or without mass effect. TDLs on each MRI scan were analysed for location, size, T2W hypointense rim, contrast enhancement pattern, mass effect, oedema and coexistence of additional T2W typical MS lesions. Demographic and clinical data were gathered by electronic medical records review.

Results: Out of 443 MS patients, we identified 7 cases (1.5%) who met the inclusion criteria. Five patients were female. Mean age at onset of first TDL was 24±5.06 years. All patients were diagnosed with relapsing-remitting MS prior to the occurrence of a TDL. Three patients were symptomatic at the onset of TDL with sensory (n=3) or sensory-motor (n=2) impairment, and aphasia associated with psychomotor agitation (n=1). Overall, 8 TDLs were found in 7 patients enrolled.

Frontal (n=3), temporal (n=2) and parietal (n=2) regions were more often affected (Table 1). Mass effect was present in all but one lesion and was graded as mild (sulcal effacement) in 3, moderate (minimal subfalcine or uncal herniation, >1 cm) in 2 and moderate-to-severe (>1cm subfalcine or uncal herniation) in 2 cases, respectively. Perilesional oedema was found in all lesions and was characterized as mild (<1cm) in 7 lesions and moderate-to-severe in one (>1 cm). T2W hypointense rim surrounding TDLs was found in 3 cases. Contrast enhancement was present in 5 lesions presenting as ring-like (n=1), heterogeneous (n=1), fluffy/cotton-ball (n=1) or concentric (n=1). In 6 cases we found concomitant multiple T2W lesions. One patient presented recurrent TDL at 2-year MRI scan follow-up.

Conclusion: TDLs were uncommon in our series and occurred in the course of established RRMS.

References:

Lucchinetti CF, Gavrilova RH, Metz I et al. Clinical and radiographic spectrum of pathologically confirmed tumefactive multiple sclerosis. *Brain* 2008, 131: 1759-1775.

Table 1: Radiological characteristics of tumefactive demyelinating lesions.

Pt no.	Gender	Location	Size	Contrast enhancement	Mass effect	Oedema	T2W hypointense rim	Multiple typical MS lesions
1	F	Temporal	2.1-5 cm	Absent	+	+	Absent	-
2	F	Frontal	2.1-5 cm	Heterogeneous	+	+	Present	1-5
3	F	Temporal	> 5 cm	NA	++/+++	+	Absent	1-5
4	F	Parietal	2.1-5cm	Fluffy/cotton ball	+	+	Absent	-
5	F	Frontal	2.1-5cm	Ring	++/+++	++/+++	Present	5-10
6	M	Occipital	2.1-5cm	Absent	++	+	Absent	>10
7	M	Parietal	2.1-5cm	Concentric	++	+	Absent	>10