Figure 1 Bilateral metastases of medulloblastoma.

References

1. Klüver H, Bucy PC. Preliminary analysis of functions of the temporal lobes in monkeys. 1939. J Neuropsychiatry Clin Neurosci. 1997;9:606-20.
2. Lilly R, Cummings JL, Benson DF, Frankel M. The human Klüver-Bucy syndrome. Neurology. 1983;33:1141-5.
3. Jha S, Patel R. Kluver-Bucy syndrome —an experience with six cases. Neurol India. 2004;52:369-71.
4. Badruddoja MA, Vredenburgh J, Peery TS, Reardon DA. Kluver-Bucy syndrome related to glioma. Neurology. 2004;63:184.
5. Rossitch E Jr, Oakes WJ. Klüver-Bucy syndrome in a child with bilateral arachnoid cysts: report of a case. Neurosurgery. 1989;24:110-2.

Demyelinating encephalomyelitis associated with treatment with adalimumab

Encefalomielitis desmielinizante asociada al tratamiento con adalimumab

Dear Editor:

Tumour necrosis factor alpha (TNFα) inhibitors, among them adalimumab, are drugs used as immunosuppressive agents in various chronic inflammatory diseases, including rheumatoid arthritis (RA). They have shown that they significantly decrease the progression of joint damage and ensure long-lasting relief of RA symptoms[1]. They present a superior therapeutic effectiveness and increased patient survival compared to traditional drugs. In addition to RA, their use has spread to other chronic inflammatory diseases such as Crohn's disease, ankylosing spondylitis, psoriasis and psoriatic arthritis[2].

We present the case of a 55-year-old woman, diagnosed with RA in 1989, who presented a 2-month history of gait disturbance. The patient was following treatment with oral methotrexate and adalimumab was added at a dose of 40 mg every 2 weeks in November 2008, due to clinical worsening. On examination, we objectified gait ataxia with instability in turns, inability to perform tandem and Romberg with multidirectional fall; the remainder of the examination

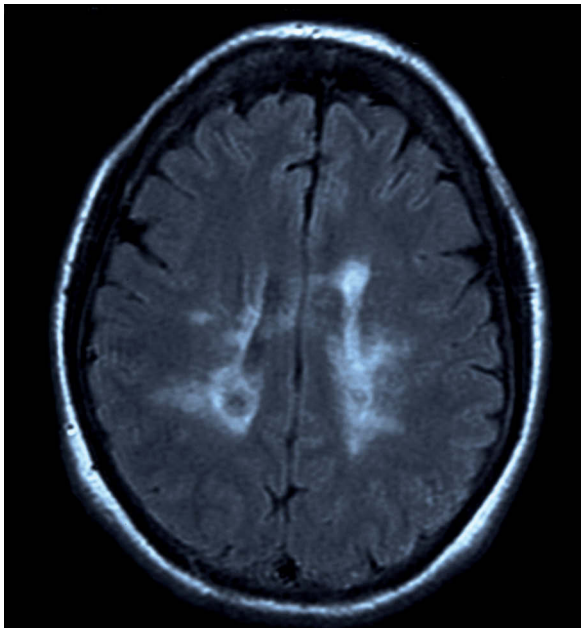

Figure 1 Cranial MRI showing demyelinating lesions in periventricular white matter.

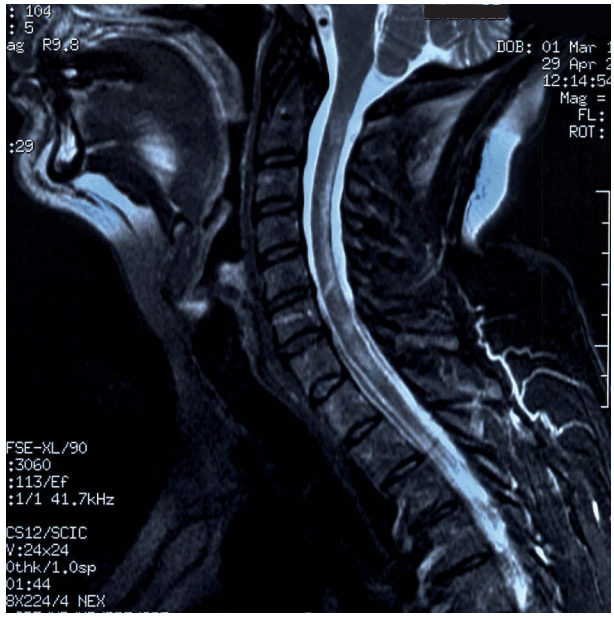

Figure 2 Spinal cord MRI showing cervicodorsal demyelinating lesions.

was normal. We performed cranial magnetic resonance imaging (MRI), which showed demyelinating lesions in the periventricular white matter, some of which were enhanced after contrast administration (fig. 1). The spinal MRI also showed demyelinating lesions at the dorsal and cervical level, some of which became enhanced after contrast (fig. 2). We conducted a study of cerebrospinal fluid, which was normal; of oligoclonal bands, which were negative; and PCR determination of JC polyomavirus, which was also negative. The ANA and anti-DNA antibodies were negative. Finally, the study of visual evoked potentials was normal.

The patient was treated with intravenous boluses of methylprednisolone, which improved the symptoms.

Adalimumab is a human monoclonal anti-TNFα antibody produced by recombinant DNA technology[3]. It forms part of the latest generation of monoclonal antibodies. It is generally well tolerated and adverse reactions are rare. The number of infections can therefore increase, particularly in the upper respiratory tract and urinary tract, which are usually mild. Other adverse reactions include autoimmunity (appearance of autoantibodies, anti-nuclear, anti-DNA or anticardiolipin), demyelinating disease (*de novo* or, more commonly, reactivation of a pre-existing one), blood dyscrasia, worsening of heart failure and increased occurrence of lymphomas[2].

In 2001, Mohan et al.[4] described a series of 20 patients who followed treatment with infliximab- or etanercept-type anti-TNFα (the use of adalimumab was not yet approved); the patients showed neurological signs and symptoms, most of them associated with demyelination of the central nervous system. These symptoms appeared between one week and 15 months after initiation of therapy, with an average of 5 months.

The way this demyelination presented clinically was varied: sensory disturbances, optic neuritis, weakness, ataxia, transverse myelitis and cognitive alteration[5]. Brain MRI showed hyperintense lesions in the white matter on T2 sequences and flair, some of which were enhanced with gadolinium if they were recent. Hyperintensity or contrast with enhancement was also found in the optic nerve in the case of optic neuritis and/or spinal cord injuries, uptaking or not.

The mechanisms by which TNFα inhibitors induce demyelination are not clearly established. Prolonged exposure to anti-TNFα may increase the activation and survival of peripheral, potentially autoreactive T cells, which would be responsive to penetrating the central nervous system and causing demyelination[5].

Several cases of peripheral nervous system demyelination induced by treatment with anti-TNFα have recently been described. These drugs could thus produce an immune reaction against common myelin antigens, both central and peripheral[5,7,8].

Anti-TNFαs have transformed RA treatment. However, complications due to central nervous system demyelination may be associated with their use. In most cases, the neurological disease improves or disappears when the treatment with anti-TNFα is removed[5]. Patients with RA treated with anti-TNFα would therefore benefit from monitoring that includes a cerebral MRI, which would reveal early abnormalities even if the patient is asymptomatic[5,6].

The use of anti-TNFα agents must be interrupted upon the onset of neurological events and prevented in patients with a diagnosed demyelinating disease, and caution should be exercised in those with a family history of multiple sclerosis[9].

M. Sillero Sánchez*, G. García Domínguez and J.J. Asencio Marchante

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References

1. Moreland LW, Weinblatt ME, Keystone EC, Kremer JM, Martin RW, Schiff MH, et al. Tratamiento con etanercept en adultos con artritis reumatoide establecida: 7 años de experiencia clínica. J Rheumatol. 2006;33:854-61.
2. Marenco de la Fuente JL. Aplicaciones de anticuerpos monoclonales y productos de biotecnología en el tratamiento de las enfermedades inflamatorias crónicas. Rev Clin Esp. 2005;205:127-36.
3. Sánchez Atrio AI, Pérez Gómez A, Cuende Quintana E, Bohórquez Heras C, Álvarez-Mon Soto M. Actualizaciones. Artritis reumatoide (II). Medicine. 2009;10:1927-32.
4. Mohan N, Edwards ET, Cupps TR, Oliveiro PJ, Sandberg G, Crayton H, et al. Demyelination ocurring during anti-tumor necrosis factor therapy for inflammatory arthritides. Arthritis Rheum. 2001;44:2862-9.
5. Fromont A, De Seze J, Fleury MC, Maillefert JF, Moreau T. Inflammatory demyelinating events following treatment with anti-tumor necrosis factor. Cytokine. 2009;45:55-7.
6. Sicotte NL, Voskuhl RR. Onset of multiple sclerosis associated with anti-TNF therapy. Neurology. 2001;57:1885-8.
7. Hamon MA, Nicolas G, Deviere F, Letournel F, Dubas F. Demyelinating neuropathy during anti-TNF alpha treatment with a review of the literature. Rev Neurol (Paris). 2007;163: 1232-5.
8. Lozeron P, Denier C, Lacroix C, Adams D. Long-term course of demyelinating neuropathies ocurring during tumor necrosis factor- -blocker therapy. Arch Neurol. 2009;66:490-7.
9. Bensouda-Grimaldi L, Mulleman D, Valat JP, Autret-Leca E. Adalimumab-associated multiple sclerosis. J Rheumatol. 2007;34:239-40.

Thalamic ischaemic stroke: an uncommon aetiology of "startle syndrome"

Ictus isquémico talámico: una etiología infrecuente del síndrome de sobresalto

Dear Editor:

Ischaemic stroke is an uncommon cause of movement disorders (MD) that occurs most often when the lesions affect the basal ganglia, thalamus or subthalamus. Although they can be observed in the acute phase, they usually appear deferred after a variable time interval between the stroke and MD onset[1].

While chorea is the most frequent, postictal MD are highly varied and dystonia, hemiballism, asterixis, tremor and myoclonus have been described.

We describe the case of a 56-year-old woman with a personal history of hypertension of long evolution, who was admitted to the emergency room presenting sudden loss of strength in the right hemisphere and sensation of instability. The general examination was normal. The neurological examination objectified right supranuclear facial paresis, right hemiparesis with muscle balance 3/5 in upper extremity and 4+/5 in lower extremity and right touch and pain hemi-hypesthesia, proprioceptive and vibratory. She presented sudden involuntary jerking of the head and right hemisphere, always triggered by auditory and tactile stimuli, which were mostly isolated, but were occasionally grouped in 2-3 second bursts. In the complementary tests, general biochemistry, CBC, lipid study, thyroid function, autoimmunity (ANA, antimitochondrial antibodies, anti-smooth muscle, anti-parietal cells, anti-LKM, anti-aCL IgM, anti-aCL IgG), and CSF examination were normal. The

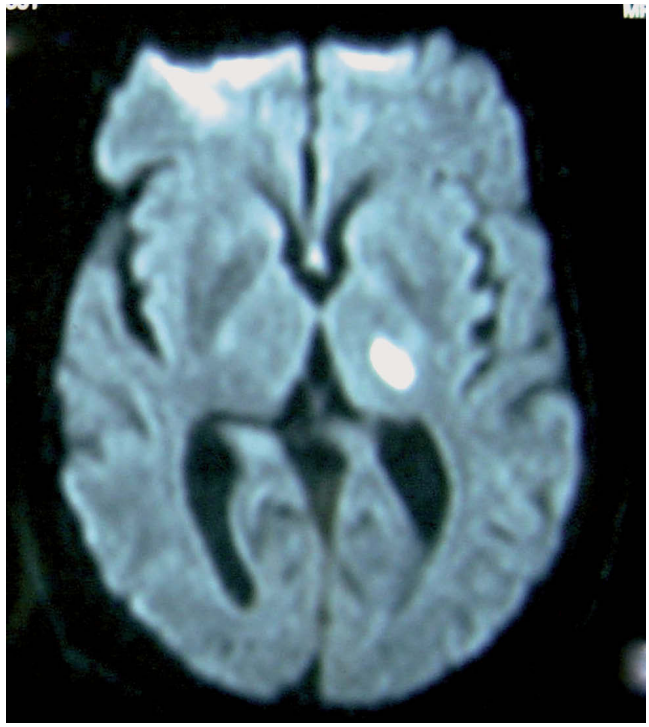

Figure 1 Diffusion sequence of magnetic resonance imaging with hyperintense lesion in the left capsulothalamic region.

electrocardiogram and chest radiography showed no abnormalities. The diffusion sequence of the cranial magnetic resonance revealed a left, capsulothalamic, hyperintense lesion compatible with acute ischemic stroke (fig. 1). Doppler ultrasound of the supra-aortic trunks