Neurological Manifestation of Vitamin B12 Deficiency

To the Editor:

A 38-year-old woman presented with progressive bilateral hand numbness and tingling of 3 months’ duration followed by more recent numbness of both feet. Her past medical history was unremarkable, and she drank 4-5 units of alcohol a week. Neurological assessment revealed glove-and-stocking paresthesia with impaired joint position and vibration sensation in toes and fingers, brisk deep tendon reflexes in upper limbs, and extensor plantar reflexes bilaterally. Full blood count revealed hypochromic macrocytic anemia (hemoglobin 10 g/dL, mean corpuscular volume 109.8 fl); white blood cell count, urea, and electrolytes were normal. Serum B12 level checked in view of the increased mean corpuscular volume was noted to be low at 72 pg/mL (normal range 191-663 pg/mL). A diagnosis of subacute combined degeneration was considered.

The patient underwent magnetic resonance imaging (MRI) of the spine. Sagittal MRI of the cervical spine (Figure, panel A) demonstrated abnormal high T2-weighted signal with local cord expansion in the dorsal aspect of the spine at the level C2-C6. Corresponding axial images (Figure, panel B) confirmed that the high T2-weighted signal was present in the dorsal columns of the spinal cord (a sign referred to as the “inverted V sign”). These findings were consistent with a diagnosis of subacute combined degeneration, and the patient’s symptoms considerably resolved over the ensuing months with parenteral B12 therapy. Subacute combined degeneration of the spinal cord represents an acquired myelopathy resulting from vitamin B12 deficiency. Vitamin B12 is integral to the myelination process and its lack or deficiency results in abnormal myelin formation or even frank demyelination, typically involving the dorsal columns but also at times the lateral spinothalamic tracts. T2-weighted MRI has high sensitivity

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Figure Sagittal T2-weighted MRI (A) shows abnormal high signal with local cord expansion in the dorsal aspect of the spine at the level C2-C6. The corresponding axial image (B) confirms that the high signal is localized in the dorsal columns of the spinal cord.
in providing diagnostic confirmation and represents largely reversible changes.⁴

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