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Successful usage of rituximab in a patient with overlapping myelin oligodendrocyte glycoprotein encephalomyelitis and systemic lupus erythematosus

Úspěšné použití rituximabu u pacienta s překrytím myelinové oligodendrocytové glykoproteinové encefalomyelitidy a systémového lupus erythematosus

Dear Editor,

Anti-MOG (myelin oligodendrocyte glycoprotein) antibodies may be found in patients with neuropsychiatric systemic lupus erythematosus (NPSLE) [1,2], which suggests coexisting MOG-encephalomyelitis [3]. Rituximab is believed to be effective in the prevention of MOG-encephalomyelitis relapses [4]. However, data about its effectiveness in the acute phase are lacking [4,5].

A 36-year-old female patient with a history of well-controlled SLE was admitted to Mechnikov Dnipropetrovsk Regional Clinical Hospital, Ukraine with complaints of the absence of movements in the lower limbs. The diagnosis of SLE was based on the presence of anemia, arthritis involving more than two joints, renal involvement (proteinuria), and presence of antinuclear antibodies (titer 1 : 1,000) 6 years prior to the admission. The patient had a controlled course of SLE and was treated with mofetil mycophenolate (MMF) (500 mg bid) and methylprednisolone (8 mg/day). The disease developed five days prior to the admission from numbness of the lower limbs and urination retention. Muscle strength in the lower limbs upon admission was 0 points on the Medical Research Council Scale (MRC). The patient had a bedsore over the sacrum. Cranial nerve innervation and movements in the upper limbs were normal.

Spine MRI showed C6-Th1 and Th4-Th8 myelopathy (Fig. 1); cranial MRI revealed no specific findings. It was suggested that spinal cord lesion was due to antiphospholipid syndrome (APS) or SLE-related vasculitis. To influence both inflammatory and ischemic pathways, the patient was hospitalized in the intensive care unit and was prescribed pulse methylprednisolone (500 mg/day for 3 days, i.v.), MMF (500 mg bid), and low-molecular-weight heparin [6]. Since the test for APS was negative, the patient's condition was classified as SLE-related myelitis. Response to therapy was minimal, and leg muscle strength did not improve. Therefore, treatment with cyclophosphamide (600 mg i.v., 2 cycles) was considered as a treatment option for severe organ-threatening SLE [6]. However, the addition of cyclophosphamide to the therapy did not significantly improve the patient's neurological status during the following two weeks.

Thus, it was suggested that the spinal cord lesion was caused by another pathology on top of SLE. Neuromyelitis optica spectrum disorder (NMOSD) was suspected due to the leading manifestation of a spinal cord lesion on MRI extending over ≥ 3 contiguous segments [3]. Cerebrospinal fluid (CSF) sample was collected according to the current NPSLE management recommendations [6]. Results of IIFT cell-based assays: antibodies to aquaporin-4 (AQP4-IgG) in serum: negative; AQP4-IgG in CSF: negative. MOG-IgG in serum: positive (titer 1 : 32); and MOG-IgG in CSF: negative. Test for oligoclonal bands (OCB) in serum and CSF (performed at MDI Limbach Berlin GMBH, Berlin, Germany): identical OCB in serum and CSF (type 4 pattern).

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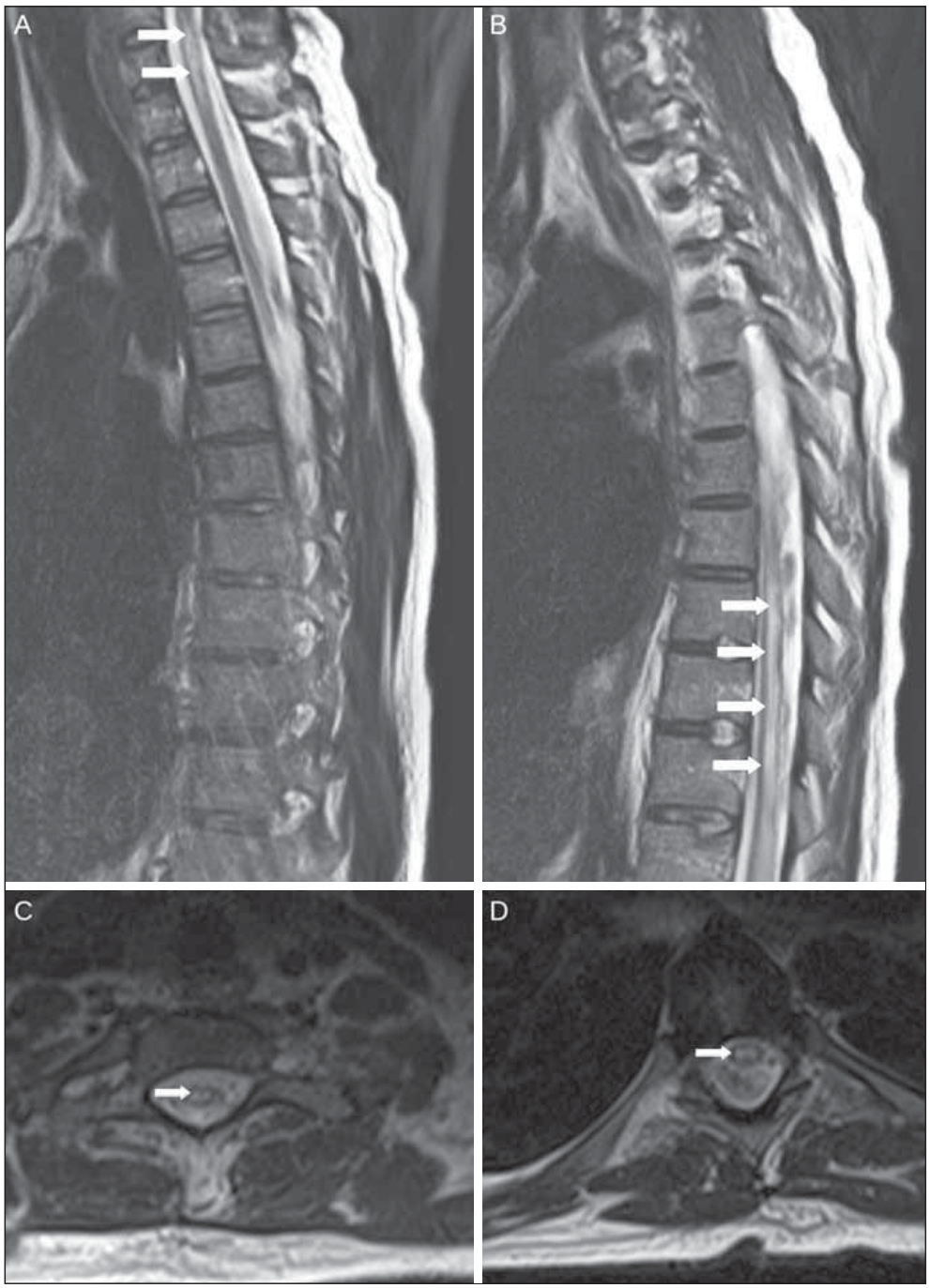


Fig. 1. Spinal cord lesion on MRI (T2-weighted image). White arrows point to the spinal cord lesion in C6–Th1, Th4–Th8 (A, B – sagittal plane) and Th5–Th6 (C, D – axial view) segments.
Obr. 1. Léze míchy na MR (T2 vážený obraz). Bílé šipky ukazují na lézi míchy v segmentech C6–Th1, Th4–Th8 (A, B – sagitální rovina) a Th5–Th6 (C, D – axiální rovina).

The patient's condition met the diagnostic criteria of MOG-encephalomyelitis [3]. Rituximab was chosen as the treatment option, which was applicable for both MOG-encephalomyelitis [4] and refractory SLE [6]. Ten days after the first dose of rituximab (1,000 mg i.v.) [4], the patient's leg muscle strength improved from 0 to 2 MRC points. She was discharged two weeks after the second dose of rituximab (1,000 mg i.v.) [4]. Her muscle strength improved to 4 MRC points, urination almost completely recovered (50 mL of residual urine after urination), bedsore healed, and she was able to walk with walking support.

Neural system (NS)-directed antibodies may be present in up to half of the patients with NPSLE [1]. In the study by Pröbstel et al, MOG-IgG were the most common antibodies in patients with NPSLE, and MOG-IgG was also associated with demyelinating disease [1]. In the study by Mader et al, MOG-IgG were detected in AQP4-IgG negative SLE patients [2]. However, these findings were not confirmed in other studies [7]. In different clinical settings, MOG-IgG coexisted with a different pattern of NS-directed antibodies [2].

In the presented case, MOG-IgG titer of 1 : 32 could be interpreted as "MOG-IgG levels just barely above the assay-specific cut-off" and required re-testing [3]. It was suggested that a low titer of MOG-IgG ("red flag") [3] was related to the preceding immunosuppressive therapy, therefore, the test for MOG-IgG was not repeated. OCB are unusual in patients with MOG-encephalomyelitis [3,4] and are more common in patients with MS [3]. To meet MOG-encephalomyelitis diagnostic criteria, OCB should not be CSF-restricted [3], whereas, in the presented case, OCB were identical in the serum and the CSF.

Rituximab appeared to be the only therapeutic option for the patient. Acute-phase treatment options were either ineffective (pulse methylprednisolone) or contraindicated (plasma exchange was contraindicated as the patient had a septic condition – bedsore) [8]). The preventive treatment with steroids and immunosuppressants (cyclophosphamide) [4] was not effective. Intravenous immunoglobulins [4] were not prescribed as their usage may be associated with a higher risk of thrombosis [9]. Additionally, rituximab is recommended in organ-threatening refractory SLE cases [6]; however, its effectiveness in NPSLE treatment needs to be proven in larger studies (current level of evidence – C) [6]. Rituximab should be prescribed with caution to patients with SLE, as its usage may be associated with progressive multifocal leukoencephalopathy – a rare, but usually fatal viral infection of the brain [10].

Ramanathan et al. suggested early prescription of rituximab for MOG-IgG positive patients with relapsing myelitis who did not respond to steroids [5]. Unlike previous studies, in the presented case, rituximab was prescribed in the acute phase of MOG-encephalomyelitis, and its early prescription allowed avoiding the patient's disability. However, the phase of the disease at the moment of rituximab prescription in the presented case may be argued, as there was a significant time period from the disease onset (4 weeks) and there are no clear time criteria for the acute phase in the literature. The recovery was not complete. Further monitoring of the patient's condition is required. To our knowledge, this is the first

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description of rituximab usage in a patient with overlapping MOG-encephalomyelitis and SLE.

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Cestovní granty ČNS ČLS JEP
k účasti na 34. českém a slovenském neurologickém sjezdu

Česká neurologická společnost ČLS JEP (ČNS) vypisuje pro rok 2021 cestovní grant pro mladé lékaře na podporu účasti na 34. českém a slovenském neurologickém sjezdu (ČSNS 2021) v celkové maximální částce 300.000 Kč, který se koná 1.–3. 12. 2021 v Olomouci.

Cestovní grant může být udělen během celého kalendářního roku, pokud není kapacita (tj. částka 300.000 Kč) vyčerpána nebo není překročen termín možnosti přihlášení (tj. 20. 9. 2021). V případě nedostatečné kvality přihlášených příspěvků, nemusí být cestovní grant vyčerpán v celé výši.

Úspěšnému žadateli o cestovní grant bude automaticky uhrazen registrační poplatek na ČSNS 2021 a bezplatně zajištěno ubytování (v případě pracoviště mimo Olomouc – místo konání akce) v termínu konání ČSNS 2021 na 2 noci ve 3* hotelu.

Žádost o cestovní grant bude po odborné stránce posouzena organizačním a vědeckým výborem ČSNS.

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