Tocilizumab in refractory anti-MOG neuromyelitis optica spectrum disorder: a case report

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Purpose:

To **describe clinical and radiological course** of anti AQ4 negative, **anti-MOG positive NMOSD** patient **treated**, as rescue therapy, with **tocilizumab**

Methods:

A **20-year-old man** with anti-AQP4 negative, **anti-MOG positive NMOSD** with **involvement of both spinal cord and bilateral optic nerves** that was **treated** with **rituximab** two 1g infusions 15 days apart.

Despite CD19 positive B cells depletion, the patient reported, in the following 6 months, **two spinal cord relapses** with increased expanded disability status scale (EDSS) to 3 (from EDSS 1). **We decided to start treatment with tocilizumab 8 mg/kg/monthly.**

Results:

After a **12-month follow-up**, patient did not report any relapse and experienced a disability reduction (**EDSS decrease from 3 to 1**). Despite clinical improvement, **anti-MOG antibodies remained persistently positive at high titer** (1:20.000).

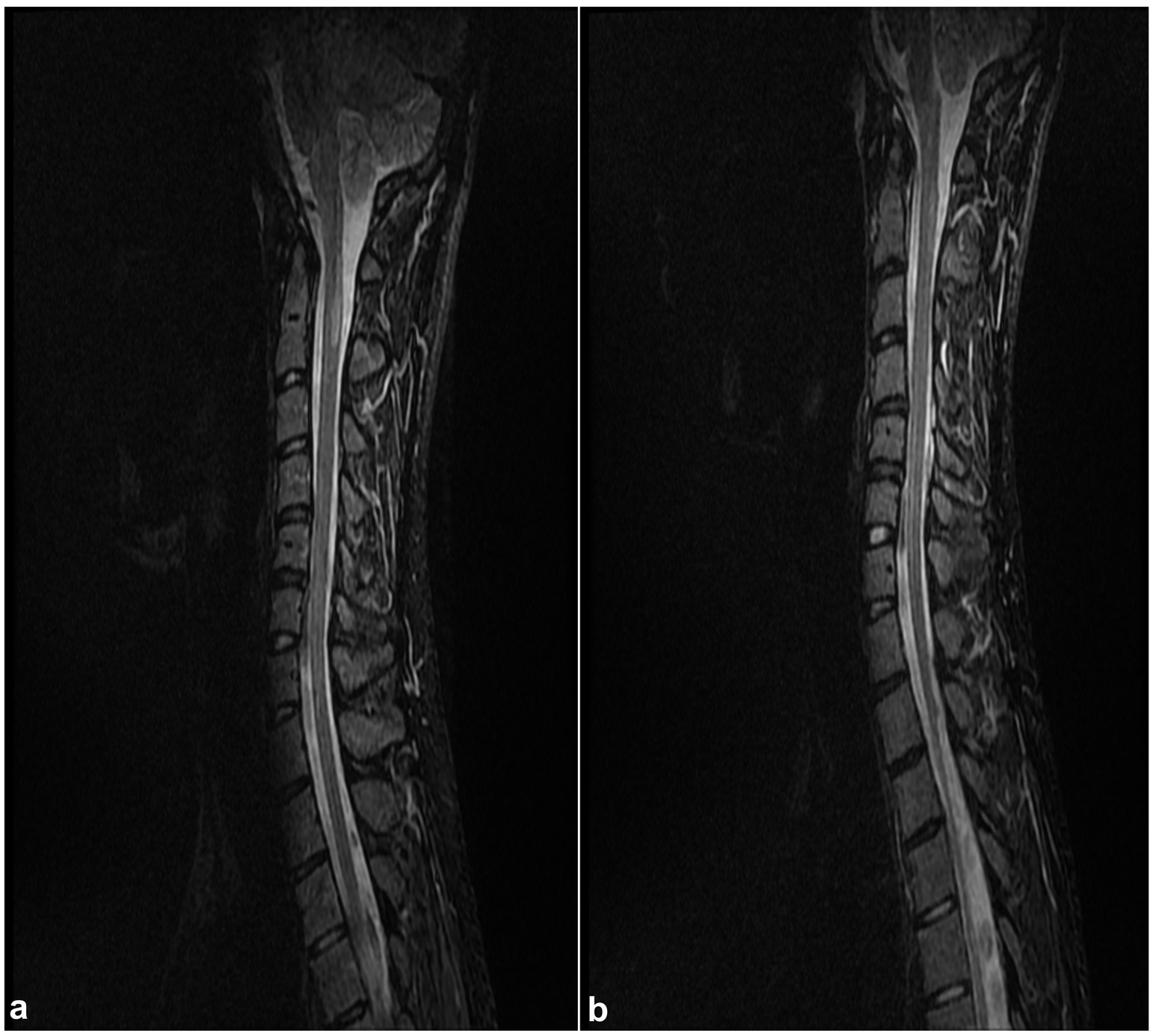

Fig.1
a. Cervical segment MRI (STIR sequence) showing a C1-C2 demyelinating lesion. September 2016, before tocilizumab initiation .

b. Cervical segment MRI (STIR sequence) showing a reduction of hyperintensity. September 2017, after a 12-month course of tocilizumab therapy.

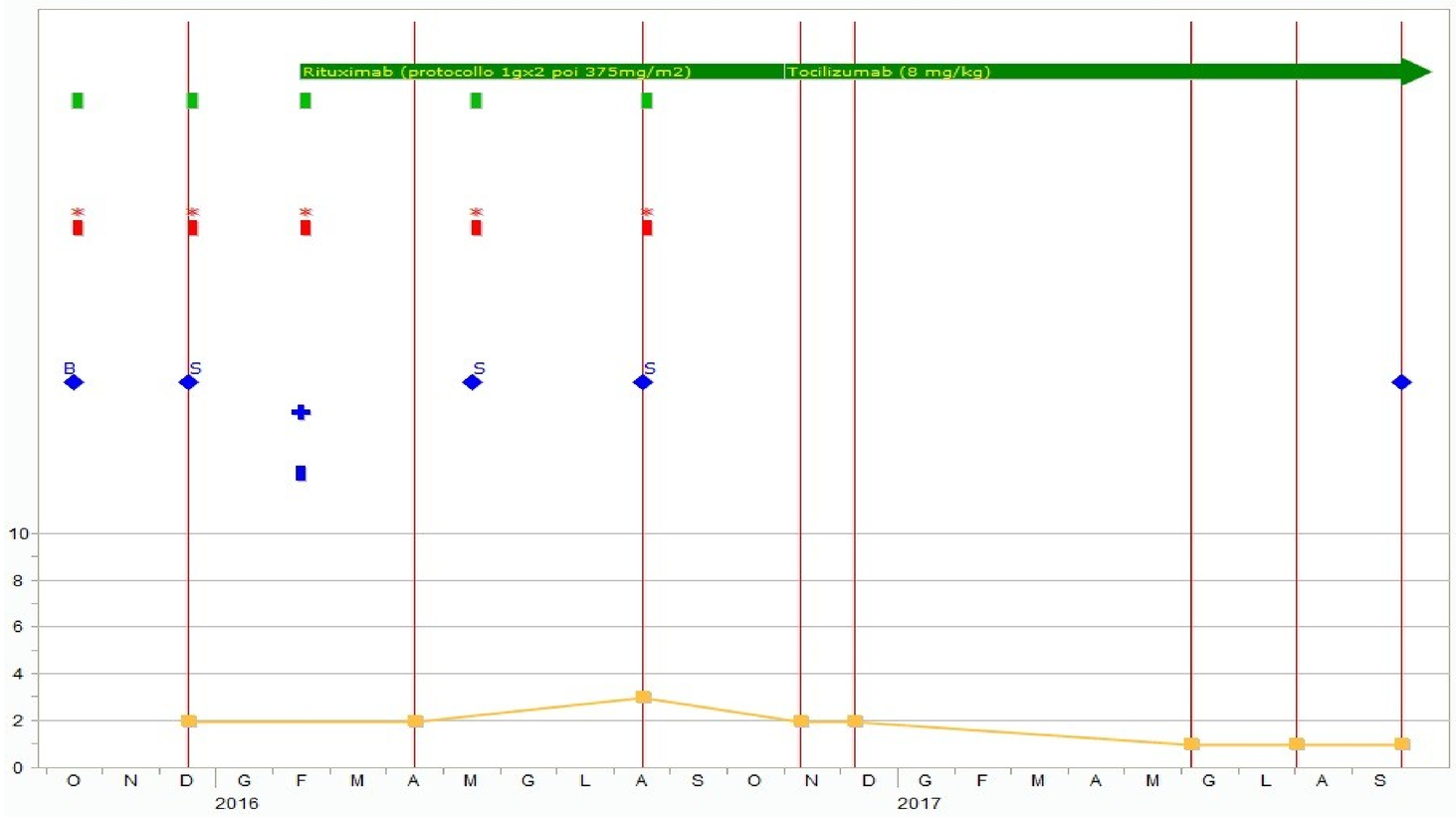

Fig.2
Disease course, relapses and therapy

Conclusion:

Patients with **anti-AQP4 negative and anti-MOG positive NMOSD usually have a better prognosis** than the anti-AQ4 positive counterpart but they have a **less clear therapeutic approach**.
In our case **tocilizumab has been used with success when rituximab failed**, further studies on larger case series are needed.

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