SPINAL CORD LESIONS ARE FREQUENTLY ASYMPTOMATIC IN RELAPSING REMITTING MULTIPLE SCLEROSIS. A RETROSPECTIVE MRI SURVEY

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Background

✓ Spinal cord (SC) lesion load is well known as a negative prognostic factor in multiple sclerosis (MS). Nevertheless, there is no consensus about MRI follow-up, mainly because new SC lesions (SCLs) are thought to be more likely symptomatic than brain ones.

✓ ***AIMS***: to investigate the impact of asymptomatic *active SCLs*, *defined as new/enlarging T2 or gadolinium positive (Gd+)*, on SC MRI activity in a cohort of MS patients.

Methods

❑ Retrospective analysis

❑ Single Italian MS centre study

❑ Materials: all available SC MRI scans of *clinically isolated syndrome and relapsing remitting (RR) MS* patients referred to our centre

❑ We investigated SC MRI scans with active SCLs, both *symptomatic* (defined by the *occurrence of relapses or EDSS progression*) and *asymptomatic*, collecting *demographic* (age, gender), *clinical* (age at MS onset, MS type, disease duration, EDSS, MS onset location, ongoing DMT) and *radiological features* (number, location and extension of new/enlarging T2 or Gd+ SC lesions, number of new/enlarging T2 or Gd+ brain lesions), including also clinical data (number of relapses, EDSS progression) since previous SC MRI or disease onset in case of first examination

❑ Then, we *compared* the two groups of *symptomatic and asymptomatic active SC MRI*

❑ *Brain MRI data* were also included

Conclusions

A consistent part of active SCLs in MS patients seems to remain asymptomatic, suggesting the need of a regular SC MRI follow-up.

References

- Filippi M, Rocca MA, Ciccarelli O, et al. MRI criteria for the diagnosis of multiple sclerosis: MAGNIMS consensus guideline. Lancet Neurol 2016;15:292-303.
- Zecca C, Disanto G, Sormani MP, et al. Relevance of asymptomatic spinal MRI lesions in patients with multiple sclerosis. Mult Scler 2016;22:782-91.
- Brownlee WJ, Altmann DR, Alves Da Mota P, et al. Association of asymptomatic spinal cord lesions and atrophy with disability 5 years after a clinically isolated syndrome. Mult Scler 2017;23:665-674.

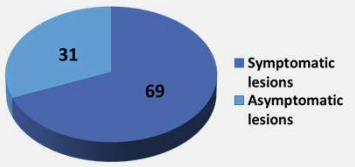
Results

We analyzed a total of 340 SC MRI in 230 patients.

Tab. 1 Demographic and clinical features of MS patients (n=230)

Mean age at MRI (yrs±SD)	37.4±10.49
Gender (%female)	69.1
Mean age at MS onset (yrs±SD)	31.9±10.19
MS onset location (%)	Sovratentorial 9.6 Brain stem 21.7 Spinal cord 41.7 Visual pathway 18.3 Multifocal 8.7
Disease duration (yrs±SD)	5.4±7.30
Mean EDSS	2.1±1.22 (range 0-7.0)
MS type (%)	RR 93.8 CIS 6.2
Mean number of relapses since previous SC MRI or disease onset	1.8±1.67
EDSS progression since previous SC MRI (%)	27.1%
Ongoing therapy at MRI (%)	none 39.4 first line 50.6 second line 10.0
MRI at onset (%)	52.9

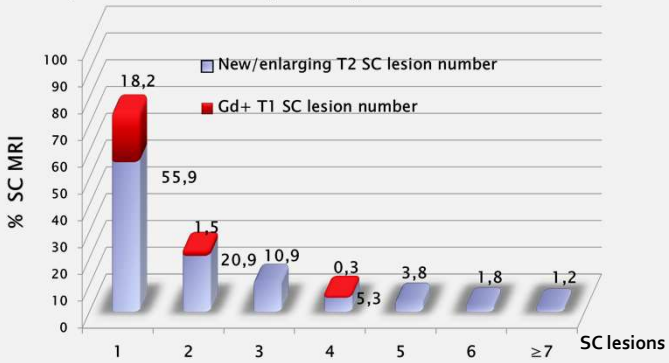
Fig. 1 Distribution of symptomatic and asymptomatic active SC MRI scans (%)



Tab. 2 MRI spinal lesions features

Spinal cord involvement %	Cervical 68.8 Dorsal 13.8 Cervical + dorsal 17.4
Transversal extension (> 1 cordon) %	48.5
Longitudinal extension (≥ 3 segments) %	5

Fig. 2 Distribution of active SC lesions (symptomatic and asymptomatic) in SC MRI scans (n= 340)



Tab. 3 Symptomatic versus asymptomatic active SC MRI

	Symptomatic SC MRI	Asymptomatic SC MRI	Univariate analysis (p) *	Multivariate analysis (p) #
Mean age at MS onset (yrs±SD)	31.0 ± 9.99	34.0 ± 10.37	0.01	0.04
MS onset location sovratentorial (%)	6.0	14.2	< 0.001	0.03
Mean EDSS	2.4 ± 1.29	1.6 ± 0.88	< 0.001	0.001
MS type (% RR)	92.7	96.2	0.02	0.04
Mean number of relapses since previous SC MRI or disease onset	2.1 ± 1.78	1.1 ± 1.13	< 0.001	0.003
SC segment involvement (%)	Cervical 65.8 Dorsal 12.4 Cervicodorsal 21.8	Cervical 75.5 Dorsal 17.0 Cervicodorsal 7.5	0.005	ns
New/enlarging T2 spinal lesion number	2.1 ± 1.54	1.6 ± 1.07	< 0.001	0.04
Gd+ spinal lesion number	0.3 ± 0.54	0.1± 0.33	< 0.001	ns
Brain Gd+ lesion number	0.5 ± 1.69	0.6 ± 1.61	ns	0.01

* Student's t test; # Logistic regression

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