Multiple life-threatening relapses in a woman with primary angiitis of the central nervous system mimicking brain tumour: a case report

Sirs,

Primary angiitis of the central nervous system (PACNS) is a rare immune-mediated inflammatory disease affecting small and medium-sized blood vessels of the central nervous system (1-2). In 4–15% of cases a solitary brain mass lesion represents the neuroradiological manifestation at the onset of PACNS (2-5).

We report the atypical case of a 50-year-old woman, with no remarkable medical history, that presented sub-acute onset of speech disorder, headache and apathy in May 2008. Brain MRI showed a lesion in the left frontal lobe surrounded by copious oedema (Fig. 1a). Despite the absence of fever and elevated inflammation markers, the lesion was interpreted as a brain abscess, and treatment with antibiotics and antimycotics was started. Within a few days, the neurological conditions of the patient deteriorated with coma, right hemiparesis and epileptic seizures. MRI revealed a dramatic increase of the lesion. A brain tumour was suspected and the patient underwent neurosurgery for resection of the lesion (Fig. 1b). The histological examination showed lymphocytic inflammatory infiltrate, oedema and fibrinoid necrosis of small blood vessels, indicating the diagnosis of PACNS.

Therapy with steroids and cyclophosphamide (1 g/monthly up to a total dose of 9 g) was started with full recovered of vigilance and motor skills. A maintenance long-term therapy with mycophenolate mofetil was started. However, in October 2009, MRI revealed a new lesion in the right frontal lobe (Fig. 1c). An aggressive treatment was started again with a combination of steroids and cyclophosphamide. A severe clinical relapse occurred two months later with deterioration of vigilance up to coma and left hemiplegia. MRI disclosed an increase in inflammation and oedema mainly in the left temporo-occipital-parietal regions. The lesion on the right side increased such that the corpus callosum was involved, with severe mass effect (Fig. 1d). Infliximab was administered at the dose of 3 mg/kg in association to methotrexate 10 mg/weekly with full recovery of vigilance and reduction of motor impairment, despite a residual mild left hemiparesis, emotional lability and depression. After two months, a further relapse occurred with increased speech disturbances, epileptic seizures and increase in size of the left periventricular lesion. Rituximab was then administered (1g in February and March 2010), but we observed a new dramatic relapse with coma and left hemiplegia. MRI examination showed an increase in cerebral oedema and signs of disease activity of right lesion surrounding the corpus callosus (Fig. 1e). Considering the poor response, endovenous cyclophosphamide was started again with some benefit. In August 2010, the neurological picture was dominated by moderate cognitive impairment and speech disorder, but hemiplegia was fully recovered. Neuroimaging showed a lesion load similar to April 2010 with a slight reduction of oedema (Fig. 1f). Nevertheless, in January 2011, during therapy with endovenous cyclophosphamide, another catastrophic relapse occurred with left hemiplegia and worsening of speech disorder. Brain MRI showed new lesions and an increase of oedema. In order to stop the progression of the disease, some pulses of plasmapheresis were performed (initially 3 times a week) in association with monthly cyclophosphamide and corticosteroids with mild improvement of motor deficit and stabilisation of the clinical picture. To date, the patient has a left hemiparesis, speech disorder and moderate cognitive impairment. The patient continues treatment with plasmapheresis every 3 weeks, cyclophosphamide (1 g/45 days) and low dose corticosteroids.

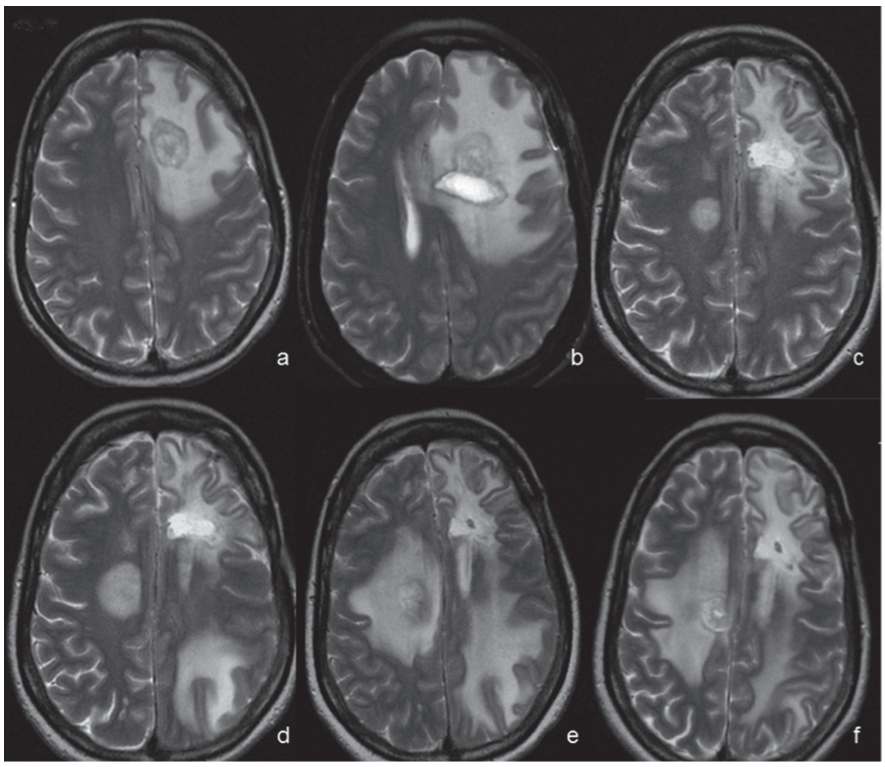

Fig. 1. MRI follow-up of brain lesions. T2-weighted images.
(**a**) shows a left frontal lesion surrounded by conspicuous oedema, with consequent mass effect on cortical sulci. The MRI appearance was compatible with a cerebral abscess.
(**b**) Since the lesion was unresponsive to antibiotic therapy, the suspicious of brain tumour was formulated thus the patient underwent neurosurgery. The resulting post-surgical cavity is seen in the figure.
(**c**) The MRI examination performed after fourteen months unveiled a new lesion in the right frontal white matter.
(**d-e**) Notwithstanding an aggressive therapy, a further progression of cerebral lesions with increased oedema and increased mass effect was observed.
(**f**) After the introduction of immunosuppressive therapy with i.v. cyclophosphamide, the clinical condition slightly improved and MRI examination performed after six months documented a stabilisation of the brain lesions with reduced peripheral oedema.

This rare form of PACNS mimicking a brain tumour represents a further case to be added to the small series in the medical literature (5-7). The treatment of this specific subset of PACNS is generally not different from that used for most cases of PACNS but in our patient first and second-line immunosuppressive therapies failed (8-10). Treatment with plasmapheresis has never been used before in PACNS.

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