

Concomitant onset of Multiple Sclerosis and Celiac disease: association or new disease entity?

Gaia Cola¹, D. Landi¹, C. Nicoletti¹, G. Mataluni¹, N.B. Mercuri¹, G.A. Marfia¹

¹Multiple Sclerosis Clinical and Research Unit - Tor Vergata University

Introduction

The association between multiple sclerosis (MS) and celiac disease (CD) has been investigated in very few studies with conflicting results. Reported MS prevalence in CD population is low and CD prevalence in MS is even lower than in general population, even if both are considered to be T-cell mediated processes

Cases report

We report the cases of two young female patients receiving simultaneous diagnosis of MS and CD. Both patients came to our attention for newly onset myelitis (EDSS 3.0 and 3.5 at onset). Diagnostic MRI unveiled multiple demyelinating lesions in the brain and an extensive involvement of the spinal cord. Cerebrospinal fluid was positive for oligoclonal bands, therefore RRMS was diagnosed. Anti CD20+ therapy was started. Autoimmune screening showed only a significant titre of CD antibodies (**Table1**), however none of them referred gastrointestinal symptoms or malabsorption at that time or before. Family history was relevant for gluten sensitivity in one patient and unremarkable in the other. Duodenal biopsy confirmed CD diagnosis and gluten free diet was initiated.

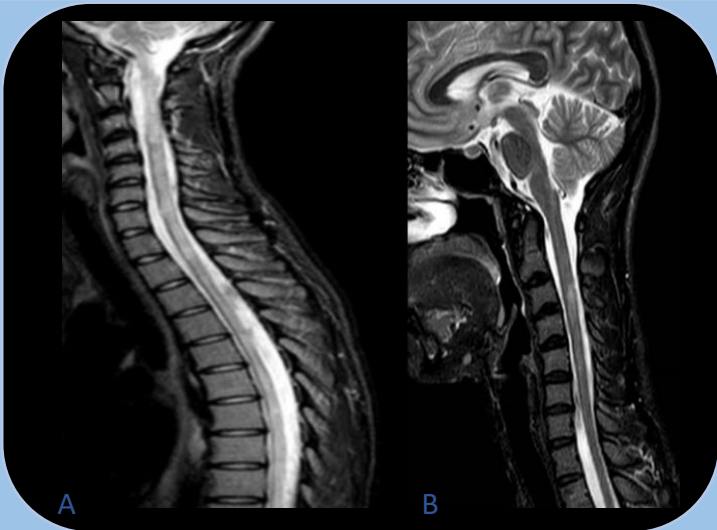


Figure 1: MRI (STIR, T2W) of patient 1 (A) and patient 2 (B)

	Patient 1	Patient 2
Anti Deamidated Gliadin peptide IgG	140.10 U (< 20)	38.40 U (< 20)
Anti Deamidated Gliadin peptide IgA	797.70 U (< 20)	24.40 U (< 20)
Anti-tissue Transglutaminase IgA	4034.30 U/mL (< 20)	112.00 U/mL (< 20)
Anti-endomysium IgG	Mild positive	Negative
Anti-endomysium IgA	Positive	Positive
Polymorphisms DQ2/DQ8	Heterodimer DQ2 (DQA1*0201-DQB1*02)	Heterodimer DQ2 (DQA1*05-DQB1*02)
Oligoclonal bands	Positive	Positive
AQP4/MOG antibodies	Negative	Negative

Table 1: Laboratory findings in patient 1 and patient 2

Discussion

These cases add knowledge about the concomitant occurrence of MS and CD, which is not strongly evinced in literature. A question is whether such association is accidental in persons with genetic susceptibility or they are both part of the spectrum of the same illness. Screening for CD should be investigated in newly diagnosed MS patients under specific circumstances, (e.g. spinal cord onset), as part of routine autoimmune screening. Whether gluten is an environmental factor triggering MS or demyelinating lesions represent extra intestinal manifestations of CD needs to be confirmed by further studies

Bibliography

- ¹Mohan M, Okeoma CM, Sestak K. Dietary Gluten and Neurodegeneration: A Case for Preclinical Studies. Int J Mol Sci. 2020 Jul 29
- ²Thomsen HL, Jessen EB, Passali M, Frederiksen JL. The role of gluten in multiple sclerosis: A systematic review. Mult Scler Relat Disord. 2019 Ja
- ³Piccini B, Ulivelli M, Amato MP, et al. Association of celiac disease in patients with multiple sclerosis in Tuscany. Rev Esp Enferm Dig.2020