CONFLICT OF INTEREST STATEMENT
The Kennedy Institute received a research grant and payment (according to the number of patients) for clinical trials of an anti-TNF antibody from Centocor Inc, Malvern, Pennsylvania, USA. Professor Maini has acted as a consultant.

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REFERENCES

Shrinking central nervous system in systemic lupus erythematosus
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N europsychiatric manifestations of systemic lupus erythematosus (SLE) are diverse and heterogeneous.1 We report a patient who experienced a flare of SLE with subacute transverse myelopathy. Magnetic resonance imaging (MRI) showed atrophy of the entire central nervous system (CNS). Apart from psychos at SLE onset, there had not been any neuropsychiatric relapses. Progressive atrophy of the CNS should be recognised as an evolving feature of SLE, which may occur without overt neurological symptoms.

CASE REPORT
A 22 year old Chinese woman with SLE was admitted because of a 2 month history of progressive weakness in her legs and bladder dysfunction. Her SLE had been diagnosed 5 years previously when she presented with polyarthritis, malar rash, cytopenia, psychosis, positive anti-dsDNA, and anti-Ro. A computed tomographic (CT) scan of the brain and cerebrospinal fluid (CSF) findings were unremarkable. Steroid and cyclophosphamide were given, with complete response. She remained well while receiving prednisone and azathioprine maintenance. Five months before the current episode, she had a mild flare with leucopenia and fever, which was controlled by increasing the steroid dose.

On current admission, examination showed spastic paraparesis (muscle power grade 3/5). The arms were spared. Pain and touch sensation at the S4 and S5 dermatomes had diminished. A neuropathic bladder was present, but there was no optic neuritis or livedo reticularis. A CT scan showed atrophy of the brain and calcification of the basal ganglia (fig 1). MRI showed diffuse thinning of the entire spinal cord without abnormal signals in the intramedullary regions (fig 2). CSF analysis was normal and an oligoclonal IgG band was absent. Her anticardiolipin antibodies and lupus anticoagulant were repeatedly negative. The complement levels and white cell count were both depressed, but the platelet count was normal. High dose steroid, oral cyclophosphamide, and aspirin were given with partial neurological recovery after 4 months. Her urinary catheter was weaned and she could manage to walk with aids.

Figure 1 CT scans of the brain at SLE diagnosis (A) and current presentation (B).
DISCUSSION

Cerebral atrophy is reported in 32–71% of patients with SLE on CT/MRI scans and may develop rapidly after disease onset.2–5 The degree of cerebral atrophy does not necessarily correlate with neurocognitive functioning, disease activity, or duration.2–7 A case-control study demonstrated that cerebral atrophy was significantly more common in patients receiving long term corticosteroids than in healthy matched controls. The degree of atrophy was more severe in patients with SLE than in those without, indicating that factors intrinsic to SLE may also contribute. The greater severity of cerebral atrophy in patients with a history of neuropsychiatric SLE than in those without suggests that neuronal injury caused by previous immunological or vascular insult is an aggravating factor.3–5

Transverse myelopathy (TM) is rare in SLE, occurring in less than 2% of patients.6 TM in SLE is associated with the antiphospholipid antibodies, which are prothrombotic and may stimulate endothelial cell proliferation and intimal fibrosis, leading to bland vasculopathy.7,8 The commonest MRI findings of SLE related TM are cord swelling and longitudinal T2 hyperdense signals crossing multiple spinal levels.3,9 Spinal cord thinning has been reported as a late sequela of lupus myelopathy despite successful treatment.10 Several explanations have been suggested. Ischaemia as a result of vasculitis or vascular thrombosis may mediate damage and demyelination of the cord. Cross reactivity or direct binding of certain existing or as yet unknown autoantibodies to antigens of the CNS may mediate axonal damage and global demyelination. CSF levels of interleukin (IL)1, IL6, and interferon γ are raised in patients with active neuropsychiatric SLE.1 IL1 up regulates endothelial adhesion molecules and nitric oxide production, which may contribute to vascular inflammation and neuronal injury. IL6 stimulates neurotransmitter release and induces intrathecal synthesis of immunoglobulins. However, the exact role of cytokines in neuropsychiatric SLE remains speculative.

The incidental finding of CNS atrophy in our patient is apparently unrelated to the current episode of myelitis. The gradual evolution of cerebrospinal atrophy, the lack of ischaemic and inflammatory MRI signals, and the absence of antiphospholipid antibodies did not support thrombosis as the chief mechanism. Chronic use of steroids and neuronal insult at disease onset are possible explanations. Although the treatment and prognosis of CNS atrophy in SLE is virtually unknown, empirical aspirin and maintenance immunosuppression may be considered. Follow up MRI scans are needed to monitor the progress of CNS atrophy.

References